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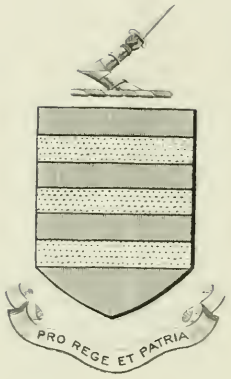

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Original Articles.

METHODS OF LOCALIZATION OF SPINAL TUMORS WITH REFERENCE TO THEIR MEDICAL AND SURGICAL TREATMENT.*

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WHEN we say spinal tumor and want to keep to the exact meaning of the expression we should only consider those tumors derived from the medullary axis itself, that is to say, intramedullary tumors. But this would be too narrow a conception, and therefore under the term "tumors of the spine" we must include all the new formations developed inside and around the spinal cord and revealing their presence from a clinical standpoint by a whole series of symptoms greatly resembling each other.

So, under this chapter of spinal tumors, we will include the tumors of the meninges, the tumors which are developed in the epidural space at the expense of the fatty matter or vessels contained in it, and even the tumors originating in the prevertebral region of the neck, in the thorax, or in the abdomen, in the last instance the tumors having ultimately penetrated this cavity. The bony tumors which have developed at the expense of the vertebræ and which are by certain writers classified in the same group, should, it seems to me, be put in another division and need only be studied for purposes of diagnosis.

Consequently the rational classification to be adopted is the following: (1) Spinal tumors, properly called, which have developed in the interior of the medulla. (2) Tumors of the meninges, involving the dorsal or visceral surface of the pia mater, arachnoid or dura mater. (3) Tumors which have developed at the expense of the morphological elements and tissues contained in the epidural space, the fat, the vessels, and the fibrous tissue. (4) Tumors coming from the outside and penetrating the epidural space through the foramina vertebralis.

This division is a perfectly rational one, being based on the genesis of the tumor, but is sometimes too schematic for clinical purposes. In taking this point of view, which is a most important one for the practitioner, we must restrict our classification to two types which are very different in their symptomatology, evolution, prognosis, and possibility of intervention. These types are first extramedullary tumors and second, intramedullary tumors. It may be stated at the outset that those belonging to the first class are the more interesting to study, since they can be exactly diagnosed at an early stage, and since they can be operated upon. We shall see that by careful study of their symptomatology and with the aid of recent discoveries one can arrive in most cases at a precise diagnosis of these extramedullary tumors and recognize if they are developed outside or inside the dura mater; this is an important point since the prognosis in the case of surgical intervention is singularly better in extradural tumors.

The etiology naturally varies according to the seat of the tumor. Of course it is understood that in the description of these different types I shall speak only of the primary tumors, because the metastatic tumors, either medullary or meningeal, which are not exceptional, represent the type of neoplasm from which they originate; such are epitheliomata of the breast, of the lungs and, above all, of the stomach.

A. Intramedullary Tumors.—These are rare and their types are the following: (1) *Glioma.* The infiltrating glioma sometimes spreads over a large surface of the cord and increases its diameter. It is a single tumor. The neoplastic tissue has characteristic morphological elements, which consist of numerous fibrillæ which do not anastomose, but form a network and neuroglia fibrillæ, with a predominance either of the cells or of the fibrillæ. This neoplastic tissue invades the medulla, destroys indiscriminately white and gray matter, and sometimes bulges at the periphery of the medulla. Under the term gliosis is described the proliferation of neuroglia similar to that present in syringomyelia, in which there is a central gliomatous mass, which secondarily and gradually forms the characteristic cavity of syringomyelia. This formation does not give the symptomatology of spinal tumors, and consequently will not be included under this classification. (2) *The tubercles.*—The Spinal tubercle may be single (solitary tubercle) or multiple, but it is very rare. Very often the tuberculous tumor of the cord is associated with tuberculosis of the spinal bulb, midbrain, cerebellum, and cerebrum. The tubercles are formed by short, round masses which, because of their centrifugal development, produce an increase in the volume of the cord, which is sometimes double in volume in the region occupied by the tubercle. The development of the tumor takes place in the center of the cord. Its substance is pushed toward the periphery and sometimes reduced to the size of a very thin layer of nervous tissue. Notwithstanding this apparently enormous destruction of tissue, there is sometimes more than a destruction; there is a displacement of the different elements of the cord. Very often the tubercle develops itself on the half of the medullary segment in which it is located. The tubercle can grow in any part of the spinal cord, but it is most frequently found at the lower end. (3) *Fibroma, neurofibroma,* and *fibrosarcoma* are very

*Read before the Academy of Medicine, Section of Neurology, on January 14, 1913.

rare as intramedullary tumors. There are sharply defined growths central or peripheric, most frequently associated with tumors of the cranial nerves, of the roots and of the peripheral nerves. They constitute the so-called diffused neurofibrosarcomatosis (von Recklinghausen's disease.)

B. Tumors of the Meninges.—(1) *Fibromata* are frequent but rarely pure, being mostly associated with sarcoma or with myxoma. They include fibrosarcoma, fibromyxoma, and fibromyxosarcoma. They are more frequently intradural, and arise from the dura mater and delicate membranes or from nerve roots. The solitary fibroma is not larger than a plum stone. It is firm and grows slowly. It is not adherent to the dura mater, but is generally attached to it by a small vascular ligament. It develops very often at the posterior surface of the cord or on the side between the anterior and posterior roots, which it presses and distends. In multiple fibroma (neurofibroma) very often the peripheral nerves, the spinal nerve roots within or outside the dura mater, and the cauda equina are affected. Sometimes the tumor invades the cord. Once taken out these tumors do not recur. Most probably they are congenital malformations. (2) *Angiosarcoma,* psammoma, endothelioma, and psammomatous endothelioma are terms applied to the same variety of tumors and all are equally frequent. They are not perfectly round growths, but are lobulated new formations, independent of the cord and dura mater and very often adherent to the roots and vessels. They develop very slowly, generally commencing in the inner surface of the dura mater, and often compressing the cord without invading it. The histological structure consists of small, flat cells, which often have a concentric arrangement with very little intercellular tissue, but with numerous round masses which become very strongly stained and around which the cells are disposed in concentric layers. These masses are considered by some pathologists as old vessels, which explains the term angiosarcoma, but these growths should be regarded as formations identical with those of the epidermic globules. So it is preferable to call them psammomatous endotheliomata. (3) *Neurofibrosarcoma,* which has been already referred to in the case of the intramedullary tumors, are multiple tumors and are disposed on the roots and on the cauda equina. They are very rare, do not give the real symptoms of spinal tumors, and cannot be operated upon because they are multiple. (4) *Sarcomata* are found very seldom as pure sarcoma on the soft meninges; more frequently they are tumors of the dura mater, especially developed on the external surface. Very seldom a well defined new formation, it invades the layers of the dura mater without traversing it, and reaches its interior surface. The round cells are pressed together and separated by fibrous membranes and adhere to the dura mater, forming masses which cover the dura mater over a large area and all around it with a predominance on the posterior surface. These masses cover also the roots and in some cases pass with the ganglia through the vertebral foramina. The fascicular sarcoma of the nerve roots grows slowly, causes no metastatic growths, and usually does not invade the cord, but affects it only by compression. (5) *Lipoma* is very seldom pure, is more frequently constituted by a deposit of fat around the tumors of vascular origin (angiolipoma, fibrolipoma) and is generally developed in the epidural space. It forms an elongated growth, sometimes from two to five inches in length, and can develop also in the interior of the dura mater and only exceptionally in the cord. In this case there is a deposit of fat around the old lesions of phlebitis, arteritis, and meningitis. (6) *Angiomata* and hemangiomata are seen frequently in the soft meninges and are associated with the fibroma (Flatau.) (7) Neurofibroangioma cavernosus are apparently classed with the fibromata. The only important difference is the development of the vessels. As regards the presence of nerve fibers these are probably fibers pertaining to the roots which are placed at the surface of the tumors. (8) The *other variety* of tumors sometimes observed include the osteomata myomata and enchrondromata, which are only exceptionally found.

Pathological Anatomy.—I shall not enter into histological details of which I have sufficiently spoken. I shall not describe in detail the meningitic and medullary lesions caused by tumors, but shall refer only to the important facts from a clinical point of view. The principal difference between the lesions caused by intra- and extramedullary tumors are as follows: (a) In the case of intramedullary tumors the growth in developing dissociates and presses on the different anatomical elements forming the medulla and destroys them. The gray matter being particularly frail is the first to be affected by the growth, but in the majority of cases these tumors develop in the center of the cord and arrive only secondarily at the periphery. They often destroy one-half of the medulla, giving rise to a Brown-Séquard syndrome. But it is to be noted that tubercles often do not destroy so much as press together and push the different constituting anatomical elements of the medulla towards the periphery, while as a rule in intramedullary tumors the lesions of the white and gray matter are destructive. It is the contrary in the case of extramedullary tumors. These destructive lesions manifest themselves in the degeneration of the descending column below the seat of the tumor (lateral column, crossed pyramidal tract) and of the ascending column above the tumor (Goll's and Burdach's columns, direct cerebellar tract and tract of Gowers). These destructive lesions are accompanied by edema in the compressed part of the cord; the nerve sheaths at the periphery of the tumors are swollen thrice in volume forming voluminous non-colored sheaths. These phenomena precede the phenomena of destruction.

(b) In the case of extramedullary tumors the destructive lesions are exceptional, and can only be seen when the very voluminous neoplasm has evolved during a period of many years. It is not rare to observe that a cord after a compression lasting five or six years presents nothing else than a deformation, sometimes very marked, with slight marginal demyelinization. Notwithstanding that the spastic frequently intense paraplegia is accompanied by contraction in flexion, the degeneration of the motor columns is never found. What we generally find is: (1) A deformation of the medulla, generally lateral or posterolateral, the cord being compressed in one point by the tumor. (2) Edematous lesions which are sometimes very considerable, the nerve fasciculæ being swollen and transparent with the sheath sometimes partially demyelinized, at the level of the compression. (3) Marginal demyelinization spreading over the whole length of the medulla and having its

maximum at the level of the compression is not peculiar to tumors and is seen in all forms of compression, for instance, in pachymeningitis. The meninges are generally but slightly touched, the pia mater being sometimes slightly thickened. In cases

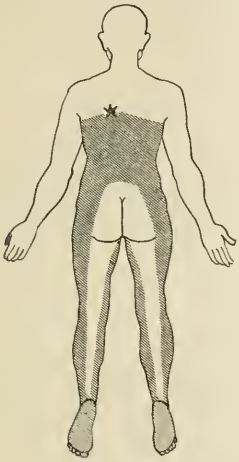

Fig. 1.—The sacral roots are not involved. The * indicates the posterior aching point

of extradural tumor on the contrary, the dura mater is gentrally attacked, and the tumors adhere to its exterior surface, often sending fibers into the interior.

Clinical Study.—The symptomatology of these tumors resembles a good deal the symptomatology of compression of the cord having a slow evolution, but from the clinical as well as prognostic and therapeutic viewpoints, one must distinguish the extra- from the intramedullary tumors, and the present methods of examination render possible a differential diagnosis between these two types.

I. Extramedullary Tumors.—Onset very slow and insidious, occurring in people between the ages of forty and fifty, sometimes in younger people. The first symptom to appear is generally pain which is the result of irritation and compression of the posterior roots. This pain consists of an aching

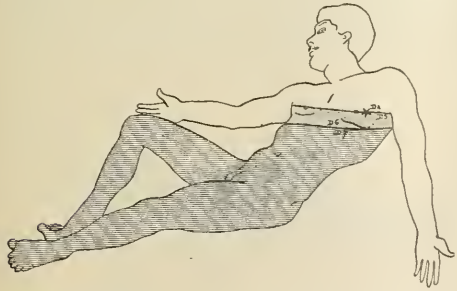

Fig. 2—Progressive paraplegia. Anesthesia of the lower extremities and of the trunk extending up to the level of the 4th or 5th dorsal roots; reflex movements of defense extending to the level of the 6th or 7th dorsal roots. Extramedullary, intradural tumor; operation, cure. The * indicates the anterior aching point.

point or spot of remarkable fixity, situated in the posterolateral part of the thorax, sometimes even in contact with the vertebral column. (Fig. 1.) Very often this posterior aching point is accompanied by a second one situated at the same level but more anteriorly, for instance, in the mammary or in the abdominal region. (Fig. 2.) The pain in these spots is fixed, continuous, and of a neuralgic character, and is generally increased by movements such as deep breathing, coughing, sneezing, or any effort or strain, and being of a neuralgic type, comes in crises and causes at intervals terrible suffering. Strong pressure as a rule does not make it worse, sometimes even calming it, while, on the contrary, any soft rubbing, as the contact of the shirt, is very often insupportable and cutaneous hyperesthesia can be noted at the level of the aching spot. It is very often the only symptom shown during months and years, yet at the end of a certain time, disorders of sensation, slight, but indisputable, can be noted. These consist of painful hypoesthesia, thermic and tactile on a nerve-root zone, corresponding to the painful spot and to the seat of compression. If the tumor is at the level of the upper cervical region, one will find a zone of hypoesthesia, thermic, tactile, and algesic on the external surface of the arm with an aching point on the posterior cervical region. At this period of evolution of the tumor, we are in presence of a nerve-root inflammation. This phase, that we may call *nerve-root phase,* is sometimes very long and sometimes becomes even bilateral, before the medullary symptoms appear.

Fig. 3.—Patient operated upon for an extramedullary intradural tumor involving the 4th to 6th cervical roots.

This occurrence is very rare. Generally with the nerve-root symptom, we note the gradual appearance of muscular atrophy, which also has a nerve-root topography, and taking the preceding case as an example, we will understand the gradual development of the atrophy of the deltoid, biceps, and long supinator muscles (paralysis of the type Duchenne-Erb (Fig. 3.) The exact determination of the aching spot, of the zone of hypoesthesia or anesthesia, and the topography of the muscular atrophy constitute the most important data for a topographical diagnosis of the tumor. The appearance of weakness in the lower limbs and sometimes in all the limbs is the first indication of the cord compression, and marks the beginning of the second phase in the evolution of the tumor. A progressive paraplegia follows. (Figs. 2, 3, and 4.) In the beginning it is always a leg which is paralyzed, the paralysis being more like a paresis. The leg is heavy and above all stiff: in fact, as the diminution of strength appears, the muscular contraction begins and results in a paraplegia. Muscular strength is above all affected in the muscles of the foot, particularly in the extensors. In the thigh the flexors are more affected than the extensors, but there is no marked paralysis. Mobility is compromised by the contracture which causes a spasmodic

gait at least in the case of one leg, which drags on the ground. After a short time paraplegia sets in, both lower limbs becoming involved, but the characteristic of this form of paraplegia is that the paralysis is mild while the mus-

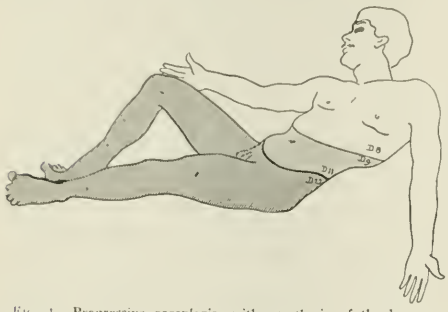

Fig. 4.—Progressive paraplegia, with anesthesia of the lower extremities, extending to the trunk as far as the level of the 8th or 9th dorsal vertebræ. The reflex defense movements exist up to the level only of the 11th and 12th dorsal vertebræ. Extradural sarcoma of the spinal cord.

cular contracture is very marked. Contracture becomes more intense every time the patient tries to make a movement or we try to move a portion or segment of one of the limbs.

Involuntary movements cutaneous reflexes of defense. At times and independently of the will, movements are produced consisting of dorsal flexion of the foot on the leg, flexion of the leg on the thigh, and of the thigh on the pelvis. These movements are almost always accompanied by the extension of the big toe and a certain degree of fan (Babinski). They take place very often while the patient is in bed, and they impress him so much that he complains of it to the physician. They come on spontaneously, or more often follow a very slight cutaneous stimulation. It is this phenomenon that Babinski has named the "cutaneous reflex movement of defense." The movements can be provoked by stimulating the skin in the region situated below the point compression, either by pinching or pricking the skin, or by the application of heat or cold. The cold seems to produce a more active reaction, but these movements are not obtained by stimulation of the skin in the region above the compression and, if they should take place, they would only be voluntary movements responding to an acknowledged sensation. The real reflexes of defense are movements which take place independently of the will and without the perception by the patient of the thermic or tactic stimulation used. It is very important to establish with exactitude the extreme superior limit at which the stimulus brought to the skin can still produce a reflex of defense, the superior line delimiting the zone within which we can provoke the reflex of defense also representing the inferior level of the tumor. It is to be remarked that the reflexes of defense which are so easily provoked on the lower extremities are more difficult to produce the higher we bring the stimulus on the abdomen and thorax. However, there are cases of compression situated high up on the cord in the superior cervical region (pachymeningitis cervicalis pressing the superior cervical roots), in which the reflexes of defense are provoked in bringing the stimulus as high and as far as the inner side of the arm and forearm. (See scheme of Fig. 6.) Of course it is to be remembered that in order to fully appreciate the value of the reflex defense it is necessary to obtain it by stimulating the zone of the skin already rendered anesthetic by the compression.

The tendinous reflexes undergo modifications according to the seat of the compression by the tumor, so they may assume different characters, according to the region of the spine affected. It would take too long to describe separately the conditions of the tendinous reflexes according to the different segments of the spine, but we may say that, as a rule, these reflexes are abolished at the level of the compression itself (if the tumor is in a region of cord enlargement), that we have the inversion of the reflex of the radius when the compression is situated on the fifth or sixth medullary segment, and that the reflexes are generally exaggerated below the compression, with a predominance on the side most affected giving rise to the trepidation rotulæ and clonus, otherwise known as spinal epilepsy. Very seldom we have the Mendel-Bechterew reflex.

The cutaneous reflexes are generally abolished, or at any rate strongly attenuated at the level of the compression and below it. It is to be noted that the difference between the abdominal reflexes may be useful for the topographical and differential diagnosis in the case of tumors of the dorsal region. Babinski's sign is always present at a very early date of development of the tumor.

Sensibility, like motion, is affected at an early date, but the troubles of sensibility will very soon predominate over those of motion. Pains exist from the beginning and consist not only of a fixed aching point but also of irradiation along the whole internal and external surface of the arm, along the thorax (sensation of corset-like constriction), and around the waist (belt-like constriction), and even shooting pains in the lower limbs, according to the seat of compression. As regards anesthesia, I wish to speak of the anesthesia of the lower limbs, spreading higher toward the thorax and affecting sometimes the four limbs. This form of anesthesia of the lower limbs has a peculiar character. At the beginning it is only to be found in one-half of the body, that is to say, on the side less affected in motion (Brown-Séquard). All sensations are affected but especially the superficial sensations.

Superficial sensibility. The different modes of sensibility exist in different degrees. The tactile sensation is almost intact or a slight hypoesthesia is noticeable. The sensation of pain is more affected; the pain most of the time is not felt, or, if felt, zones of paresthesia are present. Thermal

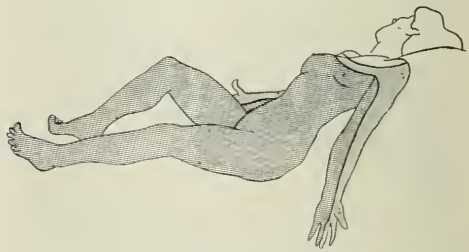

Fig. 5.—Cervical pachymeningitis; heavy shading reflexes of defense; light shading sensation.

sensation is altered: the sensation of heat is generally well preserved or only slight variations are noticeable. The cold is generally not perceptible, or, if so, is felt as heat. The upper limit of anesthesia should be exactly determined. It has the

form of a transverse or oblique line from front to back, and from the lower to the upper part of the thorax and abdomen, and the form of a longitudinal line on the limbs; these lines correspond to the projection on the body of the destroyed medullary areas; we know, in fact, that medullary and nerve root topography enter each other's dominion and are easily confounded. The superior limit of the

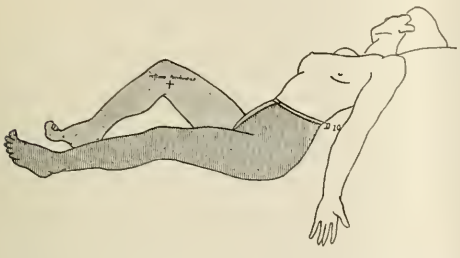

Fig. 6.—Spasmodic paraplegia, especially marked on the right side; anesthesia of the lower extremities and of the trunk as far as the 10th dorsal vertebra, especially marked on the life side (Brown-Séquard). The defense reflexes are very marked in the lower extremities and on the abdomen their upper limit almost exactly coincides with the upper limit of the disturbances of sensation. A case of intramedullary tubercle at the level of the 10th dorsal segment.

anesthesia will then give the location of the upper part of the tumor, while the upper limit of the reflex movements of defense gives the lower limit of the tumor or agent of compression. (See Figs. 1, 2, 3, 4.) Deep sensibility may also be affected with the loss of the sensation of vibrations. This anesthesia and hypoesthesia are not everywhere of the same degree; in fact, Babinski and Tarkoswsky have shown that some regions are less affected and some are absolutely intact. These are the lower sacral areas, especially in tumors highly situated, and are generally the area of S^3, S^4, and S^5 (see Fig. 1). Above the upper limit of the hypoesthesia is found a zone of one or two medullary segments in which sensibility is not intact; they are medullary segments in which the phenomena of edema and compression are still felt. The sphincters are not affected for a long time. The only troubles are symptoms of irritation, difficulty, or slowness in urination, but never incontinence unless the tumor compresses the lumbar enlargement. Constipation is the rule.

Trophic Disorders.—Very seldom edema or cyanosis of the lower extremities occur. Bed sores

Fig. 7.—Different degrees of flexion paraplegia.

are exceptional. The muscular atrophy if existing at the beginning never makes much progress, in fact atrophy only exists at the same level of the compression and has always a nerve root topography. The evolution is very slow but progressive. The

paraplegia is accentuated and the contracture gradually increases until the patient reaches the stage of paraplegia with flexion. (Figs. 7 and 8.) After several months the flexion may become permanent because of the tendinous and periosteal adhesions formed which cannot be broken even under chloroform. At this stage the tendinous reflexes appear to have been apparently abolished but this is only due to the continuous contracture and to the retractions formed. If the limbs cannot be stretched more than two or three centimeters they can at this period still bend and the reflex movements of defense still exist either spontaneously or may be provoked. At this period anesthesia is almost complete. The impairment of the sphincters increases and the patient must be catheterized. If the patient is well taken care of the bed sores will not appear unless great emaciation exists. The general state remains good; there is no rise of temperature, and the pulse is normal. There are patients who remain in bed for fifteen or twenty years and who die only if complications set in, such as bladder infection from catheterism, or pulmonary infection from prolonged decubitus. At this late period all the symptoms of pain have generally completely disappeared.

II. *Intramedullary Tumors.*—Naturally we shall only consider isolated tumors; the multiple ones giving a symptomatology too complex to describe. One may take as a type the tubercle of the cord. Onset: Here also, as in the case of the extramedullary tumors, the onset is slow and insidious and varies according to the seat of the neoplasm. An important point to note is that the nerve root stage so well defined in extramedullary tumors is completely absent in these cases. Pain is rare and if existing is diffused, varying from one moment to the other and not being of that fixed character so important an element in the diagnosis of the extramedullary tumors. Paraplegia is also progressive but of a very rapid evolution, being preceded and accompanied most frequently by a Brown-Séquard syndrome. Mobility is much more affected. Paralysis is real. Contractures also exist unless the tumor is located in the lumbar enlargement of the spine, but these contractures do not, as those produced by the extramedullary tumors, predominate over the paralysis. The stage of complete paraplegia appears very rapidly. Sensibility of every mode is greatly affected at the beginning, being greater on the side opposite to the paralysis at least for the superficial sensibility, but deep sensibility is affected on the

Fig. 8.—Flexion paraplegia complete.

same side as the paralysis (real Brown-Séquard). Afterwards lateral paralysis occurs with its maximum always on the same side. The tendinous reflexes are exaggerated below the compression as in the previous type. The reflexes of defense have

the same character. The impairment of the sphincters appears earlier and is more accentuated. Bed sores as well as the edema and cyanosis of the lower limbs may appear very rapidly; in other words the sensory and motor paralysis have a very rapid evolution and are particularly marked.

Evolution.—After a period of four or five months the paralysis becomes complete. The patient cannot leave his bed and the contracture in flexion ceases. After six months, one year, or eighteen months at the most death occurs, being preceded by severe impairment of the sphincters, deep bed sores, and sometimes even symptoms of flaccid paraplegia if the medulla has been completely interrupted.

Clinical syndrome according to the topography and nature of the tumor: In order to classify clinical syndromes according to the topography and nature of the tumor one must bear in mind the fact that in the case of extramedullary tumors the chief symptoms are the result of the compression exercised by the tumor on the cord, while in case of intramedullary tumors the chief symptoms prevailing are those due to destruction of the morphological and anatomical elements constituting the medulla. These two symptomatologies overlap each other's dominion and the work of the clinician in order to reach a precise diagnosis is a work of discrimination, establishing which of the two manifestations, compression or destruction, is the prevailing in the case examined.

Tumor located in the superior cervical region, 1, 2, and 3 C., between the bulb and the cervical enlargement: Quadriplegia spastic in the upper limbs and flaccid in the lower limbs. The upper limbs are contracted, the arm is close to the thorax, the forearm is flexed on the arm, and the fingers are flexed on the hand. The reflexes exaggerated in the upper limbs. Epileptoid trepidation of the hand occurs. But the two symptoms characteristic of the localization of the tumor in this region are: Bradycardia or slow pulse accompanied sometimes by syncopal and epileptic attacks, and paralysis of the phrenic nerve with its characteristic symptomatology. The muscles involved in an atrophic and sensory way are those of the neck and shoulder. Rotation-flexion extension of the head and painful torticollis also occur.

Inferior Cervical Region 5, 6, 7, and 8 C., and 1 D. (cervical enlargement): Quadriplegia, flaccid in the upper limbs and spastic in the lower limbs. Atrophy of type Duchenne-Erb if 5, 6, and 7 are affected.

Paradoxical reflex of the radius if the 5th and 6th segments are affected. Atrophy of the type Klumpke (thenar and hypothenar eminences) if 8 C. and 1 D. are affected. Myosis, exophthalmus, and narrowing of the palpebral fissure occur. Vasomotor troubles of the face occur on the same side. If the syndrome shows involvement of all the cervical nerve roots we are in the presence of a pachymeningitis.

Dorsal Region: Spastic paraplegia, if there is no total interruption of the medulla. Flaccid paraplegia occurs if the interruption is complete. Troubles of sphincters (retention).

Lumbar Region: (Lumbar enlargement between 10 and 11 D.)

Flaccid paraplegia occurs during the entire course of the disease, with retention of urine—constipation.

Sacral Region 5 L. and 1 and 2 S.: The symptomatology is very complex. The medullary and nerve root symptoms are frequently associated. Paraplegia is always flaccid and is accompanied by muscular atrophy when the degeneration of the anterior roots begins. Deformity occurs according to the predominance of atrophy over paralysis in the case of the different muscular groups.

Inferior Sacral, 3, 4, and 5 S.: No paralysis or atrophy. Special topography of the anesthesia. Impairment of the sphincters and impotence predominate.

Diagnosis.—This varies according to the extra- or intramedullary type.

A. *Extramedullary tumors:* a. Is it a case of compression? The answer is in the affirmative if there are disorders of sensibility, an evolution by nerve roots and medullary stage, and a paralysis which is slight compared to the contracture. b. Is the compression due to a tumor or to a pachymeningitis? This diagnosis is especially difficult in the case of extramedullary tumors which are always spread over a large surface. The pachymeningitis (Fig. 5), either syphilitic or tuberculous, gives nerve-root signs which are very marked and extend over a large area, the process of compression involving sometimes 5, 6, 7, 8, and sometimes more roots. The disorders of sensibility, excepting those existing on the area of the roots compressed, are much less marked excepting in the case of Pott's paraplegia. In such a case the differential diagnosis is determined by the pain in the vertebral area affected; the contracture of the spinal muscles; the evolution which is much more rapid and is generally acompanied by a state of general bad health (an extramedullary tumor lasting for years); the lumbar puncture which generally reveals an abundant lymphocytosis; and the Wassermann reaction which may be positive. Pott's disease isolated without pachymeningitis is exceptional and even in cases of great malformation gives no symptoms of compression.

Vertebral Cancer: This causes painful paraplegia, the very painful paraplegia of old age. Other cancerous localization may guide us in the diagnosis, as sometimes there may be a secondary tumor of the medulla. The evolution is rapid; it may even have a flaccid paraplegia owing to the destruction of a large number of roots. In the case of a tumor pressing on the medulla, the question arises, is it extra- or intradural? In favor of an extradural tumor but always as a symptom of probability, is the large surface covered by the tumor; knowledge is obtained by the situation of the two lines, superior and inferior, the one marking the extremest level where the sensibility begins to be altered, and the other marking the level in which the stimulus brought to the skin can produce a reflex movement of defense. (Fig. 4.) In case of a small and short tumor these two lines will almost be superimposed each upon the other, while in the case of a long tumor the two lines will be separated by a space from ten to fifteen inches long. (Fig. 3, 4, and 6.)

B. *Intramedullary Tumors:* In the case of tumor, the diagnosis is very easily and quickly made, owing to the progressive paraplegia. (a) *A transverse myelitis* has not the same evolution; it appears generally suddenly and if it develops progressively we have always phenomena of a characteristic intermittent claudication of the spine. The movements of defense are generally absent; the troubles of sensibility exist only during the first few days or are entirely absent. We have, besides, symptoms of meningeal irritation demonstrable by the lumbar puncture. One should look for lymphocy-

tosis, albuminuria, and a Wassermann reaction. *Syringomyelia* is easily differentiated on account of its evolution and the dissociation of sensibility. What is the nature of the tumor? In the case of a young subject who has had symptoms of tuberculosis the growth may be a tubercle or one in evolution? In a subject already suffering from a malignant growth it may be a secondary metastatic neoplastic formation of the same nature but localized in the spine. What is the seat of the tumor? The clear knowledge of the clinical syndromes above mentioned, combined with the exact delimitation of the zone of anesthesia above and of the reflex of defense below, and the zone of the medulla involved in the pathological process will always enable one to localize with precision the seat of the tumor. The evolution of the affected zone, joined to the biological examination of the spinal fluid will establish the nature of the tumor or affection.

Reactions of the Spinal Fluid.—The opinions of clinicians on the value of the Wassermann reaction on the spinal fluid have greatly changed in recent years. Their views on the matter have principally been the consequence of the different aspects under which the reaction has been studied, and the results obtained have not always been identical. So, for instance, Nonne of Hamburg stated that in a hundred per cent. of cases of patients having a syphilitic history, the Wassermann reaction of the spinal fluid is always positive. This conception of Nonne taken up by other clinicians ended in creating more radical ideas, making some of them state with earnest conviction that a negative Wassermann reaction of the spinal fluid excludes absolutely syphilitic infection in the patient, but observations of a very recent date made by very prominent observers have brought forward another statement very embarrassing to the neurologists, and that is, that in case of tumors of different nature of the spinal cord and brain, and in case of compression, the examination of the spinal fluid gives almost always a positive Wassermann reaction. This statement, corroborated by true clinical documents, brought naturally some confusion in the interpretation of the Wassermann reaction. Can we explain this fact? Or must we state, as others have already tried, that the Wassermann reaction is not the exponent of syphilis but of conditions of the blood serum that may exist outside of syphilitic infection? To find an explanation, we must take a step back and consider the spinal fluid in its relation to the blood serum.

The spinal fluid, the hydraulic shock absorber and neuro-protector of the brain and spinal cord, is confined to a system of two cavities, viz., the ventricular cavity and the subarachnoid spaces; and is the product of dialysis of the blood and lymphatic serum through serous membranes forming the walls of said cavities, viz., the ependyma forming the ventricular cavity, and the endothelium forming the subarachnoid spaces.

Dialysis is a condition common to all membranes and is a product of several conditions. (a) A constant one which is the attraction that all animal membranes exert on the liquids with which they come in contact. The other factors are variable, that is to say: (1) The pressure and the density of the fluids in contact with the membrane. (2) The permeability of the membranes, due to their special structure and to the changes taking place in their porosity on account of the physiological or pathological conditions arising. Consequently, the process of osmosis may undergo changes for several reasons. Either because of changes in the pressure and density of the fluid in contact with the membranes or because of the changes in their permeability. In the majority of affections of the nervous system we know that the soft meninges, that is to say the serous membrane enveloping the brain and spinal cord, undergo a process of inflammation either acute or chronic. This inflammatory process is proper to the soft meninges and will affect neither the density nor the pressure of the fluids creating the osmotic currents. In which way then will this inflammatory process affect the meninges? Only in one way, and that is by changing their permeability.

My experience with the Wassermann reaction of the spinal fluid and blood serum is, that to a positive Wassermann reaction of the spinal fluid there does not always correspond a positive Wassermann reaction of the blood serum. Also to a positive reaction of the blood serum there does not necessarily correspond a positive reaction of the spinal fluid. These two conditions are then, from a clinical standpoint and from the pathological as well, independent. I do not doubt that every student of the Wassermann reaction has found the same condition. These facts are not contradictory, but only demonstrate that at the base of the Wassermann reaction of the spinal fluid exists a biochemical condition of the meninges which, by itself alone, can explain why the two liquids differentiated only by an osmotic process, should give at times a different toxic reaction in the presence of an identical toxic process. This biochemical condition is the permeability of the meninges which only in special conditions to be determined allows the antibodies contained in the blood to pass into the spinal fluid. This condition is realized by the inflammation of any serous membrane; inflammation which resolves itself into an increased permeability of said membrane. What is true of the peritoneum or of the pleura or pericardium is also true of the meninges; so much so that the old Italian clinician, Cantani, admitted that in certain cases the inflammation of one serous membrane of the body would carry with it the inflammation of all the serous membranes and called the syndrome the Poli-orro-menitis. It is for this reason that many of us in examining patients affected by tumors of the spine specially, have found the positive Wassermann reaction of the spinal fluid, when the reaction of the blood serum was negative and when the history of the patient in what concerns syphilis was, of course, as usual, negative, obscure, or noncommittal. We must admit as an axiom that the patient giving a positive Wassermann reaction has had a syphilitic infection even if he denies it; and if a patient having always given a negative reaction of the spinal fluid suddenly gives a positive one, it demonstrates that in him an inflammatory condition of the meninges is in action, so the only way we can interpret the fact is that the patient affected by spinal tumors or compression of the spinal cord gives a positive Wassermann reaction of the spinal fluid, because either the tumor or the process of compression, by irritating the meninges, has increased their permeability and allowed in such a way the antibodies contained in the blood to pass into the spinal fluid, while the same antibodies would not pass if the meninges were in a normal condition. One may ask, then, why should the blood also not give a positive reaction? Evidently because the antibodies while in the blood find themselves in suspension in a large mass of fluid whereas in the spinal fluid they find themselves in suspen-

sion in a very concentrated quantity of liquid, 60-80 c.c. at the most, and consequently in better condition to show their toxicity when tested for the Wassermann. When we have accepted after five years' experience that the positive Wassermann means syphilitic infection, we cannot create an exception for the reaction of the spinal fluid in spinal tumors. We must then conclude that the positive Wassermann in the spinal fluid, when the other symptom already exists, may be considered as a confirming index of the presence of a tumor or a compression in the spinal cord and will also give the useful information that a remote syphilitic infection is accompanying or is substratum of the pathological condition that we have detected.

Another bit of information that this clinical fact gives and that I consider of great advantage is that a positive Wassermann reaction of the spinal fluid means always, as lymphocytosis does, an inflammatory condition of the meninges, while the positive reaction of the blood serum alone means only a syphilitic infection with a normal condition of the meninges. From the viewpoint of prognosis and therapeutics this information may be considered as a very valuable one.

Massive Coagulation; Xanthochromic Reaction.—Besides the Wassermann reaction, the modifications which may take place in the spinal fluid are of two orders: (a) Those reflecting the inflammation of the meninges itself. (b) Those reflecting the mechanical disturbance produced in spinal fluid by the process of symphysis, a disturbance that the inflamed meninges may create along the spinal cord. The modifications of the spinal fluid created by the process of inflammation of the meninges in itself are purely chemical, and are represented by the changes taking place in the three principal physiological components of the spinal fluid, viz., sugar, chlorides, and albumin. While the modifications of the spinal fluid created by the mechanical and inflammatory disturbances as well, are chemical and clinical, they constitute a very important chapter which must be considered as a corollary to the one of the spinal tumors. This important chapter is given by the syndrome of the massive coagulation and xantochromic reaction of the spinal fluid. In a series of observations of cases of meningomyelitis and of compression of the medulla, it has been observed that the cerebrospinal fluid presents always three special features: (1) It coagulates rapidly in the test tube in which it is gathered at the moment of the extraction. (2) It shows a well marked yellow coloration (xantocromia). (3) It has a diminished tension. All the cases giving this syndrome in which the post mortem was possible, have shown constantly the presence in the spinal cord of meningeal adhesions, and of processes of symphysis between the meninges and the spinal cord; processes which compress the cord and separate the lumbar cul-de-sac from the rest of the subarachnoid spaces, forming in this way two cavities, the inferior a closed one, and the superior communicating with the ventricles. The pathogenesis of the syndrome is the result of the two conditions. (a) A closed cavity separated from the rest of the subarachnoid space in which the different elements of the blood accumulate in the spinal fluid through transudation or hemorrhage. (b) An alteration, toxic or infectious, of the blood vessels of the said cavity, which creates the transudation and multiplies the microscopical hemorrhages in the cavity. This stasis taking place in the closed cavity causes a deficient circulation of the spinal fluid and an excess of resorption which resolves itself in an increase in the albumin and fibrinogen of the spinal fluid. The increased quantity of fibrinogen is the cause of the massive coagulation and the microscopical hemorrhages are the cause of the xanthochromia of the spinal fluid. It is then easy to understand why this syndrome should enter the chapter of the spinal tumors. Its presence may either be the confirming element of diagnosis of a spinal tumor compressing the medulla and creating a meningitic symphysis, or it can be considered as the clinical element excluding the diagnosis of a spinal tumor, when these symptoms are absent, as the majority of cases examined show that this syndrome is characteristic of meningomyelitis and compression of the cord in Pott's disease. And as in the study of clinical facts we must always look for the rules and not for the exceptions, so the presence of the syndrome in affections of the spinal cord may be considered in doubtful cases the discriminating element between a tumor and a meningomyelitis or Pott's disease.

Treatment.—Extra- or intradural tumors. (a) Start always the endovenous specific treatment even if Wassermann is negative and lymphocytosis absent. (b) If no result is obtained, radiotherapy with the penetrating rays may be used. The seances should be one every eight days, sometimes temporary amelioration. If no results are obtained, the course to follow is determined by the localization of the tumors.

A. If it is an extramedullary tumor, surgical intervention should be the treatment. Localize the height of the tumor with precision; localize the vertebræ to be opened, remembering that they do not correspond to the medullary segments. For instance, if a tumor's superior limit is localized at the eighth dorsal segment, it corresponds to the fifth spinal apophysis according to the Déjerine scheme; the surgeon will take this line as the center of the incision and he will open along the line above and below this center, and perform the resection of the vertebral arches. Sometimes after the laminectomy we uncover an extradural tumor. The incision is easy, and the prognosis is good. Sometimes the surgeon may feel the tumor and sometimes he may feel and see nothing. In this case the opening of the dura mater is necessary, but to avoid as much as possible the flowing of the cerebrospinal fluid, the patient is placed in the horizontal position, an incision of the dura mater is performed with a good deal of precaution, and the preliminary opening is a very small one, so that the flow of the cerebrospinal fluid will be slow. The tumor appears posteriorly or laterally, and in this last case the tumor appears covered and interlaced within the posterior roots which are edematous, flattened, and grayish in color. The aspect of the tumor while adherent to the spine is grayish blue or violet. Sometimes it becomes necessary to cut one or two roots before extracting the tumor. The removal of the tumor, which generally is not adherent, but has a ligament near a root, fibrous or vascular, must be done with a good deal of caution and preceded by the ligature of the root. After that there should be very accurate suture of the dura mater with stitches closely approximated to each other and then suture of the muscular masses in several layers.

The prognosis is favorable if the patient survives after forty-eight hours or three days.

B. If the tumor is *intramedullary* the advice of the majority of clinicians is for non-intervention. For a few cases the operation is advised, divided

into two phases: (1) Incision of the dura mater and medulla in the region of the tumor and deep enough to reach the tumor. (2) Second phase, intervention after a few days. The tumor may eliminate itself through the longitudinal incision of the medulla. We have only to gather the tumor or to section the vascular ligament or fibers attaching it to the medulla. The prognosis is very serious, a recurrence being the rule.

Electrical Examination.—The electrical examination of muscles is most important from the viewpoint of postoperative prognosis. If the electrical reactions are normal or simply weakened the prognosis is favorable and we may hope for the *restitutio-ad-integrum* of the mobility in the paralyzed limbs. If the reactions have almost completely disappeared, and especially if the reaction of degeneration is present, the prognosis is very unfavorable. We are in presence of a deep destruction of the trophic centers of the muscles. The paralysis will not disappear after the operation.

Conclusions.—The study of this chapter of neuropathology shows that neurology is asserting itself as a very definite specialty and that it is gradually creating positive methods of physical examination, which will render in the future the diagnosis of the nature and localization of nervous diseases far more precise than the diagnosis of other diseases. The clinician who knows how to find the projection of every square milimeter of the nervous organs on the surface of the body in the form of a motor, sensory, or reflex manifestation, will be compelled to relate cause and effect and localize lesions with a mathematical precision. The conception of Charcot and also the errors of his school are fast disappearing from the field of neurology. But another fact also very important is coming to light, namely, that the real progress in the surgical treatment of nervous diseases is closely connected with a more intimate association of surgeons and neurologists in the determination of diagnosis. The surgeon who feels generally independent from the physician in the performance of his mission and who very seldom asks the physician for his opinion or his views as to the necessity of an intervention must abide by the neurologist when the nervous system is involved. The questions of localization and the opportunities of intervention and technique can be weighed by the neurologist more frequently than by the surgeon. It is only by this closer association that the surgery of the nervous system will be less sad than it has been heretofore.

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CUSTODIAL POWER OVER INMATES OF STATE INSTITUTIONS FOR DEFECTIVES.*

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It has been well said that all perfection in this life has some imperfection clinging to it for there is no individual without some defect. Those persons who fall decidedly below the normal mental average require, however, to have supervision extended over them by society when their relatives cannot or will not give them the same. In advocating the enactment of a statute to give custodial power over the inmates of our institutions for those plainly defective, I feel that I am but seeking to ensure the best interests of not only the State, but also of these afflicted individuals.

The problem of adequately caring for all persons below the average normal mental state expected of their station in life is one which cannot perhaps be ever entirely satisfactorily solved. Its solution is certainly not as yet within our grasp. Certain measures are available, however, and it is to these to which I wish to allude. The question of prophylaxis as it relates to these defects is still more difficult of application.

During recent years there has been a marked effort toward making an impression on the public as to what mental defect is and what its existence in an individual may result in.

Detailed studies in heredity have shown beyond question that in the majority of mentally defective individuals there is an hereditary defect. Again it has been established that conditions acquired from disease or injury may so affect the brain as to permanently impair the mental state of persons apparently normal at birth. Such injurious factors may begin to act during any period from the time of conception to an adult age, in consequence of which there results a more or less marked mental impairment. In a considerable proportion of defectives there have been present both the hereditary defect and the acquired exciting factor.

In order to attempt to control even in part the occurrence of defectives, active prophylactic measures must be directed against the marriage or cohabiting of known defectives; against syphilis, alcoholism, drug habits, the occurrence of various infectious diseases of infancy and childhood; against the receipt of injuries to the brain at any period of life, etc.

One can at once realize that an absolute blotting out of these causative factors is impossible. Each can be controlled in part, however, and for such reason we should constantly strive to have society as a whole attain the necessary amount of knowledge so as to permit of the active cooperation of all.

I need not dwell at great length on what results from having free in a community individuals who have not the power properly to accommodate themselves to their environment.

Many persons of broad views and extensive experience resemble the newspaper editor who, although admitting that in the interests of charity and for the safety and welfare of society training and amelioration of the condition of the epileptic and feeble-minded should be carried out on a generous and efficient scale, maintains that it is impracticable to consider segregating the socially unfit.

A careful student of the condition must admit that complete segregation cannot be secured nor is it perhaps desired. What those interested are striving for is the legal authority to detain indefinitely in the proper institution such defectives as may be committed thereto and whose relatives or guardians cannot afford them adequate care and supervision outside of the special institution.

A considerable percentage of mentally incompetent persons are those who have been adjudged insane. The remaining portion who are all mentally deficient but not insane in a strict sense include the ordinary feeble-minded, most epileptics, the great majority of whom are also feeble-minded, a considerable proportion of the criminal and delinquent class, all of whom are as much, if not more, of a

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menace to the public than the mentally unbalanced person who has been committed as insane. The epileptic will be referred to at greater length later in this paper. To reiterate, all persons manifesting symptoms of a departure from the normal mental state, if their relatives are without means to give them proper care, should be committed to special institutions to remain in them as long as their abnormal mental state continues. It should be impressed upon the general public that feeble-minded persons can never become normal mentally. Though physically they may have reached adult years, mentally they remain as children. All must admit that persons who are irresponsible should not be permitted to propagate their kind, either legitimately or illegitimately, if such propagation can be prevented.

I believe it is the bounden duty of the State for its own protection to stop so far as it can the continuance of many of the present conditions regarding the care of the mentally defective classes.

A fact not sufficiently appreciated is that the great class of mental defectives who approach the normal are most dangerous to their fellow men owing to the difficulty in even seeking to control and direct their activities along safe channels. They lack the normal power of meeting in a reasonable manner situations which demand decision.

If I repeat certain matters in presenting my subject, I trust I may be pardoned, as it is done in order to lay more emphasis on phases of the problem under discussion.

Individuals who do not seem able to accommodate themselves in the normal manner to the life of the community in which they live should have their mental state examined by specially trained physicians. If such an examination reveals a mental defect which precludes the possibility of such persons being able to take upon themselves the duties of their particular station in life and it is shown upon investigation that their relatives are unable to give them the proper care and supervision, the State should assume control.

In a recent opinion, the Attorney-General states: "Jurisdiction is inherent in the State over unfortunate persons within its limits who are idiots or have been deprived of the use of their mental faculties. It is its duty to protect the community from the acts of those persons who are not under guidance of reason, and also to protect them, their persons and property, from their own disorder and insane acts."

I will attempt in this paper to give certain reasons, most of which are probably apparent to you, why the institutions for the mentally defective should have a certain amount of authority to detain inmates for an indefinite period. If the various supervisory boards and institutions concerned will but cooperate toward securing legislation which will grant such authority, I am sure that their efforts will eventually be successful.

One must not be too sanguine as to the degree of custodial power which can first be obtained, nor on the other hand, too pessimistic as to the enforcement of a custodial law.

In considering any measure which will deprive an individual of his liberty, due consideration must be given to the rights of such individual as well as to those of the community in which he resides.

One who is at all familiar with existing conditions must agree with me that at the present time there are great numbers of mentally defective persons who are permitted to wander about leading irresponsible lives resulting in much injury to themselves and the community. Many persons are as result of a permanent mental defect incapable of self control, and have opportunities to commit unsocial acts, which, while they may not be serious, entail by their repetition material loss to the community.

An ideal condition would be to have all mentally defective individuals at an early age brought under proper supervision and so kept for the balance of their lives, this being carried out when possible, with the active cooperation of their relatives, so that they would become indirectly wards of the State.

A mentally defective person, as the term is ordinarily understood, is one in whom a defect of strictly speaking does not include persons who have late in life lost their mental powers. The higher grades of defectives may under suitable supervision be capable of partial self support and in some instances practically entirely maintain themselves. The lower grades of mental defect preclude the possibility of such persons supporting themselves even in part.

Adequate control of the feeble-minded as a whole is an ideal toward which we should labor, understanding, however, that an entirely satisfactory solution of such a problem cannot be reached in our day. A step forward would be the enactment of a measure which would permit of the committing to an institution any mentally defective individual upon proper certification of the defective state by competent medical examiners and the commitment to the institution by the proper legal officers. Provision should also be made that where improvement of the defective takes place to such an extent as to permit of his living outside of the institution under proper supervision that such be arranged for.

In striving to obtain legislation toward the end of controlling the mentally defective, we should consider not only what is scientifically desirable, but what can be carried out in a practical manner, taking one step at a time.

A question arises as to how far in a few of the younger patients of the type under consideration we should make a positive diagnosis of mental defect. Change of environment and suitable training in some instances shows that children thought originally to be defective are not so, but are in what has been termed a larval state awaiting proper training and consequent development.

It should be understood by all that, in advocating the segregation of the mentally defective, it is not intended to imprison them, in a true sense of that term, but to place them in a community by themselves where they will receive the care and treatment that their condition demands and be granted as many liberties as are consistent. For the majority of these patients the colony plan would seem to be most satisfactory, remembering, however, that provision must be made for detaining delinquents, who in many instances could not be given the liberty of the open colony system.

There is much controversy as to whether or not the schools in our various cities shall train the mentally defective children during a period of several years. To me the greatest argument against retention of such children in our public schools is that they are not under proper supervision outside of school hours.

It should not be forgotten that perhaps 50 per cent. of the defectives can never be controlled as

they are what are known as borderland cases, approaching in some ways the normal.

It may be that in time many of these borderland cases will enter as voluntary patients into various institutions for defectives, this being brought about by the relatives of such people realizing that they cannot quite accommodate themselves to life in the outside world. Some of these borderland cases might be termed as "feebly gifted," a term used in Europe to describe a certain type who are not called feeble-minded, but individuals who have not had the opportunity of proper training, those referred to above as larval cases awaiting development.

In England at the present time there is being made an active move toward having enacted measures to control mentally defective individuals other than the insane, chronic inebriates, etc. It is the general opinion there, as in many States in America, that the same general law should apply to the insane and the feeble-minded as a whole.

One familiar with the two conditions must appreciate that there is more or less overlapping of the two states so that it is impossible to draw an accurate line of demarcation between many of the later symptoms seen in the insane and those commonly observed in the feeble-minded, the two shading off into one another in the high grade feeble-minded and moron.

Under the existing laws relating to the institutions for feeble-minded and epileptics in New York State, applications to these institutions must be made through the poor law officers, either the superintendent of the poor of the county or the commissioner of charities of the city of which the applicant is a legal resident. The necessity of making application in such a manner may in some instances deter relatives from attempting to have placed in the institution any defective belonging to their family.

As these institutions have been established primarily to care for indigents in preference to patients whose relatives have means, it would seem as though for the present at least such a procedure should be continued, with the arrangement, however, as mentioned elsewhere in this paper, to have experienced medical examiners pass upon each applicant and when he is found mentally incompetent to have him duly committed by the proper court to the special institution indicated. A campaign of education would eventually bring about a state of affairs where many of those defectives belonging to the wealthier class could be admitted for a voluntary period, and thus State control would in time include many who could not otherwise be properly supervised by the State as the result of a measure demanding compulsory detention.

To advocate at this time a complete segregation of all defectives and extensive sterilization of such would in my opinion arouse an antagonism on the part of the public, who would have the natural feeling that such an extensive procedure would mean the committing of a great number of borderland cases who could get along fairly well in the ordinary community. When the public ultimately come to learn, however, that it is only desired to protect such defective persons as are a danger to themselves and others, I am sure that the securing of active cooperation will not be difficult.

Another feature of mental defect which is not sufficiently appreciated is that oftentimes several normal people are deprived of taking an active part in the life of the community as the result of there being in the family one of these mentally defective persons, thus entailing a material loss to society.

Too much stress cannot be laid on the fact that it is a waste of time to provide for mental defectives of a tender age and then lose control of them after they have reached the adult period.

In the organic law governing the Craig Colony for Epileptics, there is a provision as follows: "Epileptic children shall be received into the colony only upon the written request of the persons desiring to send them, stating the name, age, place of nativity, if known, the town, city, or county in which such children respectively reside, and the ability of their respective parents or guardians or others to provide for their support in whole or in part, and if in part only, stating what part; and stating also the degree of relationship or other circumstances of connection between the patients and the persons requesting their admission; which statement in all cases of State patients must be verified by the affidavits of the petitioners and of two disinterested persons, and accompanied by the opinion of a qualified physician, all residents of the same county with the epileptic patient, and acquainted with the facts and circumstances stated, and who must be certified to be credible by the county judge or surrogate of the county; and such judge or surrogate must also certify, in each case, that such State patient in his opinion is an eligible and proper candidate for admission to the colony."

It would seem as if some measure could be enacted so that a method along similar lines to that just described might be carried out for all mentally defective individuals and so drawn as to secure a legal commitment.

The custodial laws enacted within recent years for the Rome State Custodial Asylum, Letchworth Village, and the Craig Colony for Epileptics, provided for the admission of mentally incompetent individuals in accordance with provisions of the laws governing those institutions, but it did not provide for their judicial commitment. An epileptic as such cannot be deprived of his liberty. If he is adjudged insane or mentally incompetent he can undoubtedly be placed under State control.

Our present Attorney-General in referring to the Craig Colony law says: "As the act under discussion makes no provision for trial by jury its constitutionality may be extremely doubtful. However this may be, the act, in my opinion is inoperative as it makes no provision for a judicial determination upon the question of incompetence, provides for no notice to the alleged incompetent and affords him no opportunity to be heard. In my opinion no valid commitment can be made to Craig Colony under Chapter 588 of the Laws of 1911 and the authorities of that institution have no jurisdiction to detain patients against their will or to cause the arrest and return of those who escape therefrom."

A custodial law to be of use should not only provide for the legal commitment of the defective person, but should also provide the authority for the institution to detain all such persons so committed, including the right to arrest and return any who escape from the institution without being properly discharged by the institution or removed by an order from the court. Provision should also be made to prevent the removal of any such incompetent individual unless his relatives could prove that they had the means to give to him the proper care after said relative had been discharged from the institution.

It is a question worth serious consideration as to

whether it would be advisable to have in the custodial law a clause permitting the institution to grant a short parole to certain selected inmates when deemed advisable.

A retroactive law which would bring about the commitment of those now inmates of the institutions for defectives would be very desirable if such a clause could be included in the general custodial law.

From my experience, I am of the opinion that mentally defective persons who have been markedly delinquent should not be placed in ordinary institutions for feeble-minded or epileptics. These persons are difficult to control and require closer supervision than does the ordinary defective. It is possible, however, when the institution has sufficient ground and proper facilities in the way of buildings for classification, so to separate the various types as to permit of the caring for all grades of defectives in any one institution to the capacity of such institution.

Regarding the mentally defective females who are placed in reformatories for women, it would seem as if some authority should be vested in these reformatories to permit of control being had over these defectives for an indefinite period and not for the maximum of three years as under the present law.

It is a well-established fact that the mental condition of a large proportion of epileptics is such that they are as much, if not more, of a danger to the community than the average insane person. The suddent outbursts of irritability, the automatic states following certain seizures, the morbid religious trend, as well as other phenomena preclude the possibility of the majority of them being able to accommodate themselves normally to the environment of the outside world. For their own protection and the protection of the public the great majority of epileptics should, if possible, be at all times under close and careful supervision.

Those epileptics who cannot be given such supervision in their own homes should, it goes without saying, be placed in institutions provided for the special care of individuals of their kind. In other words, the mentally incompetent epileptic should be judicially committed to the special institution to be kept there for an indefinite period. Of fundamental importance in the prevention of defectiveness and degeneracy in the human race is the proper enforcement of strict custodial care of the manifestly defective individuals, this custodial care to be a true segregation and not a mere farcical attempt at the same.

The Craig Colony for Epileptics should at all times have the right to admit as voluntary patients such applicants as are able because of their normal mental state properly to understand the conditions under which they are sent to the institution. Such patients would be permitted to leave the Colony after giving a few days' notice in writing of their intention to do so.

I will cite a few patients recently admitted to Craig Colony as examples of those over whom the State should have the power to segregate for the balance of their days, both for their own good and that of society.

Margaret J., aged 14 years, admitted to Craig Colony November 7, 1912. Father living, age 54; has rheumatism and sore eyes and seems to be nearly blind at times; he is an alcoholic and has fainting spells. Mother died when she was 16 years and 7 months old of diphtheria; she was 15 years and 10 months old when this patient was born and was the third wife of her husband. Maternal grandfather died at 56 of alcoholism; maternal grandmother died at 58 of dropsy and heart trouble. Both maternal grandparents were alcoholics. There is a history of alcoholism and probably syphilis on father's side. A cousin on father's side has epilepsy. An aunt on mother's side was sent to Albion Home Refuge. This patient had spasms when she was 9 months old—at the time she commenced teething. Her epilepsy is said to have commenced at 13 years. She is a right hemiplegic and her paralysis was first noticed at about 10 months of age. She is feeble-minded, rating 7 years by the Binet scale.

Emily M.—Onset of epilepsy at 6 years, admitted to Craig Colony October 1, 1912. Mother died at 41—suicide. This patient passed the Binet test at 8 years. Actual age 20 years. Patient says that after death of mother she was in an orphan asylum in Brooklyn from the time she was 11 years until she was 17 years old. Then she was taken home and became pregnant; was transferred to Randall's Island in March, 1912, and gave birth to a baby July 22, 1912.

Annette W., aged 12 years, admitted to Craig Colony November 15, 1912. Father living, age 37, a waiter by occupation. Mother died at 30 of septic peritonitis (self-induced abortion). Mother had one miscarriage (self-induced). A maternal uncle had epilepsy and died at 12. An aunt was confined in an insane asylum; another aunt has been an imbecile from birth, both on mother's side. The imbecile aunt also had a half sister who was an imbecile. This patient is quite feeble-minded, rating 4 years.

Thomas G., aged 10 years, admitted December 15, 1911. Father living, aged 36 years, painter and iron molder; had lead poisoning a year before marriage. Mother living, aged 36 years. She is neurotic and syphilitic. All of her relatives are said to be neurotic. Maternal grandmother alcoholic, drug habituée, and suicide. Paternal cousin feeble-minded. Maternal grandfather alcoholic and abused family. Onset of convulsions in patient at 9 months. Patient began school at six years, but could not advance beyond first grade. Wassermann test made in November, 1910, positive; after treatment of nearly a year this became negative. Binet test showed mental age six years. Removed by parents December 15, 1911, contrary to advice of physicians.

James E. Mc., aged 24 years, admitted August 2, 1912. Feeble-minded; Binet passed at 10 years. Brother formerly at Matteawan; now in Clinton prison, convicted of burglary. Father was alcoholic. Patient had first seizure at 22 months. He is said to have fallen from a swing at this time.

Walter H., aged 13 years, admitted February 9, 1912. Binet scale eight years. Maternal grandfather died from tuberculosis, as also maternal uncle. Paternal cousin epileptic. Brother epileptic; another had congenital defect of spinal canal as has patient. Onset of convulsions in patient at nine years.

Nathan S., aged 11½ years, admitted June 6, 1912. Binet scale eight years. Maternal uncle epileptic. Mother's family said to be nervous. The mother is a sufferer from sick headaches. Both of the paternal grandparents died from tuberculosis.

Thomas L., aged 36 years, admitted October 15, 1912. Father alcoholic. Patient's younger brother said to have been very nervous and subject to frequent headaches. Maternal grandmother and cousin epileptic. Patient had first seizure at 33 years. He has pulmonary tuberculosis and is syphilitic. He has been alcoholic and has threatened to kill his wife. Mental state is fair with signs of beginning dementia.

We all know that mentally defective individuals vary from the lowest grade, those who are like infants who are unable to protect themselves in any way, to those who differ but little from persons of normal intelligence.

The matter of securing what is practicable in negative or restrictive eugenics must be gradually brought about so far as human means permit and no attempt be made to accomplish at once a general revamping of the human race, as such a move simply arouses an intense opposition and materially retards the effort being made to carry out what seems at present feasible. I agree with the old German maxim which advises: "Make haste slowly."

BILATERAL OPTIC PSEUDONEURITIS AND UNILATERAL MEDULLATED NERVE FIBERS IN CRANIAL INJURY BY BLUNT FORCE.

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NEW YORK

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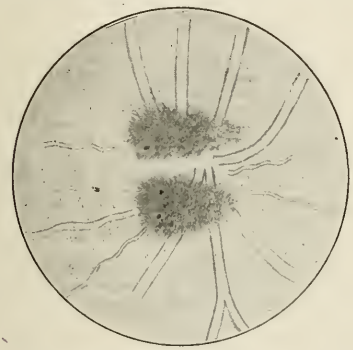
The case of pseudoneuritis reported by the writer[1] on a former occasion showed how an unfavorable prognosis based upon a mistaken diagnosis became a source of worry to the patient. The case to be described in this article makes clear the importance of the differential diagnosis of optic pseudoneuritis and neuritis from the point of view of treatment. For in this case failure to exclude the former condition before diagnosing the latter made grave remedial measures appear indicated so that a prospect of having to undergo a serious operation was held out to the patient.

On December 4, 1912, Mr. A. A. came to my office to consult me about his eyes. The history of his case, supplemented later by his family physician, is as follows: The patient is 40 years old and has been married for the last 20 years. He has had 7 children. Four are living and healthy, the oldest being 19 years of age. Three died, one was stillborn in the tenth month, one was five days, and one 11 months old. His wife never had a miscarriage. He has always been in good health, hardly ever drinks, and smokes but moderately. He denies infection. His occupation was formerly teaching. For the last 6 years he keeps a lunch room. Except until recently he never had any eye trouble. Six weeks ago as he was walking on an avenue one afternoon at a quarter of five o'clock he was suddenly hit on the back of the head by a stone thrown by a blast in construction work. He fell down and was carried in an unconscious condition into the nearest drug store. He remained unconscious for about three-quarters of an hour. An ambulance surgeon hurriedly called dressed the patient's head temporarily after removing a stone imbedded in a bleeding scalp wound. The patient then, supported by his friends, walked to his home around the corner. He arrived there about an hour and a quarter after the accident and went to bed. The nearest physician was called. He found a deep scalp wound at the back of the head, reaching almost to the bone and about two inches long. He sewed it with one stitch in the middle, leaving the ends open for drainage. There was no fracture of the skull. Soon afterwards the family physician came and found the patient in a fairly good condition. He was rather pale, but in good spirits and talked sensibly, relating exactly everything that had occurred previous to the accident, thus showing that he had no retrograde amnesia. His pulse was regular and accelerated to about 100. The pupils were somewhat narrow, but reacted well. There was no disturbance of sight. Three hours later the family physician called again. The temperature was then 99.5°, the pulse 100. The patient complained of headache and obscurity of vision. His eyelids were frequently twitching, as if light would annoy him. There had been no vomiting. The patient from now on suffered from dizziness and constant violent headache, rendering him unable to sit up in bed. The headache usually started in the occipital region and then became general. The patient would say he felt as if "a hoop encircled his head." or as if "gases arose in his head." As in the erect position headache and dizziness increased, the patient frequently had to be fed with a tube while he was lying. He never vomited. Dizziness and headache of great intensity continued until the middle of the third week. The temperature remained around 100° for about 5 or 6 days and then became normal. The rise in temperature could hardly be attributed to the wound, for it healed by first intention. The pulse which through the whole sickness never showed any irregularity was between 100 and 110 in the first five days, then it gradually decreased in rate and went down to 50. Marked retardation of the pulse was still present in the third week. The reflexes were normal and there were no paralyses or pareses of face and extremities nor any disturbances of speech; the hearing, however, was noticeably impaired for about two weeks.

On the sixth day after the accident a neurologist was called into consultation. After a prolonged neurological and ophthalmoscopic examination with negative result he declared it would take about one more week to determine whether or not the patient had been seriously injured; for the time being he did not think so. At the end of the third week the patient's headache began to diminish in severity, became less constant, and he was able to leave his bed and walk about. Yet for about two more weeks he had to lie down several times a day, being unable to stay up because of recurrent attacks of headache. Not before the sixth week did he feel strong enough nor were the intervals of freedom from headache sufficiently long for him to try to resume his usual occupation. All this time the suffering of the patient was aggravated by visual disturbances. A few hours after the accident he noticed that it was dark before his eyes. The following day things appeared to him smoky as if seen through frosted glass, and he remarked to his family physician that he could not see him distinctly. Yet he recognized everything. He was entirely unable to read, printed or written matter being very blurred. These ocular symptoms grew in intensity as days went by. The pupils were rather narrow but reacted well. At the end of the second week the patient's vision began to get clearer and in the third week he was able to read a little but with difficulty. A blur, bothering him considerably, was usually over the reading matter and he had to hold the latter far away. The left eye annoyed him much more than the right one. In the fourth week yet when he went out of an evening and looked at gas and electric lights, they appeared to him not clearly outlined, indistinct, smoky. In the weeks following the difficulty in reading did not diminish and the haziness



Direct ophthalmoscopic picture of left fundus showing two white areas separated by a strip of red fundus and situated partly on the nerve head partly on the adjoining retina.

of vision persisted to some extent. This ocular trouble added to his occasional, not infrequent, headache, gave the patient a good deal of worry and caused him to seek an ophthalmologist's advice.

Status præsens, December 4, 1912: On the back of the head, directly above the occipital protuberance there is a horizontal scar about two inches long. It is movable, not sensitive, and the bone below and around is smooth, nowhere depressed. The pulse is regular, not retarded, 75 per minute. The knee reflexes are normal. The pupils are of equal medium size. There is a slight simple conjunctivitis. The ophthalmoscopic aspect of the fundi oculorum examined in the direct picture is as follows: The right fundus is somewhat hyperemic, uniformly dark red in color, the caliber of the blood-vessels is rather wide and the veins are not tortuous. The place of the nerve head is recognizable almost through nothing else except the confluens of the blood-vessels, no border of the papilla being discernible. Only temporally, along an arc of the disc of about 45°, a border can be distinguished through a line of pigment adjacent to the papilla, which is a little brighter at this arc than the rest of the fundus. The tissues are nowhere turbid, and there are no hemorrhages on the papilla or retina. The refraction measured ophthalmoscopically in the direct picture is about +2 D. over the papilla and +1 D. over the rest of the fundus. The ophthalmoscopic appearance of the left fundus resembles that of the right one as to color, blood-vessels, and clearness of tissues. The papilla, however, is even less distinct from the rest of the fundus than in the right eye, not even temporally there being the slightest trace of a border discernible. Besides there are two areas glistening white

in color and irregular in circumference over which they appear somewhat striated, each approximately of the size of an optic disc (see figure). These areas are situated nasally, one above the other, and are separated by a strip of red fundus, and one half of each extends into the nerve head, the other half into the adjoining retina, so that the upper and lower nasal quadrants of the papilla are covered, with the exception of the narrow red strip separating the white areas. The refraction is about +2.50—3 D. over the papilla and +1.50—2 D. over the rest of the fundus. As to function the eyeballs move readily in all directions and there is no lagging of one eye behind the other. The reaction of the pupils to light and accommodation is prompt. The fields of vision are normal and no scotomata can be made out. Subjective examination of acuity of vision and refraction gives this result:

VOD=18/20 Hm 0.75 D. V. 18/20.
VOS=20/70 Hm 1.50 D. V. 20/30.*

Diagnosis and treatment. The ophthalmoscopic appearance of the fundi resembled that met with in optic neuritis. There was some hyperemia of the fundi, fullness of the blood-vessels, complete obscurity of the borders of the left papilla and almost complete of the right one, and slight elevation of the optic discs. Yet, considering that the function of the eyes was normal, or nearly so, and that nothing pathognomonic of neuritis, as hemorrhages, was found in the fundi, I made, for the time being, the diagnosis of double pseudoneuritis and medullated nerve fibers in the left fundus. The strong dimness of sight which commenced shortly after the accident and its continuation and the present occasional haziness of vision, could be explained by the cranial injury alone without intervention of neuritis, as will be seen later. The slightly weaker acuity of vision of the left eye was evidently due to its greater error of refraction and the difficulty in reading to the hypermetropia and beginning presbyopia. I applied a ½ per cent. solution of nitrate of silver to the conjunctivæ and prescribed two pairs of glasses, for constant wearing OD: +0.75 D., OS: +1.25 D., and for near work OD: +1.50 D., OS: +2 D. I told the patient that his eye troubles were due to his eyes not being corrected by proper glasses and would cease by using the glasses prescribed, and asked him to return in about ten days.

The patient who all the while had looked rather careworn seemed to cheer up through this prognosis, became more communicative, and related the following experience to explain the cause of his worry. Ten days ago one of his physicians took him to the ophthalmic clinic of a large hospital to have his eyes examined. Drops were instilled into his eyes to dilate the pupils and he was subjected to a protracted examination by several physicians. The chief of the clinic then informed him that his eyes were in a serious condition and that he might have to submit to an operation consisting in opening the skull at the place of the injury where something probably exerted an undue pressure upon the brain. The patient was advised to enter the hospital for observation. From one of the physicians he learned that the diagnosis of his case was inflammation of the optic nerves and "white spots" in the left eye. The information received at the clinic worried the patient very much and he therefore wished to obtain the advice of another eye physician. In order not to influence the new consulting ophthalmologist he did not at first relate his experience at the eye clinic. I told the intelligent patient I did not agree with the serious view held out to him at the clinic, but considered his case to be one of "false inflammation" of the optic nerves, which is a harmless condition. However, a few more examinations at intervals of several weeks would be required to confirm this opinion.

Subsequent examinations. At his second call on December 16, 1912, the patient reported that he was still suffering from headache, mostly at the back of the head. Some days he would be free from it, on other days he would have one or several attacks of headache lasting one-half to one hour and sometimes longer. As to his eyes he felt a good deal better, although occasionally he would still notice a blur in his field of vision. The acuity of vision was again examined and found to be slightly better than at the first examination, in the right eye almost 20/20, with +0.75 D., and in the left eye without correction 18/30 and with +1.50 D. 18/20. Ophthalmoscopically the right fundus appeared a little less hyperemic, otherwise exactly as ten days previously. For a better view of the fundus of the left eye, its pupil was dilated with homatropine and cocaine, which had not been done in either eye at the first examination. Also the left fundus presented the same appearance as before. In the white areas of medullated nerve fibers a few red dots were discovered which at first sight might have been taken for minute hemorrhages. Closer observation, however, showed that those dots were invariably situated over the course of a blood-vessel, proving thereby that they were merely spots where the blood-vessel walls were little or not at all covered by medullated nerve fibers. Although the result of the second examination differed very slightly from that of the first one, I still, for reasons to be shown later, held to the first diagnosis of pseudoneuritis. Desirous of finding out exactly what diagnosis had been made at the ophthalmic clinic I called up on the telephone, December 17, the physician who had taken the patient there and had also examined him ophthalmoscopically. He reported that the diagnosis was double "optic neuritis" with medullated nerve fibers in left eye. The examiners even "thought that they saw hemorrhages" in the fundi. No functional disturbance of note had been found.

The patient did not return for examination before nearly seven weeks. When he called again, February 3, 1913, he reported that he still had attacks of headache of about the same duration and frequency as described at his second call. The headache was now restricted to the lower occipital region and consisted in a feeling of pressure starting in the middle line and extending to both ears. Slight haziness of sight still inconveniences the patient now and then. Besides these symptoms he noticed that he had considerable inclination for sleep, while before the accident he was rather subject to sleeplessness. Ophthalmoscopic and functional examination of the eyes gave the same result as the preceding examination. At his fourth call, on February 26, 1913, the patient reported that he was not yet entirely free from occasional attacks of headache, and added that he was very forgetful. He did not mention anything regarding ocular trouble. Ophthalmoscopic and functional examination of the eyes showed no change of result. When the patient came again, on March 12, 1913, he had little to complain about. For a whole week he had been entirely free from headache, which appeared now at much longer intervals than formerly. No ocular inconvenience was noticed. The ophthalmoscopic appearance of the fundi and the functional power of the eyes were the same as at the preceding examinations. The patient was dismissed and asked to return in about ten months.

Epicrisis. The second examination, made twelve days after the first one corroborated somewhat the diagnosis pseudoneuritis. For the findings, ophthalmoscopically and functionally, were almost the same at both examinations. That the hyperemia of the fundi was a little less and the acuity of vision slightly better at the second examination is evidently to be ascribed to the patient having used for nearly two weeks the glasses correcting his refractive error. The subsequent examinations, seven, ten and twelve weks after the second one, showing no change whatsoever, either ophthalmoscopically or functionally, fully establishes the above diagnosis.

The differential diagnosis of optic neuritis and pseudoneuritis need not be discussed here. The subject has been treated more in detail elsewhere by the writer. Here it may only be mentioned that the essential factor for differentiating the two conditions is an observation extended over a longer period with repeated examinations giving the same results ophthalmoscopically and functionally. This requirement has been fulfilled in our case. The value of this decisive factor is not upset by the presence of another element which would speak for neuritis, namely an etiological factor, as a severe cranial trauma, frequently causative of optic neuritis. That these two apparently conflicting factors may be met with together, as in our case, only adds to the dif-

*This formula means: The eyes have been tested separately. In the right eye vision without correction has been found to be 18/20 (a little less than 20/20) and the refraction manifest hypermetropia (*i.e.* the strongest lens with which best vision is still obtainable) of 0.75 D., correction of which does not improve the vision any further. In the left eye vision without correction has been found to be 20/70 and the refraction manifest hypermetropia of 1.50 D., correction of which improves the vision to 20/30.

ficulty, and emphasizes the necessity of excluding pseudoneuritis before making the diagnosis neuritis. Wilbrandt and Saenger[2] cite a good many cases of cranial injury by blunt force with neuritic changes of the optic papillæ. They consider choked disc consequent upon such trauma as a symptom of increase of pressure in the dural space and, in the majority of cases, intracranial bleeding as the underlying cause of this increased pressure (l. c., p. 789). In many of those cases the choked disc passed away spontaneously. In one of them neuritis and loss or impairment of vision disappeared promptly after a cranial operation by which fragments of bone and intradural blood clots were removed from the skull (l. c., p. 788). Now, if in our case there were true optic neuritis, this condition and the persistent violent headache would have justified the assumption of undue intracranial pressure caused by the powerful cranial injury and perhaps offered an indication for a cranial operation to remove the basis of this increased pressure. But if we have only a negative ophthalmoscopic result, *i. e.* pseudoneuritis, in our case, then it is to be classed with another group of cases cited by Wilbrandt and Saenger, in which the result of ophthalmoscopic examination was negative, the visual disturbances gradually disappeared, and *restitutio ad integrum* followed (l. c., pp. 742, 745, 747).

For proper interpretation of our case from a neurological and especially from an ophthalmological point of view early observation in this respect immediately, and within a few days, after the injury would have been required, but is unfortunately lacking. The neurological symptoms as reported by the intelligent patient and the family physician consisted in unconsciousness directly after the injury and later in dizziness and constant violent diffuse headache for nearly three weeks, and marked retardation of the pulse rate beginning at the end of the first week and continuing for about two weeks. This symptom complex would correspond to concussion of the brain, as elaborated by Trendelenburg and Windscheid.[3] Ophthalmoscopically it would have been valuable to have determined whether shortly after the injury the patient had an amaurosis of brief duration followed by visual disturbances of hemianopic character. The patient did not know of any such symptoms. Ascertaining such visual disturbances would have helped to corroborate the diagnosis of concussion of the brain with special participation of the occipital cortex. For, in order that visual symptoms after a cranial injury may be utilized for diagnosing concussion of the brain, it is requisite, as Camil Hirsch[4] has pointed out in a very instructive case of cortical blindness through commotio cerebri without ophthalmoscopic findings, that their onset follow the trauma directly, that they have the highest intensity right from the start and then gradually diminish and disappear in a comparatively short time. This requirement is not fulfilled in our case. Judging from the report of the family physician and the patient, visual disturbances commenced a few hours after the trauma, grew in intensity the days following, and began to diminish at the end of the second week. Assuming that they consisted in hemianopic amblyopia and were therefore due to some insult to the visual tracts or to the centers in the occipital cortex, the most plausible anatomical explanation would be an intracranial bleeding produced by the trauma. While in concussion of the brain visual symptoms are fully developed at the moment of the injury and are rather transient, in pressure on the brain through a hematoma some time is needed for development to greatest effect of the symptoms and more time yet for them to recede through absorption of the blood. It appears that in our case this was the mode of their development and retrogression. While therefore the neurological symptoms in our case may be explained by concussion of the brain, the visual disturbances would not speak for such a lesion, but rather for intracranial hematoma. Of course it is possible that both these conditions were present, the neurological symptoms being due to their combination, or to one of them, and the ocular symptoms to the hematoma. Retrograde amnesia which is a prominent symptom in concussion of the brain was lacking in our case according to the positive assertion of the family physician who had examined the patient in this respect about two hours after the injury.

These few remarks may suffice for the neurological aspect of our case. The latter was not in the scope of this article, which is merely intended to illustrate the importance of recognizing optic pseudoneuritis, especially in a case in which neuritis would indicate recourse to grave remedial measures. Wilbrandt and Saenger (l. c., p. 618) mention that pseudoneuritis should be borne in mind in a group of symptoms pointing to tumor of the brain. Although they do not add a similar remark in the discussion of cranial trauma, this warning holds good here no less, as clearly shown by our case.

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HEXAMETHYLENAMINE IN SURGERY.*

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In 1889, Nicolaier[1] demonstrated the presence of hexamethylenamine in the urine of patients to whom it had been given by mouth. He found free formaldehyde in these urines, and consequently advised the use of hexamethylenamine in the treatment of infections of the genitourinary tract. Six years later, in 1895, he published a second report with the result that the drug soon received general recognition, and was widely used. It was not until 1908, when Crowe[2] pointed out the secretion of hexamethylenamine in cerebrospinal fluid and in the bile, that the profession began to regard it as a drug possessing a

*In this article hexamethylenamine has been considered solely from the viewpoint of the surgeon. Its large field of use in internal medicine has only been touched upon.

much broader field of usefulness, and to study its effect in conditions widely separated from the previously limited field of genitourinary conditions. I have attempted in this article to correlate much of the experimental work that has been done and to point out its peculiar application in the field of surgery.

The testimony in favor of hexamethylenamine has been both clinical and experimental, the experimental fulfilling the requirements of scientific exactness generally lacking in clinical reports. Hexamethylenamine has been placed on the market by various manufacturers, under a variety of names, urotropin being probably the best known. This list has been further extended during the last few years by many combinations which owe their activity to hexamethylenamine and which do not differ essentially from the drug itself. Hexamethylenamine methylene-citrate has been advised as acting in alkaline as well as acid mediums, and other similar combinations are now under trial. Whether they will fulfill the promises made for them or not is a matter which only time can determine.

Hexamethylenamine is one of the best examples of a product of true chemico-therapeutics. It is a synthetic product and acts as a poison on the infecting organism much in the same manner as quinine and salvarsan act in malaria and syphilis; that it, is injures the infecting organisms more than it does the body tissues. When hexamethylenamine is given either by mouth or rectum, or by hyperdermic injection, it appears, after a short interval, usually less than an hour, in the urine and in various other secretions, giving to the secretions in every case an antiseptic property. Hexamethylenamine, itself, has only a very slight antiseptic action, but when added to acid urine formaldehyde is liberated by virtue of which the urine becomes antiseptic. On this point practically all investigators were agreed, but as the drug was used more generally and good results were reported in cystitis with neutral and alkaline urines, it became necessary to inquire further into its action under such conditions.

Sollman,[3] in 1908, was able to prove that the urine when passed did not contain demonstrable quantities of formaldehyde, and that this substance was liberated only after one and one-half to two hours; and many observers have reported the absence of free formaldehyde in the urine, bile, and other fluids after the subject has been given hexamethylenamine in therapeutic doses. Churchman,[4] in 1906, found that the urine of patients taking hexamethylenamine had an inhibitive effect on bacterial growth outside of the human body, and Crowe was able to prove this action in the bile and cerebrospinal fluid. We have here then a drug which breaks down in acid urine, and which in watery solutions is only slightly antiseptic, acting as an active antiseptic in neutral and alkaline body fluids. How then does it act?

There are two groups of observers, the first saying: "The drug acts only by virtue of the liberation of formaldehyde; it can consequently have no action in cerebrospinal fluid and alkaline urine, for we have tested the fluid and the urine, and although there is hexamethylenamine present there is no free formaldhyde." The second group answer: "We have tested the cerebrospinal fluid and the alkaline urine, and when hexamethylenamine is present there is a distinct retardation of bacterial growth." The answer to these apparently conflicting statements is absurdly simple. The first group is wrong. Hexamethylenamine can and does break down in alkaline solutions, especially when there is stasis of the solutions, and when they are kept at body temperature. This takes place both in the body and in vitro. These points have been very clearly proven by the experiments of Ibrahim[5] and of Zak,[6] who have shown that when hexamethylenamine is mixed with cerebrospinal fluid and allowed to stand for twenty-four hours in the incubator at 37° C., there was a slow but constant liberation of formaldehyde. Zak tested the disinfecting power of hexamethylenamine at different temperatures and found that a 0.5 per cent solution at 37° C. was as strong as a 2.0 per cent. solution at 17° C. We are therefore justified in the assertion that hexamethylenamine has an antiseptic action in alkaline and neutral body fluids when kept at body temperatures, and that this action is greater in those cases in which stasis allows time for the liberation of formaldehyde to take place. Granted then, that this drug exerts an antiseptic action in neutral and alkaline fluids when kept at body temperatures, in what types of cases will its use be of advantage to the surgeon? It should be remembered that hexamethylenamine has two great fields of action; first, as a prophylactic against infection; and secondly, as a curative agent after infection has already taken place. Its value as a preventative of infections is an important one, but it is difficult to prove and is too often overlooked.

Hexamethylenamine has been most frequently prescribed in infective conditions of the genitourinary tract. Its value here is well recognized, and it is prescribed in cystitis, pyelitis, and other conditions due to bacterial infection. Ibrahim has shown that the disinfecting power of hexamethylenamine varies for different organisms, and it is possible that, in some cases where the results have been unsatisfactory after its use, an organism especially resistant to the action of formaldehyde has been the etiological factor. In acute conditions hexamethylenamine should be given in doses of from 20 to 40 grains daily. It is said to increase the acidity of the urine, but this has never been clearly demonstrated. In chronic cystitis, especially when due to an enlarged prostate, it is of great value. In such cases I have seen the drug given over a period of several years without ill effects. In tuberculosis of the bladder I have never seen it used and would not expect any results except in cases where there is mixed infection. It should be more frequently used as a prophylactic. Before every catheterization; before all instrumentation; before every operation and after every wound of any part of the genitourinary tract it should be used in full doses. The following routine has been advised for cystoscopy: 10 grains are given from four to six hours before the cystoscopy and 7½ grains are given one hour before beginning the instrumentation. For the next forty-eight hours 7½ grains are given every four hours.

When first introduced hexamethylenamine was advised in the treatment of renal and vesical calculi. There are no experimental data to show that it has the slightest value in the treatment of calculi by virtue of any power to cause the solution and disappearance of the calculus, but in many cases it may be of great value in the prevention and cure of the infection which so often accompanies stone.

Crowe, in 1908, reported the presence of hexamethylenamine in the human cerebrospinal fluid, and by a series of experiments on dogs he showed very conclusively its value in the purulent types of meningitis. The following is from an article written by

him in 1912:[7] "Following a subdural inoculation of dogs and rabbits with a virulent culture of streptococcus, sixty to eighty grains of hexamethylenamine a day, given under conditions which insure absorption, will markedly defer, and in some cases prevent the onset of a fatal meningitis. This conclusion is based on the results of forty experimental observations. In each experiment four animals were used. The dura in each animal was exposed, under aseptic precautions, by a trephine opening in the broad posterior arch of the atlas, and 0.1 c.c. of a bouillon culture of streptococcus was injected into the cerebrospinal space. One animal in each experiment was used as a control; the other three receiving hexamethylenamine under varying conditions and in varying amounts. In no case did the control animal survive longer than thirty-six hours, and on examination a diffuse, purulent meningitis was found; in many of the others the progress of the infection was held in abeyance during the continuance of active therapy, but as soon as the drug was withdrawn the organisms immediately began to multiply, with a return of the clinical symptoms. A few of the animals, however, made a complete recovery. . . . It is worthy of note that the only animals which recovered after a direct subdural inoculation were those to whom large doses of hexamethylenamine were given, as a *prophylactic* measure, for several days preceding the inoculation." The work of Crowe has been substantiated by the careful experiments of Hald,[8] who found hexamethylenamine in the cerebrospinal fluid in some cases as high as 1-25000. Similar results were obtained by Ibrahim, Weinrich, and many others. Hexamethylenamine should therefore be used in all cases of compound fracture of the skull; before all operations in which the dura is exposed, and in every condition where there is danger of a complicating meningitis; such as cellulitis of the scalp, mastoiditis, etc. Crowe reports thirty-five cases of compound fracture of the skull, in which hexamethylenamine was given as routine, without a single case of complicating meningitis.

In developed cases of meningitis its value is less marked. Brem and Zeiler[9] reported two cases of influenza meningitis which apparently improved under the use of hexamethylenamine, but which finally ended fatally. Crowe gives a very interesting report of a case of streptococcus meningitis in a child seven and one-half years old treated with enormous doses of the drug and ending in recovery. This child was given 939 grains during twenty-two days, an average of 42½ grains a day, and during the first forty-eight hours this child, seven and one-half years of age, received almost 300 grains. If one child, with a daily temperature of 105 and spinal culture positive for streptococci recovers under the exhibition of any drug, a further trial of the remedy is indicated. Two cases of streptococcus meningitis following compound fracture of the base were treated by the writer in 1908. Both of these cases ended fatally, but in view of Crowe's report, the daily dose of 100 to 140 grains which they received was entirely inadequate.

Closely related to the action of the hexamethylenamine in the cerebrospinal fluid, is its action in the ear. In 1910 Barton[10] reported the finding of the drug in the fluid discharge from the middle ear, and it has been used in the prevention and treatment of otitis media and mastoiditis. It has also been advised in infective rhinitis (Eisenberg,[11] Miller[12]) and has been found in the aqueous humor of the anterior chamber (Gradle[13]). These findings would suggest its use by the specialists in operations in these regions. Crowe's first experiments called attention to the presence of hexamethylenamine in the bile, and since then he has used it repeatedly in order to prevent and cure the chronic typhoid infections of the gall bladder. Its use in acute cholecystitis and the chronic inflammation due to gall stones is often followed by very striking results (Chauffard[14]). It should be used as a routine prophylactic before all operations on the gall bladder or ducts. Its value in infective cholangitis is problematical, but theoretically it should be of value. Zak found that, clinically, in a case of gastric fermentation due to stasis, hexamethylenamine prevented the fermentative changes. The patient was given full doses for four days and the vomitus which had previously been very foul became odorless and the patient felt much more comfortable. This action might be taken advantage of when operation is contemplated upon a stomach in which putrefactive changes are taking place.

Hexamethylenamine has been demonstrated in the sputum (Armstrong and Goodman[15]), in the blister of zoster (Zak), in the blood (Hald), in the saliva (Hauzlik[16]), and in other secretions. When present in these secretions it is usually found in sufficient concentration to inhibit the growth of bacteria. I do not find any record of its presence in the fluid of pleurisy with effusion, in the synovial fluid, or in the peritoneal fluid, although it is reasonable to suppose that it would be found in these fluids at least as strong as it is found in the blood, and in such concentrations it would be of distinct value as a weapon against infection. Should this be true we have in this drug an agent against infection which acts over a wide field and which is destined to come into almost universal use in most types of surgical inflammation.

The dosage varies with the object in view. In the bladder, small doses of from 20 to 40 grains daily are usually sufficient while in infection of the gall bladder and of the meninges extremely large doses must be given. Often from 200 to 300 grains a day are given in severe cases. I have found that when action on the meninges is desired, much larger doses may be given if the drug is combined with enough alkali to render the urine neutral or alkaline in reaction. In this manner I have frequently given 15 grains every two hours for many days without any bladder irritation, or any change in the character of the urine.

Hexamethylenamine should always be given well diluted, about one ounce of fluid being given with every two grains of the drug. As it is almost tasteless it may be added in this proportion to the fluids given. Apparently a very few patients have an idiosyncrasy to hexamethylenamine, and in such patients a small dose may cause hematuria associated with painful and frequent urination. Many such cases have been reported, but it is the general experience that they invariably clear up under the exhibition of fluids and alkalies in large amounts. Rovasic[17] gave rabbits large doses of helmitol, a hexamethylenamine compound, over a period of fifty-three days; at the end of that time there was no pathological change in the kidneys. Frothingham[18] has reported congestion and hemorrhages of the gastric mucous membrane after the subcutaneous injection of hexamethylenamine in guinea pigs, and gastric irritation and vomiting has often occurred, after the giving of large doses, in human

beings. It is apparent then that the chief points of irritation are the stomach and the bladder. In both of these places the normal reaction in acid and formaldehyde is freely liberated. If such an action takes place these are exactly the two regions where it can be most easily controlled by the action of alkalies.

The mode of administration is usually by mouth, but should the occasion demand it, it may be given either by rectum or subcutaneously. The last method has been advised by Gundrum,[19] who says: "The ordinary tablets were merely boiled in water and injected rather deeply into the thigh." He says that thirty grains at a dose may be given in this manner with only a very slight reaction. In the same manner the drug has been given by intraspinal injections in the course of the treatment of meningitis.

In conclusion I wish again to call attention to three cardinal points in the use of this important therapeutic remedy, and to urge that unfavorable reports regarding ineffectiveness and toxicity be discounted unless these three points receive careful consideration. The points to be remembered are as follows: Hexamethylenamine must be given early; it must be given in sufficient doses; and it must always be given in sufficient dilution.

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SEXUAL PERIODICITY IN THE MALE.*

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For more than a century isolated observations have led investigators to believe that men, as well as women, present various signs of a physiological menstrual cycle. While Havelock Ellis[1] has with infinite pains compiled the numerous examples recorded in the literature up to 1910 when his latest edition of "Studies in the Psychology of Sex" appeared, the evidence of a phenomenon in males corresponding to a menstrual period cannot be considered as altogether conclusive.

Among many other cases recorded by Krafft-Ebing, Naecke, Moll, and others, Ellis quotes two instances which are in many respects the counterparts of the first two cases to be reported. The first, observed by Clouston in 1882, consisted of a "regularly occurring brain exaltation every four weeks, at times progressing to maniacal attacks, with a concomitant increase in the nisus generativus" and the second, described by Feré in 1905, manifested "a tenderness and swelling below the nipple every twenty-five to twenty-eight days accompanied by sexual excitation and erotic dreams."

Certain carefully kept records on the part of normal individuals of their sexual desires and nocturnal emissions have shown significant indications not only of a monthly but also of an annual sexual cycle. Ellis, however, further remarks that "It is in the domain of disease that the most strenuous and on the whole the most successful efforts have been made to discover a menstrual cycle in man. Such a field seems promising, for morbid exaggerations or defects of the nervous system might be expected to free from inhibition or to emphasize fundamental rhythmical processes of the organism, which in health and under the varying conditions of social existence are overlaid by the higher mental activities and the pressure of external stimuli."

Case I.—The first case, which resembles Clouston's, is that of an Englishman, violinist, single, age 29, who was admitted voluntarily to the Manhattan State Hospital, Wards Island, in June, 1912, just after one of his monthly depressions. He is one of thirteen children, but the only one apparently who shows distinct abnormality. He believes that he resembles his father in character, for the latter was erratic, hot tempered, and inclined to take long trips. He adds that it was well known at home, that about once a month "my father would become violent, irritable, and passionate, and at such times had to be handled by the family with care." His mother, who is still alive, is apparently normal. The maternal grandmother died of a senile psychosis and the maternal grandfather was of a psychopathic constitution.

From babyhood the patient developed feebly as he was afflicted with fragilitas ossium, through which he sustained 16 to 20 fractures of various long bones before the age of 22 years, though since then he has been immune. Otherwise his general physical health has always been fair.

Shortly after the age of six the patient manifested a desire to wander away from home into the fields, and it was not long before his mother began to notice that these wandering expeditions would occur once a month at about the time of full moon. Although the patient's sexual awakening occurred at five or six with infantile fancies about female members of the household and active masturbation began at the age of ten, periodicity in his sexual excitement, coincident with lunar changes, was not observed until he reached puberty. As a boy of thirteen he experienced nosebleed during one of his excited periods, but there has been no periodical epistaxis.

While he has observed that though once a month, at the time of full moon his erotic cravings are strong, it is curious that unless he is in his period, his sexual desires are very mild indeed. His citation of many examples of relative absence at one time of his desires and extreme augmentation at others with the same or different women (the patient has lived in common-law relations with a woman in London for two years) substantiates his assertion. Because he appreciates that during these periods his sexual cravings are almost uncontrollable, he has made it a practice for some years to avoid women at such times for fear that he will commit some serious indiscretion. At the time of the period he usually also feels a marked increase in energy, physical power, and ability to play on his violin, but at others experiences restlessness, depression, and anxiety. During one of his periods at the age of sixteen he was so excited as to require commitment to the Leeds (England) Insane Hospital. Judging from a retrospective account this appears to have been a maniacal attack.

Since puberty he has never known the periods to fail, excepting on two occasions, when as ship's musician he took trips to South Africa and Australia. Though he recalls that on both these trips the moon was shining brightly, he noticed no change in his emotions. As there is only a slight difference in the time of month for full moon in the Antipodes and northern latitudes, it is possible that the absence of the periods may be explained by the same curious phenomenon which causes a cessation of menstruation in women when they go to a climate to which they are not accustomed.

The purely psychical effect of moonlight and erotic

*Presented before the New York Neurological Society, November, 1912.

fancies connected with it, to which the excitement might perhaps be attributed may be excluded by the regular occurrence of the periods at monthly intervals when the moon was obscured or when the patient was placed in such situations that he was unable to see it, as during his long confinement to various hospitals while convalescing from his numerous fractures.

During his residence in the Manhattan State Hospital the patient awoke on July 10 after an emission. On the following three days he passed through a state of restlessness, mild depression, and irritability, which he describes as follows: "I have been melancholy for the last three days. At 5 A. M. Sunday I awoke after a nocturnal loss and have had no desire since. I miss my violin and my work, and most of all I miss the society of my dear lady friend. I think that the loss of her good counsel is the cause of my melancholy. This state will pass, as it always does, and I am becoming indifferent. My thoughts during this period are not worth putting down on paper. They only embrace the usual imaginations of a love-sick fool. Love is only miserable lust, and if I can overcome these periods I shall be happy without female society. There is nothing more I can say. My appetite is not impaired. Nothing but a strong desire for the old environment of the bright footlights."

As he was deported to England, no further periods were actually observed, but when last heard from he was again working as a musician on shipboard.

The above case is primarily an example of periodicity in connection with a psychopathic make-up. However, it is also to be expected that the existence of periodic sexual rhythms would be particularly manifest in persons showing secondary physical sex characteristics of the opposite sex. Such characters may grade from mere tendencies to effeminacy in facial expression or voice, to actual anomalies. Theoretically it is possible that extreme incongruity between external sexual and internal generative secretions may exist, and such a complete antithesis has recently been described by Magnus Hirschfeld.[2] It concerned a young person of twenty who had been educated as a girl but who evidenced unmistakable masculine social tendencies from early childhood. Examination revealed a perfectly developed female so far as breasts and genitals were concerned but the "young woman," who had experienced orgasms since the age of eighteen, had ejaculations of spermatozoa from an otherwise normal female urethra. Eventually she was legally declared to be a male and married a female companion.

The next patient to be described cannot be considered such a hermaphdrodite, but rather a male individual showing particularly the presence of a well developed breast and monthly sexual cycles. His mental states shows a reaction reminiscent of Adler's theory[3] that many psychic disorders have their basis in an inferiority of the sexual organs and that psychoneuroses are the result of a masculine protest against such a weakness.

Case II.—The patient, a machinist, who came to Dr. C. L. Dana's service of the Cornell University Medical School Dispensary complaining of nervousness, was born in Illinois in 1883 and gives a negative family history with the exception of epilepsy in one brother. No abnormality similar to his own exists, so far as he knows, in any other member of the family. His general physical health, aside from the malady under consideration, has always been good. No venereal infection or excessive alcoholic indulgence.

His physical development progressed normally until the age of thirteen when he noticed that the left breast began gradually to enlarge. Two years later it had attained its present development—a soft, slightly pendulous breast, about the size of that of a girl just passed puberty. The musculature of his body is firm and distinctly outlined, the body quite hairy, the external genitals fully developed, and the pubic hair of the male type. The skeletal formation is masculine on the whole, though the hips are a trifle large and there is a marked tendency to narrowness at the waist and also to lumbar lordosis.

The patient's face is strikingly youthful, so that he might readily be taken for a youth of twenty instead of a man of twenty-eight. The hair of the face is fine and so sparse that it is necessary for him to shave only once or twice a week. Although the voice "changed" at seventeen, it still remains decidedly soft, drawling, and rather high pitched.

From the age of 15 to 18 the patient indulged in masturbation about three times a week, but then abandoned this practice for normal sexual intercourse. It was then that he became aware that his sexual desires were active only once a month, usually about the twenty-second, at which time they became extremely strong. At the same time of the month he would also notice that the left breast would become firmer and more erect, and would also be subjectively sensitive and tender for about four days. For the past two years an oily secretion has appeared about the nipple at such times.

Seven years ago while rubbing the left breast with a coarse towel after bathing he observed that the friction caused an erection of the penis. The same reaction occurred subsequently when a physician whom he consulted for his neurasthenic symptoms, in administering electricity, happened to place an electrode over the left breast, and subsequently manipulation of the breast has produced erections.

Although the patient is more or less continuously in an uneasy and bashful state, the mental symptoms are more marked at the time of his periods. He becomes restless, easily frightened, irritable, and is subject to an annoying vertigo and flushes of blood to the head. For the past two years he has avoided sexual intercourse because of waning sexual desires, but at the time of his periods he is troubled by frequent involuntary nocturnal emissions. While actual failure in coitus has never occurred, his pollutions have led him to fear impotency. Homosexual traits or even masks of homosexuality, which often accompany such secondary sex traits, have not been revealed.

Because of the remarks, chaffing, and annoyances to which he has been subjected at the hands of his acquaintances and fellow workmen on account of the breast, which is sufficiently enlarged to be noticed through his working shirt, he has gradually withdrawn from society and become more and more seclusive. He has abandoned athletics in which he was formerly very interested, because of the necessity of undressing before men, and he is even loath to continue his trade of machinist because of the vexations to which he is exposed.

The patient has been treated with orchitic substance with meager result. It would not be surprising to see him eventually drift into a dementia præcox state unless he can be brought to consider his affliction more lightly.

Case III.—The following case, referred to me by Dr. Leo Buerger, presents a complicated picture from a psychical standpoint and is only briefly reported for the symptom of periodicity in connection with mild physical signs. He is an American of colonial ancestry, single, aged 29, a clerk, whose chief complaints on first consultation were depression, irritability, and lack of concentration.

Heredity negative with the exception of "nervousness" in the mother, who is still living at an old age. No diseases of childhood. Pneumonia at 26. Drinks and smokes in moderation.

The patient is thin, pale, of frail skeletal build. He is small, slender, waist narrow, and hips proportionately large. Very marked hairy growth over chest, legs, arms, and back. Genitals normally formed, though not well developed. The voice, gait, and many mannerisms are distinctly feminine.

Patient began masturbation at the age of five and has continued it practically up to the present time. At first, masturbation was practised alone, but later he became passive agent in pederasty with his two brothers, who were respectively fourteen and eight years older than the patient. Sexual relations with his brothers ceased after a bitter fist fight with his younger brother at the age of fifteen. Heterosexual intercourse only on three occasions at the age of twelve with a girl of the same age.

Since the age of fifteen the patient has abstained from any form of physical sexual relations with persons of either sex. His psychical homosexual component is very pronounced, as there are at least five instances of marked attraction toward men of the definite masculine type. He has roomed with most of these men, and while, as before stated, he has never had relations with them, he made many sacrifices to retain their friendship, such as cooking, washing, and keeping house for them and lending them money. With women he has always been more of a

companion than a suitor, a receiver of intimate confidences, and a friend whom they met on a basis of equality. In his tastes he is an esthete, with strong likings for the artistic in music and painting and an aversion for the gross and vulgar.

Periodicity.—When he returned to masturbation after the quarrel with his brother at fifteen, the patient gratified himself too frequently to observe any periodicity in his desires. At nineteen, however, when he began to attempt to suppress his habit, he noticed a regular variation in the intensity of his desires, therein that at the time of full moon no amount of effort succeeded in controlling them.

This lunar increment in his sexual cravings has continued without fail up to the present time. He believes that the psychical effect of moonlight is a negligible influence in his case, for, as he points out, the moon remains bright for several days after full moon, but his sexual longings disappear completely after reaching a climax at or about full moon, only to recur after another twenty-eight days. Moreover, the same excitability exists at lunar periods when the moon is not visible. Of recent years, since the patient has almost conquered his masturbation, nocturnal pollutions occur regularly at such times.

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249 West Seventy-fourth Street.

FOREIGN BODY IN RIGHT BRONCHUS. LOWER BRONCHOSCOPY. SUCCESSFUL EXTRACTION.*

By GERHARD HUTCHISON COCKS, M.D.,

NEW YORK.

JUNIOR SURGEON, MANHATTAN EYE, EAR AND THROAT HOSPITAL.

A boy two years old, of Italian parentage, living in Mount Vernon, N. Y., was brought to Dr. Chappell's clinic at the Manhattan Eye, Ear and Throat Hospital on February 3, 1913. From the mother, who spoke but little English, it was learned that the child had been sick with a cough and labored breathing for the past twenty-four hours. The boy had been crying, and was given peanut candy to quiet him. He coughed violently after receiving the candy, and it was feared that some of the candy might have entered the larynx.

The patient was a well nourished child, temperature 101 deg. F., respirations 28, pulse 128. Examination of the chest was negative. The respirations were somewhat noisy and slightly labored.

The diagnosis was considered doubtful, in view of the uncertain history. Laryngeal diphtheria, beginning pneumonia, and a foreign body in the respiratory tract were the three possibilities considered.

Under chloroform narcosis, a Brünig tube was passed into the larynx on February 3. The larynx and upper part of the trachea were free from any foreign body. During the examination large lumps of mucopus were coughed up into the tube almost constantly. A severe attack of dyspnea ensued, during which the tube was withdrawn covered with pus. Culture showed pneumococci. On account of the patient's poor condition and the uncertainty of diagnosis, the operation was discontinued, and the child returned to the ward.

During the next four or five days the patient suffered from a diffuse bronchitis, with the characteristic physical signs. The temperature reached normal on February 8.

*Reported before the New York Academy of Medicine, Section on Laryngology, March 26, 1913.

At this time physical examination of the chest elicited pronounced dulness over the right lung, especially in front, with diminished breath sounds on the right side. The *x*-ray picture was negative. The child now began to suffer from attacks of severe coughing, attended by considerable dyspnea. On February 11, eight days after admission to the hospital, feeling reasonably certain that we were dealing with a foreign body in the right bronchus, under chloroform narcosis we again prepared to pass a bronchoscopic tube, assisted by Dr. MacKenty, Dr. Phelps, and the house staff. As soon as the tube reached the epiglottis, the child was seized with a violent coughing spell, choked, stopped breathing, and became deeply cyanosed. The tube was immediately withdrawn from the mouth, and a quick tracheotomy performed, barely in time to save the boy's life.

Through the tracheal opening the trachea and bronchi were then explored with the bronchoscope. The tube entered with ease the trachea and the left bronchus, both of which were free. The right bronchus, on the contrary, could not be entered for any considerable distance by the tube, owing to the inflamed and swollen character of its mucosal lining. The bronchoscope was then passed through the tracheal opening up toward the larynx. The tube quickly filled with blood and mucus. As the suction pump failed to clear out the blood, the tube was withdrawn, and cleansed with a cotton applicator. One half of a peanut, broken into two pieces, was pushed out of the tube. The child was not in especially good condition, and the operation was discontinued after the insertion of a tracheal canula, which was allowed to remain for forty-eight hours.

During the next six days the child suffered from a bronchopneumonia involving both lungs, from which he made a good recovery.

On February 18 the temperature, which had been normal for twenty-four hours, suddenly shot up to over 104°, and exhibited this characteristic every forty-eight hours. Careful search of the blood failed to disclose any malarial plasmodia. In view of the characteristic malarial temperature and the fact that the child's home was at Mount Vernon, N. Y., he was given quinine, with prompt subsidence of the fever.

On March 5 the child was discharged from the hospital. Two days later the tracheal wound was completely closed.

We believe that during the second narcosis, owing to the relaxation induced by the anesthetic, the foreign body was dislodged from its position in the right bronchus by the attack of coughing. It was then carried to the upper part of the trachea, just below the vocal cords, where it plugged the glottis and induced the almost fatal choking attack which necessitated tracheotomy.

Pituitary Extract in the Treatment of Hemoptysis.—M. E. Rist reported at the Société Médicale des Hôpitaux that he had obtained excellent results in the treatment of hemoptysis by means of the intravenous injection of pituitary extract. One-half cubic centimeter of the extract, representing one decigram of the fresh substance, is the dose injected by the author into a vein at the bend of the elbow. The hemostatic action is generally immediate. A single injection suffices to arrest a profuse and rebellious pulmonary hemorrhage. No other remedy has an effect as rapid and as lasting.—*Le Bulletin Médical.*

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New York, July 5, 1913.

THE BACILLUS PERTUSSIS.

It was over a year ago that we had occasion to call attention to the vaccine treatment of pertussis which had apparently exercised a favorable influence over the course of the disease in a number of instances. At that time the Bordet-Gengou bacillus had been found constantly in certain stages of the disease and complement fixation tests with this organism were fairly constantly positive. Whether this bacillus was the true causative agent or merely a secondary invader had not been definitely determined. Of late, however, evidence to this end has become conclusive. Mallory and Horner (*Journal of Medical Research*, XXVII, 115, 1912) at first demonstrated "that the primary essential lesion of whooping-cough consists in the presence of masses of minute bacilli between the cilia of the epithelial cells lining the trachea and bronchi. Their action is chiefly mechanical; they interfere with the normal movements of the cilia by sticking them together; in this way the microorganisms furnish a continual irritation which results in the symptoms peculiar to the disease." They used this lesion as a criterion in their later animal experimentation, and they report now some very important results (*Journal of Medical Research*, XXVII, 391, 1913).

It had previously been demonstrated that puppies were susceptible to the disease. These animals were inoculated intratracheally with sputum from patients in the active stage of the disease, and when killed six weeks later the characteristic lesion was found in the trachea. This lesion in all the infected animals corresponds in every way with that found in man. Sections show clearly that the cilia are not destroyed and that the cells are not injured in any noticeable way. Pure cultures of the organism were then obtained from the sputum of suitable patients and a culture of the original Bordet-Gengou strain was used for comparison and control. They corresponded in every way. The authors inoculated several puppies and rabbits with these pure cultures by injecting them into either the nares or the trachea. In practically every instance they were able to demonstrate the characteristic lesion in the trachea of the animal and in several instances were able to recover the organism, not only from the trachea but also from the nares. It is interesting to note that normal puppies were readily infected if kept in more or less intimate contact with inoculated animals.

By this work all the demands of Koch's laws are satisfied and the *Bacillus pertussis* of Bordet and Gengou is definitely and conclusively proven to be the etiological factor in whooping-cough. These findings should not only stimulate investigation of the vaccine treatment of the disease, a treatment which has already met with a certain measure of success, but should also arouse the attempt to find a specific antibody which might be suitable for therapeutic purposes. In animals and man the bacilli diminish and finally disappear in the course of a few weeks and the complement deviation tests are regularly positive, two observations which would indicate the presence of some antibody. It should be a fruitful field and it is to be hoped that it will not be neglected.

THE SEGREGATION OF MENTALLY DEFECTIVE CHILDREN.

The medical profession is now fully aroused to the realization of the presence in the community of a large number of mentally defective children and adults. It is estimated that there is one feebleminded individual to every three hundred normal ones, which would mean about three hundred thousand in the United States, and that it costs about $200 per annum to maintain each one of them. This is a large increase over previous estimates. To what this increase may be ascribed is not yet definitely settled. The contention that it is due to the influx of a large number of alien individuals is not sufficiently demonstrated to warrant leaving the investigations there. On the other hand some investigators deny that there is any real increase at all, but maintain that the increase is only apparent, and due entirely to advanced knowledge of the subject and refinements in diagnosis, and that many persons are regarded as feebleminded who would have escaped this classification, when knowledge on the subject was less highly specialized. Moreover, the progress of civilization requires a higher standard of mental development and acuity to bring one on the normal side of the line—"in the face of the profoundly intellectual we are all more or less feebleminded."

There is, however, a degree of arrest of mental development in which there is little doubt that the arrest is permanent, definite, and not relative, and that it is incurable or allows of no progress beyond a certain point. These persons are best treated when segregated in institutions, where they can be properly protected and cared for, and whereby the public will be relieved of the danger of having such defectives propagate their kind. But it must not be forgotten that while the greatest number of defectives are such because of arrest in development of some part of their central nervous system, there are many children who answer the same tests of a measuring scale of intelligence that actually defective children do, but who are yet not real defectives, being merely retarded in a greater or lesser degree from the lack of physical opportunity to develop their mentality; that is, from physical defects

of speech, sight, and hearing, which retard or even prevent their mental development by obstructing the opportunities for acquiring, through these channels, the stimuli that naturally flow through them. With the correction of these defects, the normal mind becomes sensitive to the stimulation of environment and education, whereas the actual lack of gray cells in the feebleminded is affected by no amount of stimulation, and will never develop. A child, then, previously defective under the Binet-Simon scale or under any of its modifications for measuring intelligence, will, after appropriate medical treatment, rise to its own level, or even beyond it. Hence the necessity of submitting all children suspected of being mentally defective to a special medical examination—not merely the general one given to all children—with the view of determining physical defects from the standpoint of mental development.

The practice that has sprung up since the introduction of the measuring scales for intelligence, of delegating the mental examination to teachers engaged in the work of training defectives, is very harmful, and may discredit the whole science as being a legitimate branch of the medical sciences. Psychiatry, of whatever branch, requires a very broad training, a broader one than that obtained in the study of either pedagogy or psychology. A training in psychology alone is not sufficient any more than a training in physiology alone is sufficient to fit a man for the practice of medicine. Psychology is the study of the workings of the normal mind, psychiatry is the study of the pathological processes. The former should be studied in preparation for the latter. Besides, psychiatry requires a very broad general and medical training, and a special training in diseases and defects of the mind. The lay workers have an important part in this science, but it is entirely in the teaching and training of those set down as permanently defective by the psychiatrist.

In no case should a child be segregated in an institution for the mentally defective after a test merely with a measuring scale, mechanically carried out by a lay worker. Only after a thorough medical and mental examination by the physician, and after a probationary period spent under observation by a physician, should a child be relegated to the class of the mentally defective. For a child retarded or defective from some physical impediment who is put with those actually defective, will soon sink to their level. Environment has almost as much to do with development as heredity, and even a good hereditary constitution can sink under a depressing environment.

VEGETARIANISM.

Although vegetarianism has made considerable headway during recent years, several noted authorities on the physiology of digestion have firmly set their faces against the practice, that is to say, for the ordinary normal civilized individual. There is little doubt that frequently, in fact, more often than not, a person eats more than he needs and does not eat the food most suitable to the requirements. Moreover, the man or woman who leads a sedentary life does not need the quantity or kind of food that one who works hard at manual labor in the open air can digest and assimilate. And again the older a person becomes the less he is able to digest to the advantage of his physical and mental powers. But all this does not mean, according to the opponents of vegetarianism, that he or she is to cut meat out wholly from the diet, even if engaged in sedentary work or if the digestive mechanism is becoming somewhat worn by use or abuse. Professor Ernest Starling points out in his "Human Physiology" that the fact that in many cases greater economy and efficiency of nutrition are attained by diminishing the protein of the diet affords no argument for accepting or rejecting any given class of foods. Thus the normal requirements of the individual can be obtained by the administration of a diet containing meat, eggs, vegetables, and cereals, or by a diet derived entirely from the vegetable kingdom.

A purely vegetable diet is rendered possible in civilized countries by the ease with which the products from warmer climates can be obtained. A diet composed only of the products of temperate climates would tend to be deficient in fats and oils. In such climates it is therefore necessary to import the oily fruits grown in warmer lands, or to supplement the diet with such animal food as milk or butter or eggs. In drawing up a purely vegetarian diet it is important to remember that its constituents, especially its protein, are digested with greater difficulty than the corresponding ingredients in animal food. A larger quantity therefore has to be given in a vegetable diet in order to allow for the greater loss by the feces. Any general reform of diet which may be indicated by recent physiological experiments would seem to be rather in the direction of limitation of the quantity of different articles of food, perhaps especially of those rich in protein, than in a limitation to foods obtained from the animal or vegetable kingdom. In certain individuals the increased bulk of indigestible residue which is afforded on a vegetarian diet presents a distinct advantage, since it serves to promote peristalsis and the normal evacuation of the large bowel. Starling concludes that there is no scientific evidence that for the ordinary person any advantage is to be gained by adherence to a strictly vegetarian diet.

Professor Gautier, a well-known French authority on dietetics, recently made a vigorous attack on vegetarianism in a Sorbonne lecture on the value of various food stuffs. In the course of his remarks he gave it as his opinion that vegetarianism in no way meets the requirements of the activities of modern nations, and as a fixed regimen is anything but desirable, as it reduces the energy, weakens the will power, and lessens the capacity for prompt decision.

It is likely, nay obvious, that the well-to-do individual generally eats more than is good for him, and when he does this, he is as likely to injure his digestive system by limiting his diet to vegetables as the person who eats too much meat—rather, Starling thinks, he is more apt to do so. A mixed diet, taken in moderation, will doubtless suit the healthy civilized man the best. Of course, the per-

sonal equation must always be taken into consideration, and when a person has arrived at the age of discretion, he should begin to be the most reliable judge as to what kind of food and how much is best adapted to his requirements and to his digestive powers. A person will learn in the school of bitter experience what he should eat and what he should not eat, and if he does not so learn, he will soon go the way of the unfit.

Country Schools and Rural Sanitation.

Several public health reports have been issued recently dealing with the unsanitary conditions of rural districts in the Southern States, especially in relation to the widespread existence of hookworm disease. Chas. Wardell Stiles, in reprint No. 46, refers to these conditions, but more particularly with regard to the influence exerted by the country school teacher. He defends the teachers from the aspersions so frequently cast against them nowadays and points out the narrow-mindedness of their critics who think only of efficiency in teaching. The true facts are that the teacher is paid an insufficient salary for the noblest of all work, and at the same time is compelled to submit to unsanitary conditions which occasionally seriously injure her health and shorten her life. Suggestions as to improvements in the sanitary surroundings usually fall on deaf ears. This is unfortunate for the public school teacher. But with all this she is the greatest civilizing influence today in the rural districts. It cannot be denied that a better educated class of teachers might be obtained if they were paid better salaries, but Stiles would suggest to their critics that they will probably be able to retain their young women a year or two longer if they improve the present indecent and unsanitary conditions under which these young women have to work. Further, these teachers will certainly have more success in their pedagogic efforts if the sanitary conditions surrounding the schools are improved to a point where the country school will not form, as it forms today, the great disease-spreading center for rural and semirural communities.

News of the Week.

Vital Statistics.—The mortality tables of the principal cities of the world for 1912, which have just been issued give the record for a low death rate to Amsterdam which reported 10.94 deaths per one thousand of population. Charlottenburg and Dusseldorf are next, with 11.21 and 11.94 respectively, though both of these cities have a comparatively high infant mortality. Of the larger cities, London had a death rate of 13.52, Hamburg of 13.58, New York of 14.11, Berlin of 14.39, and Paris of 16.38. In the United States, Minneapolis had the lowest death rate, 10.57 per thousand, while Washington, Baltimore, and New Orleans reported rates of over 17 per thousand, the presence of large numbers of negroes in these cities being given as the cause.

In the table of infant mortality, Stockholm has the lowest rate, 82 per thousand of births, London is next with 90, and New York has 105, the lowest in its history. Berlin has a high infant mortality, 142.9 per thousand.

New Marriage Law.—By the action of its State Legislature on June 25, Pennsylvania became the first State to adopt what is called a "eugenic marriage" law. The measure which had the support of the State Medical Societies, prohibits the issuance of marriage licenses to persons afflicted with a transmissible disease; specifies that a license shall not be issued when either of the contracting parties is an imbecile or is under guardianship as a person of unsound mind; provides that no male who is or has been within five years an inmate of any county asylum or home for indigent persons shall be permitted to marry unless it appears that the cause of such a condition has been removed and that the person has become physically able to support a family, and stipulates that marriage licenses shall not be granted to persons under the influence of intoxicating liquors or of narcotics.

Nurses' Home.—The Woman's Hospital, New York, will shortly erect a seven-story building to be used as a home for nurses adjoining the hospital building on the south side of 110th Street. The building will have a frontage of fifty feet, and the façade will be of brick and granite. There will be a roof garden and a solarium for the nurses. The estimated cost is $125,000.

Condemn Friedmann Treatment.—At a meeting of the Canadian Medical Association in Ottawa on June 26, a committee appointed by the Canadian Association for the Prevention of Tuberculosis to investigate the cases inoculated by Dr. Friedman in Montreal, Ottawa, Toronto, and London, made its report. The committee found that the results had been disappointing and the claims made for the remedy had not been proved, and that nothing had been found to justify any confidence in the remedy.

International Conference for Cancer Research.—At the meetings of the Third International Conference for Cancer Research to be held in Brussels from August 1 to 5, 1913, the following topics will be considered:

1. The use of physicochemical processes in the therapeutics of cancer. The use of chemical agents after radical operations. 2. Vaccination against malignant growths. 3. Statistics on cancerous disease. Local propagation. 4. Prophylactic institutions for cancerous disease. 5. The care of those afflicted with cancer, and the necessary training of a staff. 6. The present situation of the study of cancer and of the fight against cancer in different countries. Presentation of books, pamphlets, and tracts for the medical profession and literature to educate the people on these subjects.

International Congress of Surgery. — The Fourth Congress of the International Society of Surgeons will be held in New York on April 14 to 18, 1914, under the presidency of Prof. A. Depage of Brussels. Three subjects have been announced for discussion: 1. Gastric and duodenal ulcers (de Quervain, Hartmann, Lecène, Mayo, Moynihan, Payr); 2. Grafts and transplantations (Carrel, Lexer, Morestin, Ullmann, Villard); 3. Technique of amputation (Binnie, Ceci, Durand, Kusmik, Ranzi, Witzel). The sessions of the congress are public, but participation in the discussions is limited to the members and the discussion will be confined strictly to the topic of the day. Information in regard to the program may be obtained from Dr. L. Mayer, Secretary-General, 72 Rue de la Loi, Brussels.

School for Health Officers.—Under the auspices of the Kansas State Board of Health, the Medical School of the University of Kansas conducted a

series of lectures on sanitation and public health from June 23 to 28. The course was open without charge to all health officers, physicians, and medical students of the State of Kansas.

Health of the Canal Zone.—The report of the department of sanitation of the Isthmian Canal Commission for the month of April shows that there was during the month a total of 51 deaths from all causes among employees, of which 24 were due to disease and 27 to violence. This gives a death rate for the month of 10.29 per thousand, which compares favorably with previous years. The annual average death rate per thousand in the cities of Panama and Colon and the Canal Zone, including employees and civil population, was 21.18 for the month, while for the same month of last year it was only 17.21. Of the total deaths among employees, 5 were due to lobar pneumonia, 3 to organic heart disease, and 7 to tuberculosis. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

Public Health Council.—Governor Sulzer on June 27, announced the personnel of the new Public Health Council, which under the recently enacted health law will have charge of the formulating of sanitary regulations for New York State. It is composed as follows: Dr. Hermann M. Biggs, New York, chairman; Dr. Simon Flexner, New York; Mr. Henry N. Ogden, New York; Mrs. Elmer Blair, Albany; Mr. Homer Folks, New York, and Dr. Edwin Clark, Buffalo. Commissioner of Health Porter will continue in office until December 31, 1913, when Gov. Sulzer's term expires. The Legislature has given the Health Department an additional appropriation of $125,000, to meet the salaries and expenses called for under the present plan of enlargement. Twenty-seven new officials are to be appointed.

Medical Examinations in Alaska.—The Alaska Territorial Legislature has passed a Medical Practice bill, providing for examinations to be held at Juneau, in January and July of each year. The fee is $25.00.

Personals.—Dr. Elias Potter Lyon, dean of the St. Louis University School of Medicine, has been chosen dean of the College of Medicine and Surgery of the University of Minnesota, to succeed Dr. F. F. Westbrook, resigned.

St. Louis University School of Medicine, has been appointed by Governor Foss to represent the State of Massachusetts at the Third International Conference on Cancer in Brussels, and at the Seventeenth International Medical Congress in London.

Dr. Rupert Blue, Surgeon General, United States Public Health Service, received the honorary degree of Doctor of Public Health from the University of Michigan on June 26.

Dr. Knopf's Work on "Tuberculosis as a Disease of the Masses and How to Combat it."—Dr. Balkrishna Sharma of Delhi, India, has recently made a Hindi translation of Dr. S. Adolphus Knopf's international prize essay on tuberculosis. Dr. Balkrishna has been fortunate enough to find a philanthropic publisher so that the essay can be retailed at 5 annas (about 10 cents). In view of the great prevalence of tuberculosis in India and the fact that the Hindi language is spoken by more than eighty million people, the desire to educate the masses in the combat of tuberculosis in that part of the world is a gratifying sign of the universal progress of the anti-tuberculosis campaign. A new issue of the Seventh American edition of this work has just come out, so that, since the appearance of the original first German edition in 1900, there have appeared in all, including this Hindi and the recently issued French-Canadian translation, 36 different editions in various languages spoken in Europe, America, and Asia.

Gifts to Charities.—By the will of the late Mr. Lyle Reid of Jersey City, N. J., the sum of $2,000 is bequeathed to Christ Hospital of that city.

The following bequests are contained in the will of the late Mr. Karl Hutter of New York: the German Hospital, Brooklyn, $10,000; the Marienheim, Brooklyn, $20,000; and the German Hospital, New York, one-fourth of the residuary estate, the value of which is not stated.

Dr. Hartley's Estate.—Princeton University is the chief beneficiary under the will of the late Dr. Frank Hartley, who left an estate estimated at about $200,000. The bulk of this after the death of his wife is to go to Princeton and be used to create the Hartley Fund, the income of which is to be paid out in scholarships to needy students. Dr. Hartley also left gifts of $5,000 each to the New York Hospital to endow a bed in the surgical ward, and to Princeton to endow a bed in the Isabella McCosh Infirmary. Another bequest of $15,000 was made to Bowdoin College to establish the John F. Hartley scholarship in memory of his father, for the aid of graduates of the college desiring to study law.

Obituary Notes.—Dr. William Henry Clowminzer of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1891, a member of the Long Island Medical Society, and physician to the Bedford Hospital and Dispensary, died at his home on June 21, aged 46 years.

Dr. Edwin Augustine Kemp of Lonsdale, R. I., a graduate of the University of Vermont College of Medicine, Burlington, in 1862, died on June 12, after a long illness, aged 80 years.

Dr. George William Johnson of Charleston, S. C., a graduate of the Medical College of the State of South Carolina in 1911, died at his home after a brief illness, on June 12, aged 26 years.

Dr. Wingo Williams of Fort Worth, Tex., a graduate of the University of Texas, Medical Department, Galveston, in 1913—only three weeks ago—died in Philadelphia from scarlet fever contracted while on duty in the Municipal Hospital in that city, on June 18.

Dr. Richard Fletcher Van Housen of New York, a graduate of the Albany Medical College in 1895, a member of the New York State and County Medical Societies, and adjunct physician to Seney Hospital Out-Patient Department, died at his home from Bright's disease, after a long illness, on June 16, aged 46 years.

Dr. Robert Simonton Young of Concord, N. C., a graduate of the New York University Medical College in 1881, and a member of the American Medical Association and of the New York State and Cabarrus County Medical Societies, died suddenly on June 18, aged 52 years.

Dr. John Early of Grant City, Mo., a graduate of the St. Joseph Hospital Medical College, St. Joseph, in 1857, died at his home on June 17, aged 73 years.

Dr. Martin Luther Bruce of Brattleboro, Vt., a graduate of the University of Vermont Medical College in 1872, died at his home on June 7, aged 68 years.

Correspondence.

THE BULGARIAN BACILLUS IN DIABETES.

To the Editor of The Medical Record:

Sir:—I have read with great interest the report in your issue of June 14 of failures in the use of the cultures of *Bacillus bulgaricus* in the treatment of glycosuria. It seems to me from a careful perusal of Dr. Blodgett's report, that he, as the majority of the men who have met with adverse results, looks upon the bacillus as an antitoxin, instead of considering it as an adjunct in aiding the proper metabolism of the carbohydrates, as I have attempted to set forth in my report of Jan. 25, 1913. It appears that they look upon the bacillus as a specific and entirely ignore the diet, permitting that kind of food which I consider is especially harmful in diabetes. If we consider the condition due to an autointoxication, as I do, why give the cultures of *Bacillus bulgaricus* if we persist in giving those articles of diet that help to keep up the autointoxication, as fish, cheese, cabbage, etc.? On the other hand, if we are to ignore the theory that an autotoxemia is responsible for the condition and consider only the inability of the economy to tolerate carbohydrates, the mere use of *Bacillus bulgaricus* surely does not mean that one can give his patients all the carbohydrates he wants from 6 oz. of green peas at a time to pure sugar, as set forth in Dr. Blodgett's report. It is true that some of the carbohydrates or foods rich in carbohydrates are tolerated by the diabetic more than others, as oatmeal (von Noorden) and rice (von Dühring), but that does not mean that all the carbohydrates are tolerated and in any quantity simply because we happen to give the patients cultures of *Bacillus bulgaricus*.

As I have set forth in my previous article, all that this bacillus does is to destroy putrefaction and slow down the time of carbohydrate digestion, causing it to be absorbed more slowly so that more carbohydrate is tolerated. The affinity for sugars is very much greater in the diabetic than in the normal healthy person. The carbohydrates are rapidly converted into glucose and absorbed by the body, and excreted as such by the kidneys. To prove this I had a series of examinations made on stools from normal people and those from diabetics. In normal stools we occasionally came across some starch granules and very rarely got a reduction of Benedict's solution. In the diabetic stools we never got a reaction for either starch or sugar, showing that the digestion, conversion, and absorption of carbohydrates are complete and perfect. If the above is true then we must exercise some judgment in the selection of food for a diabetic. As for the use of fish, I have also permitted my patients to use fish in various forms and found that this almost always increased autointoxication and consequently the amount of sugar.

Now let us see what the patients in Dr. Blodgett's report received in the way of diet. They almost all received fish in some form; some had onions, cheese, nuts, cabbage, tomatoes—articles of diet that should never be permitted; a few were allowed all the milk they wished to drink, notwithstanding that milk has 4.5 per cent. lactose. Case No. 2 received 6 oz. green peas at a time or about 1 oz. of pure carbohydrates. Now when we come to Cases 4, 5 and 6—grave cases of acidosis—all received pure sugar, from 1 to 1½ ozs. a day. Why they received sugar in preference to other treatment for combating the acidosis is beyond me. Most of us know that in severe cases, where the diet is free and sugars are ingested, the patients rapidly fall into a state of acidosis and die in coma. Why sugar should be given to combat the acidosis I do not know. I do know that I have had a great number of patients who had marked acetone, diacetic and oxybutyric acid in the urine who were saved and those substances were eradicated from the urine by other means than giving sugar. And I am sure that has been the experience of other men. Only in Case 5 did Dr. Blodgett make an attempt to give the patient sodium bicarbonate, I suppose with the idea of neutralizing the acidosis, but then she received 10 grains a day.

Philip Horowitz, M.D.

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HIGH BLOOD PRESSURE AND HARDENED ARTERIES.

To the Editor of the Medical Record:

Sir:—With the daily use of the sphygmomanometer in medical practice there has come another abuse nearly equal to the furore for abdominal section in appendicitis, and foolish doing and exaggeration in pulmonary tuberculosis. Everywhere at present, in talk and in print, we meet with high blood pressure, hardened arteries. Advanced knowledge is good, always presuming it is true and lasting—and also that it be used with common sense and controlled by sympathy for the sufferer in mind or body. In hospitals, it is well for students to be instructed as to novel findings. It is also well that their present and prospective value may be rightly appreciated. When, however, we find the advanced methods of research becoming the daily routine of the practitioner, they are a great evil in more ways than one.

To begin with, physical instruments, especially those which are accurate and delicate can be used with precision and value only by one who is specially skilled. This skill comes solely with continued doing and multiplied opportunity of varied instances. Again, to translate rightly, the value of its showing requires great knowledge and thoughtful consideration of different problems involved. Further, and lamentable fact, which is more and more notable, many people are made apprehensive and unhappy by the use of instruments of which they know little or nothing, and to whose use undue value is attached.

The harm to-day of exaggerated specialism is, to my mind, enormous, and there seems little prospect of arresting it. The man with wide, sober vision, who is able and willing to give every branch in medicine or surgery its proper importance in the makeup and marking of the bodily machine, is put aside as out of date or ignorant. And yet he represents the only real wisdom which should also be the ever-guiding hand.

We know surely after several years of observation that there is no medication of value in arteriosclerosis (syphilis excepted) except in the correction of bad causative habits. We also know that drugs to lower high pulse tension, must be used with great caution, and only when immediate danger threatens, or there is great discomfort. When one or the other is relieved, mere drugging should cease. Not so, with excesses of food, alcohol, work, worry. These should all be lessened and

continuously. Blood pressure lowered in the former way is temporary and sometimes in so doing harm results to cardiac power. In the latter way, good alone results. Whenever blood pressure is high and remains so permanently, despite efforts to diminish it, we must conclude that it is truly conservative and it is both unwise and foolish to attempt to lessen it. Frequently we have seen high pressure lowered and the patient made worse by reason of a weakened heart. Add to this, what I have also witnessed, the case of a patient whose daily watching the rise or fall of the mercury tube shortened his life, and during its duration, made him, as it were, "die daily" from nervous fright. The pursuit of science thus easily separates itself from the cause of humanity.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

FANCY FAIR FOR THE LONDON HOSPITAL—CHYLOUS AND CHYLIFORM EFFUSIONS—TENURE OF MEDICAL OFFICERS OF HEALTH—SIR V. HOUSLEY AND THE HOME SECRETARY—OBITUARY.

London, June 13.

The needs of the London Hospital are always pressing, and it is said have been greatly increased by the Insurance Act. To afford it some extra assistance a number of aristocratic ladies organized a fancy fair, on which they bestowed the name of "Noah's Ark." They have been at work for it a long time, and it has been held this week at the Royal Albert Hall, and promises to produce a considerable sum for the hospital, as it has been conducted on a splendid scale and the organizing ladies have been by no means afraid to solicit help from every one they could venture to approach. Queen Alexandra was patroness of the fair, and on the opening day attended. Her majesty was accompanied by the Empress Marie Féodorovna of Russia, and the Princess Victoria. At one stall Princess Louise, Duchess of Argyll, presided, and the royal visitors examined the display with interest and made many purchases.

Mr. Louis Wain was called to the royal box to draw some of his humorous cats, which were purchased by Queen Alexandra and the Empress. Yesterday the Crown Prince and Crown Princess of Sweden visited the fair and were accompanied by Princess Victoria Patricia of Connaught. You may remember that the London Hospital is the largest in the metropolis, and is situated in the East End, and serves the poorest of the population. It is to be hoped that these efforts of its richer supporters will be followed by an increased subscription list.

Chylous and chyliform effusions are perhaps more frequent than is generally supposed, if one judge by the number of cases cited at the Medical Section (R. S. M.) last month. D. H. A. Lediard began the discussion by describing a case in a young man of 18 who had what was held by all who saw him, abdominal tuberculosis, for some twelve years, and ascites for half that time. Drainage was advised, and a large quantity of a milky fluid evacuated of sp. gr. 1005, containing 6 per 1,000 albumen and not 0.2 per cent. fat; no cellular elements, no blood, no pus. Only temporary improvement followed, and he died eventually with brain symptoms. At the post mortem 65 ounces of chylous fluid was found free in the abdominal cavity, more on the right side than the left. Tubercle was scattered throughout the system —spleen, liver, kidneys, membranes of brain, mesenteric glands, intestinal peritoneum, all were involved. In another case the glands in the neck were much enlarged on both sides, the patient being a girl of 16 who had undergone two operations, one for excision of these glands, the other for those in the left axilla. An acute attack of pain in the abdomen and vomiting led to puncture of the peritoneum when chylous fluid was removed. It was suggested that the enlarged glands pressed on the thoracic duct. Dr. Lediard mentioned yet another case in a woman with mitral disease and liver affection with ascites. On tapping, chyliform fluid was evacuated.

Mr. Mackenzie Wallis discussed the chemical differences between chylous and chyliform fluids, and pointed out that mixed forms might be obtained from a single patient. The specific gravity, total solids and ash should be ascertained as soon as possible after withdrawal. The presence of lecithin was important. The nature of the fat served to distinguish normal from pathological human fat. Sugar was not so important, as it might be present or absent in either variety of these fluids. Dr. Wallis referred to an article in the *Quarterly Journal of Medicine,* in which all the cases were recorded in the literature—174 altogether. He objected to Quincke's classification founded upon the varying amount of fat found, and proposed to recognize only two groups, which he termed chylous and pseudochylous. In the former he put fluids due to injury or disease of the chyle vessels with escape from the lacteals. The pseudochylous included fluids in the serous cavities in which opalescence was only partly due to fat, other ingredients being concerned. In chylous cases reaccumulation took place more rapidly than in the other group. The pseudochylous fluid was pure white, in contrast to the yellowish, and it diminished in quantity after several tappings. Moreover, the pseudo was odorless, as against the smell of the chylous, which resembled ingested food due to the fat contained. Out of the recorded cases forty-two were complicated with pleural milky effusion, two with pericardial; Dr. Ryffel one, with chronic nephritis, corresponding with Dr. Wallis' pseudo group. The other was more obscure. Milky fluid was found in the thorax, but the post mortem did not enable him to determine its origin. It contained some fat globules, but not enough to account for the opalescence.

The grievance of medical officers of health was raised in Parliament yesterday on the vote for the local board. Some of these officers hold their position on practically life tenure and cannot be dismissed without the consent of the Local Government Board. Others, however, can receive notice from the local authority engaging them, and are thus liable to dismissal by that authority. As it may be a duty to censure the persons employing them, they want some security of tenure, and ask that the consent of the Local Government Board be made essential to every dismissal.

In the House of Commons the Home Secretary was asked if he had laid a complaint about Sir Victor Horsley before the College of Surgeons and refused to give Sir Victor information as to its nature. Mr. McKenna replied that Sir Victor had made certain public statements reflecting on prison

officers. In justice to them he sent the statements and his reply in that house to the college. As to the request of Sir Victor to give him information he referred him to the college. Asked if it would not have been fairer to communicate to Sir Victor before complaining to the college he said no, he sent nothing but what Sir Victor had publicly stated, and his reply in that house, not marked private, and the college could do what they thought proper about furnishing a copy; he had no objection. There could be no secret about statements published in most of the newspapers, and his own statement in that house.

Of course Sir V. Horsley is angry, and writes to the papers his counter statement in terms well charged with talk of "subterranean attacks," "inaccuracy," "secret intrigue," "machinations," and other expressions in which he is an expert. His greatest annoyance appears to be that the college "flatly refused" to supply the documents, though demanded by his solicitor. Further, he suggests that "possibly he may in time become aware" of the charges against him. But really it is strange that he pretends not to know what were his public statements about prison officers and what were the terms of Mr. McKenna's defence of them in the House of Commons. Mr. McKenna has said what he sent were those statements and nothing more.

Dr. L. Forbes Winslow died on Sunday from cardiac failure, aged 69. He had been in failing health for some time, but death was not anticipated. On Saturday night he seemed better than of late. He was the youngest son of Dr. Forbes Winslow, who attained great reputation as a specialist in mental diseases, and he followed in his father's footsteps with success. He graduated as Bachelor of Laws at Cambridge, 1866, M.B. 1870, D.C.L., Oxford, in 1873. He was president of the lunacy section of the Medico-Legal Congress, New York, 1895, and contributed to the journals respecting it. He edited for several years the *Psychological Journal*, and wrote "A Manual of Lunacy," "Mad Humanity," "Fasting and Feeding," "Spiritualistic Madness," "Uncontrollable Drunkenness," and a "Handbook for Attendants on the Insane." He had been a lecturer at Charing Cross Hospital. He was also known as an athlete.

Dr. Edmund Wilkinson Roughton, F.R.C.S., M.D., Surgeon to the Royal Free Hospital, died on the 10th inst., aged 51. He was a Bart's student, and graduated at the London University with distinction, taking the gold medal at the M.B. examination, 1883, and another at his B.S., 1887, and the scholarship in surgery. He also took the gold medal with his M.D. He was demonstrator of anatomy at his own school from 1886 to 1889, warden of St. Mary's Hospital College, 1891-7 and examiner for the Royal Colleges of Physicians and Surgeons in 1896.

The death has also occurred of Dr. Surgeon-General J. Lloyd Thomas, who retired in 1911 in ill health contracted during service in China, for which he received the Order of the Double Dragon. He entered the Royal Naval service in 1884, and served in the Home Fleet and afterwards in the West Indies. He was at Chatham in 1906-8, and in drill ships in 1909-10.

Dr. Geo. Hy. R. Dabbs was found dead in his bed on Tuesday morning. Besides the double qualification in London, he graduated at Aberdeen M.B., M.S., 1867, and M.D., 1868. He then traveled on the continent for a couple of years and afterwards settled in practice in the Isle of Wight. He remained there until 1903, afterward coming to London. Besides being a successful practitioner, and later consultant, Dr. Dabbs was well known in the literary world, as the editor of *My Journal* and as the writer of a number of books and plays. Among them I may mention "Before Good Night," "From Door to Door," "Vectis," "Ugly—a Hospital Dog," "The Ladder of Pain," "The Child Healer."

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 19, 1913.

1. Concerning Diabetes Insipidus and the Polyurias of Hypophyseal Origin. Harvey Cushing.
2. Diagnosis and Treatment of Diphtheria. J. B. Greene.
3. A Report of Seventeen Cases of Pulmonary Tuberculosis Treated by Artificial Pneumothorax. H. L. Barnes and F. T. Fulton.
4. A Method of Supervision in Medicine. W. T. Carolin.
5. Tuberculosis of the Epididymis: Its Effect Upon Testicle and Prostate. J. D. Barney.
6. A Case of "Syphilitic Periostitis" Cured by Salicylates. E. H. Goodman.

1. **Diabetes Insipidus and the Polyurias of Hypophyseal Origin.**—H. Cushing discusses this subject in its experimental and clinical aspects. As the result of his investigations he has found that the infundibular lobe contains, in addition to the substance capable of glycogenolysis, a chemical body or hormone capable of eliciting diuresis. Under certain operative conditions which entail posterior lobe manipulations there often occurs a diuretic response, and occasionally an extreme polyuria, whereas a temporary diminution in the excreted urine is apt to follow other operative procedures, requiring an equally long anesthetization. Posterior lobe implants may cause a temporary polyuria, which subsides on the removal of the implanted tissue. Stimulation of the autonomic system of nerves to the gland elicits diuresis. Certain operative procedures, such as separation of the infundibular stalk, and occasionally a simple posterior lobe excision, may call forth a somewhat prolonged polyuria. Certain clinical observations, coupled with the experimental data which have been assembled, suggest to the author not only that the emotional polyurias are in all likelihood the expression of a neurogenic discharge of hypophyseal secretion, but also that the clinical polyurias of longer duration are in many instances merely the symptomatic expression of an internal secretory disturbance brought about by injury or disease involving the hypophyseal neighborhood. Hence, whether or not there actually proves to be a form of polyuria of primary renal origin, one's present conceptions of so-called diabetes insipidus need to be recast, with especial reference to the factor of the secretory activity of the pituitary body and particularly of its posterior lobe.

2. **Diagnosis and Treatment of Diphtheria.**—J. B. Greene emphasizes the following points: The diagnosis of diphtheria depends primarily on finding the organism. A culture should be taken of every sore throat in children, and likewise of suspicious nasal discharges. But in the absence of a positive finding, if the symptoms point to diphtheria, antitoxin should be given. This is particularly important if the symptoms are severe. Much larger doses of antitoxin should be given in diphtheria. Textbooks have been misleading in this respect. Laryngeal cases are serious, partly from mechanical obstruction, requiring prompt relief of the stenosis, and large doses of antitoxin. Intubation in the main is preferable to tracheotomy. Laryngologists should perfect their technique in this operation until it becomes a fairly simple one. Epidemics of diphtheria are kept up largely by "carriers." They should be sought out and isolated, and the abnormality treated. Diseased tonsils and adenoids may require removal.

3. **Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.**—H. L. Barnes and T. T. Fulton report their experience with this method of treatment in seventeen cases. They believe that while seventeen cases are obviously too few to enable one to form definite conclusions, pneumothorax prolonged the life in twelve or 70 per cent, of the cases. These were, moreover, far advanced and progressive cases. One would expect much better results in unilateral cases and in those less far advanced. Moderately advanced progressive cases in which a high or moderate fever is not controlled within a month or two by rest in bed and in which one can determine in which lung the disease is active, are entitled to a prompt trial of this method, especially as the chance of recovery in these cases is slight under ordinary methods of treatment.

5. **Tuberculosis of the Epididymis.**—J. D. Barney states that in genital tuberculosis the epididymis is the primary focus in the vast majority of cases. Tuberculosis of the epididymis becomes bilateral in 41.6 per cent. of all cases and becomes so within six months of the time of involvement of the first side in 30 per cent. The prostate and vesicles are found to be infected in 75 per cent., this infection occurring in the first six months in 30 per cent. and in the first year in 54 per cent. It is also shown that this infection takes place quite as often in the presence of unilateral as of bilateral epididymitis. The urine is pathological in 43 per cent. of all cases; bladder irritability is found in 35 per cent., and in about half of these it occurs in the first six months. In 33 per cent. tuberculosis, past or present, of organs other than those of the genitourinary tract, is to be expected. The lungs are most often attacked. Clinical observation shows tuberculosis of the testicle in 44 per cent., but the pathologist finds the disease in 66 per cent. and of these 53 per cent. are found infected within six months of the onset of the epididymitis. The records of 67 epididymectomies show that no case has yet returned for orchidectomy. The radical operation is, therefore, rarely necessary. Infection of the first and second epididymis, as well as of prostate and vesicles, seems to be by the blood or lymphatic streams, but it cannot be denied that in some, infection takes place through the vas by an ascending or descending process. The operative mortality of 147 cases is 2.72 per cent., a general miliary tuberculosis being the most common cause of death. As it has been shown that the infection may become widespread in the first six months of the disease operation at the earliest possible date is strongly indicated.

New York Medical Journal.

June 21, 1913.

1. The Cancer Research Institute. J. G. Adami.
2. Influenzal Otitis. S. MacCuen Smith.
3. Mensuration and Projection of the Posterior Urethra and Vesical Floor by Means of Posterior Urethral Calipers and Radiography. V. C. Pedersen and L. G. Cole.
4. The Philosophical Anatomy of the Lungs. E. Souchon.
5. Bilateral Nephrolithiasis. O. C. Smith.
6. Is the Rapid Cure of Syphilis Possible? W. F. Bernart.
7. Healthy Sick Children. L. G. Kerr.
8. An Additional Case of Fracture of the Floor of the Acetabulum. Coincident Fracture of Head of Femur. P. G. Skillern, Jr., and H. K. Pancoast.
9. Exercise in the Science of Keeping Well. J. Rudis-Jicinsky.
10. Malarial Hematuria. L. Boogher.
11. Exophthalmic Goiter; Hyperthyroidism. W. B. Weidler.
12. Report of a Remarkable Case of Ascites Due to Failing Compensation in Mitral Regurgitation. F. A. Jones and C. Collier.
13. Use of Thermostabile Toxins in Urethral and Bladder Infections, Using the Urine as a Vehicle. F. S. Crockett.

2. **Influenzal Otitis.**—S. MacCuen Smith reports a case of this condition which illustrates the rapid destruction that frequently accompanies an influenzal otitic inflammation, and also forcibly illustrates the almost total absence of suffering by the patient. He calls attention to the fact that even though an early myringotomy had been done, in this particular instance it is doubtful whether the rapid destruction could have been prevented or even modified, for it would seem, in accordance with the findings, that the mastoid process must have been involved simultaneously with the tympanic cavity. Recently the author operated on a patient showing no general symptoms, but presenting equally destructive changes, in which the middle ear gave no evidence of inflammation other than a mild degree of myringitis. In this latter case one probably would be justified in claiming a primary mastoiditis, and yet the author believes that the infection originated in the tympanic cavity and that the mastoid was secondarily involved, the former, on account of the patulous Eustachian tube, being able to drain and recover itself. Five years previously, the same patient had suffered from a suppurative influenzal otitis of the opposite ear, which progressed so rapidly and caused so much necrotic erosion that it was necessary to do a radical operation within the short space of about one week. This case not only illustrates the rapid osseous destruction of an influenzal otitis, but also shows the rapidity with which a brain abscess formation can develop under the destructive influence of this particular type of infection.

5. **Bilateral Nephrolithiasis.**—By O. C. Smith. (See Medical Record, May 31, 1913, page 1006.)

6. **Rapid Cure of Syphilis.**—W. F. Bernart recommends the judicious combination of two intensive methods of treatment for syphilis. He believes that an intravenous injection of mercuric chloride given every day for fifteen days approximately equals the results of an average dose of salvarsan or neosalvarsan, and that the nonantagonistic action of the two, when alternated, might produce a cure for syphilis in a comparatively short period when properly administered. The intravenous form of medication is the only method by which one can overcome the uncertainty of absorption and by which one can obtain a so-called intensive action.

13. **Use of Thermostabile Toxins in Urethral and Bladder Infections.**—F. S. Crockett reports favorable results in the treatment of gonorrhea by means of a modification of the method of autotherapy as recommended by Duncan. He gives subcutaneous injections of 0.1 c.c. of the patient's own raw urine, in conjunction with the usual routine treatment of gonorrhea. The injections produces an ideal reaction, finding expression in the partial or complete cessation of germ activity, but is prone to produce excessive irritation at the point of injection, and is open to the objection that the infecting organism might be carried through the blood stream with the resulting localization of the disease in some other part of the body. The temporary increase of antitoxin makes such an accident less probable. After heating the toxin solution the local reaction disappears or is slight. This led the author to use larger doses, with the result that a few patients appeared to be overloaded with the toxin, so that they failed to improve or actually seemed worse. On discontinuing the toxin these cases would improve markedly in the succeeding few days; which seemed to point to an overwhelming of the patient's resistive powers. This has led the author to use smaller doses, ranging from 0.1 c.c. to 0.5 c.c. as a routine dose for gonorrhea; 0.5 c.c. to 0.1 c.c. in cystitis of old men; and 1 c.c. to 2 c.c. in colon bacillus infections. Clinically he has had the least noticeable improvement in colon infections, and in these would recommend longer periods between treatments.

Journal of the American Medical Association.

June 21, 1913.

1. The Treatment of Narcotic Addiction. A. Lambert.
2. Animal Experiments with von Ruck's New Tuberculoproteins. R. S. Cummings.
3. Accidents Following the Subdural Injection of the Antimeningitis Serum. S. Flexner.
4. Experience with Over One Thousand Cases of a Form of Chronic Urethritis. S. H. Likes and H. Schoenrich.
5. Cases of (Syphilitic?) Ulcer of the Bladder. I. Simons.

6. Advanced Treatment of Puerperal Infection. R. T. Gillmore.
7. Conservative Treatment of Some Aural and Nasal Conditions by Hot Air and Iodoform. A Simple and Practical Method. E. J. Brown.
8. The Serum Diagnosis of Pregnancy. C. C. W. Judd.
9. The Experimental Production of Pellagra in the Monkey by a Berkefeld Filtrate Derived from Human Lesions. A Preliminary Report. W. H. Harris.
10. Specific and Extreme Hyperleucoctysis Following the Injection of *Bacillus Typhosus* in Immunized Rabbits. F. P. Gay and E. J. Claypole.
11. Epidemic of Typhoid Due to Milk. W. Shimer and W. D. McAbee.
12. Operating-Table for Rhinologists. C. G. Dwight.
13. Case of Urethral Calculus, Prostatic Division. D. L. Hirschler.
14. Double Vulsellum Cervix Forceps. H. F. Day.
15. Ascaris Lumbricoides as a Complication of a Surgical Operation. M. D. Allen.
16. Adhesive Support for Tension Sutures. C. L. Heald.
17. The Radical Cure of an Unusual Type of Headache. T. J. Orbison.

4. Chronic Nongonorrheal Urethritis.—S. H. Likes and H. Schoenrich report their experience with a form of chronic urethritis of nongonorrheal origin and due to granulations and infiltrations of the anterior urethra. The discharge may be due to various causes—bacteria, prostatic conditions, rheumatism, bladder disease, syphilis, or grippe, and, lastly, to granulations or infiltrations of the urethra, which, in the experience of the authors, outnumber all the others in the list. This type was first described by Otis and Overlander. The usual symptoms consist in a purulent drop collecting at the meatus from time to time, causing little pain but very much anxiety in many cases. When a thorough examination has proved the absence of gonorrheal organisms or other infections and any involvement of the posterior urethra, prostate, etc., one may be certain that the focus is in the anterior urethra. This must be found by the introduction of a bougie à boule of sufficient caliber to stretch the urethral wall so that the granular and infiltrated areas may be felt as rough spots or absolute obstructions. To demonstrate these lesions requires instruments of larger caliber than commonly used. The one thing likely to interfere with their detection is a too small meatus. The treatment advised for the removal of these infiltrations is dilatation by bougies à boule of gradually increasing caliber and ironing out the rough areas with gentle massage made painless by the introduction of cocaine in the passage. A cure will result if the treatment is carried out to a sufficient extent to restore all parts of the anterior urethra to its normal caliber. The intervals between the treatments and the selection of the proper sized bougie depend wholly on the amount of reaction shown by bleeding and pain since the previous treatment. The results obtained by the authors' method of treatment have, they state, been uniformly gratifying.

6. Treatment of Puerperal Infection.—R. T. Gillmore emphasizes the importance of resisting the temptation to give vaginal and uterine douches. The discharge, if any, should not be washed away with an antiseptic, as such a procedure inhibits the antiseptic action of the normal secretions and prevents the phagocytic action of the white blood-cells on the bacteria. In no other disease has the patient's reserve force and resistance such need of conservation.

7. Hot Air and Nascent Iodine in Treatment of Aural and Nasal Conditions.—E. J. Brown states that patients complaining of sore throat and earache from acute pharyngitis have been relieved by a single application of hot air and nascent iodine and have reported the following day that there had been no return of their discomfort. Altogether there is so much advantage and so little of unpleasantness to the patient or inconvenience to the doctor that these conservative methods of treatment ought to commend themselves to the careful physician. The results of these hot-air and nascent iodine treatments seem to be specifically the destruction of the less resistant bacteria and the drying and shrinking of the tissues with the secondary increase of cellular activity and removal of inflammatory products which interfere with drainage. The nascent iodine is generated in a simple apparatus by the heating of iodoform.

8. Serum Diagnosis of Pregnancy.—C. C. W. Judd notes that the early diagnosis of pregnancy, though ordinarily easily made by the patient herself, is sometimes obscure even to the trained physician. Of late years serological methods have been applied. The antitrypsin method was introduced by Frans, Jarish, and others. The antitryptic index is materially increased at the beginning of pregnancy. The complement-fixation test was devised by Fieux and Mauriac, who used a placental extract as antigen. The miostagmin and epiphanin reactions also call for special skill. Recently Abderhalden has promulgated the theory that free chorionic villi of an implanted ovum induce in the maternal organism a reaction which produces digesting ferments for placental tissue. The performance of the test is simple: A fresh placenta is finely ground in a meat chopper, washed entirely free of blood, and then thrown into about a quart of vigorously boiling water, to which it is preferable to add a few drops of acetic acid. After five minutes boiling the water is drained off and the tissue is boiled in a second quart of water for a period of five minutes. This process is repeated as often as is necessary to render the water at the end of five minutes' boiling free from the biuret reaction or a modification of it. Thereafter, the tissue is either drained and thoroughly dried in a desiccator or stored away with a layer of toluene added to prevent putrefaction. The performance of an individual test is simple, consisting substantially in adding one gram of placental tissue to 1.5 c.c. of the fresh hemoglobin-free serum in the dialyzer which has become thoroughly saturated with water. This is thoroughly rinsed in tap-water and partly submerged in 20 c.c. of distilled water in the container, and a layer of toluene is added to both dialyzer and container, the whole being incubated from twelve to sixteen hours. At the end of this time 20 c.c. of the solution in the container are tested for the biuret reaction; if this is positive it indicates that the complex placental protein has been broken down to simpler molecules, which passing through the dialyzer have imparted to the water in the container the biuret reaction. Excluding putrefactive changes, it indicates that the tissue was digested by an enzyme of the patient's serum which is present only in the gravid state and following certain conditions. A negative test is strong evidence that placental tissue is not or has not recently been in the patient's system. The author has used the test in thirty cases and his experience indicates that the reaction when properly performed is a specific one.

9. Experimental Production of Pellagra in the Monkey.—W. H. Harris has succeeded in producing experimentally in the monkey lesions similar to those of human pellagra. From a patient that had died of this disease there were removed tissues of the central nervous system, portions of the skin lesions and tissues of the alimentary and nasopharyngeal tracts, and these were mixed with equal parts of normal saline solution ground together in a mortar and allowed to stand over night in the ice-chest. After coarse filtration the juice was passed through a Berkefeld filter, letter N. This tissue mixture was injected subcutaneously, intravenously, and intracranially in large quantities into a full-grown, normal male monkey. The animal remained normal for several months, after which it developed irregular dark patches on the face, forearms, hands, back and sides of the body. It gradually grew thin and weak and finally died with all the signs of pellagra. The author notes that the animals develop all the essential clinical signs and symptoms together with the pathological picture presented by the disease in man. He concludes that the etiology of pellagra is a filterable virus or a microorganism capable of passing through the pores of certain Berkefeld filters.

The Lancet.

June 14, 1913.

1. The Place of Climatology in Medicine. W. Gordon.
2. An Exposition of the Abduction Treatment of Fracture of the Neck of the Femur. Royal Whitman.
3. The Finsen Light Treatment at the London Hospital, 1900-1913. J. H. Sequeira.
4. Breast Feeding: The Consumption of Breast-milk. D. Forsyth.
5. Breast Feeding: Its Management and Mismanagement. Lucy Naish.
6. Breast Feeding: Dr. Variot's Teaching. D. H. D. Cran.
7. A Case Having a Bearing on the Localization of the Auditory Center. W. Boyd and J. S. Hopwood.
8. A Case of Full-term Living Child Removed by Laparotomy in an Extrauterine Pregnancy. N. L. Hood.
9. Ethyl Chloride in the Treatment of Cutaneous Epithelioma. H. Seidelin.
10. An Experimental Research into the Origin of the Inorganic Chloride in the Gastric Secretion. C. Singer.

2. **Abduction Treatment of Fracture of the Neck of the Femur.**—By Royal Whitman. (See MEDICAL RECORD, February 22, 1913, page 363.)

4. **The Consumption of Breast Milk.**—D. Forsyth, by the careful weighing of an infant before and after nursing, for a period of seven weeks, gained the impression that the secretion, though becoming ampler with the growth of the child, and to this extent, therefore, being regulated by the demand, varied from day to day and from hour to hour under the influence of maternal factors. Whether the nurse is fed generously or moderately, drinks much milk or little, or takes or abstains from oatmeal, stout, and other reputed galactagogues, no reasonably scientific proof is yet forthcoming that these measures affect the activity of the mammary glands.

6. **Breast Feeding.**—Dr. H. D. Cran states that the serious accidents so commonly attributed to overfeeding by the breast are very exceptional. If the child has taken a little too much milk there is a simple regurgitation, which occurs at that moment after the meal when the stomach contracts and expels the air swallowed with the milk. The stomach of the baby is not a rigid receptacle; its musculature is extensible and its glandular mechanism is quite able to chymify a fairly large quantity of the mother's milk. This does not mean that the weighing machine is never of any use in the control of feeding by the breast. But when a young mother is healthy and has a regular secretion of good milk, and when her baby is likewise normal and drinks well, it is quite useless to weigh the infant frequently. In these circumstances it is sufficient to weigh the child once or twice a week. On the other hand, the methodical use of the weighing machine is indicated as soon as a child on the breast ceases to increase in weight. This will usually show that the secretion of milk is diminishing. The milk of the mother must be administered as an aliment and not measured as a medicine.

10. **The Inorganic Chloride in the Gastric Juice.**—C. Singer concludes that the inorganic chloride present in filtered gastric juice is experimentally found to be in large part the result of a secretory or osmotic process in the stomach wall, and its amount must, therefore, be affected by pathological changes in that wall. Hence, the amount of inorganic chloride in the gastric juice is of pathological and clinical significance.

British Medical Journal.

June 14, 1913.

1. The Clinical Importance of the Sympathetic Nervous System. S. A. Kinnier Wilson.
2. Varieties and Treatment of Chorea. F. Langmead.
3. On Avoidable Difficulties in the Hand-feeding of Infants. E. Smith.
4. Oral Sepsis in General Practice. A. Mills.
5. Autogenous Vaccines in the Treatment of Chronic Joint Affections. (Rheumatoid Arthritis and Gonorrheal Arthritis). B. Hughes.
6. Vaccines in the Treatment of Chronic Bronchitis and of Asthma. J. H. H. Pirie.

1. **Clinical Importance of the Sympathetic Nervous System.**—S. A. Kinnier Wilson states that a substance normally secreted by the adrenal medulla passes into the general circulation and maintains the tone of all sympathetically innervated tissue, including other ductless glands. The cells which secrete this substance are embryologically of sympathetic origin. Other substances are produced in the organism which have an antagonizing, neutralizing, or compensating effect when compared with that of the adrenal secretion, and they act rather on the autonomous system. Similarly, many commonly employed therapeutic agents have an action on one or other of these groups. Cocaine, atropine, and caffeine stimulate the sympathetic system and inhibit the autonomic system. Morphine, chloral, and antipyrin inhibit the sympathetic system and stimulate the autonomic system. The linking up of the sympathetic system and the ductless gland system is already proving to be a most important generalization in clinical medicine, and with increasing knowledge this importance will be intensified. There is a large group of diseases known as the angioneuroses, included in which category are such conditions as Raynaud's disease in mild or severe variety, local pallor or "dead finger," local asphyxia, symmetrical gangrene, acroparesthesia, scleroderma, angioneurotic edema, and so on—diseases obviously associated with disturbances of the sympathetic innervation of the vascular system. The frequency with which affections of one or other of the ductless glands are noted in such cases is remarkable. Disease of the thyroid is practically constant in scleroderma. Myxedematous patients constantly complain of feeling cold, and exhibit a malar flush; they often complain of acroparesthesia. In Graves's disease vasomotor irritability is a cardinal feature. Many of the common symptoms of neurasthenia and hysteria are patently of sympathetic origin.

2. **Varieties and Treatment of Chorea.**—F. Langmead points out that four factors contribute to the clinical picture of chorea—namely, erratic movements, psychical disturbance, weakness, and cardiac changes. Any one of these factors may be exaggerated, so that it assumes the dominant part, and in this way four chief forms of chorea occur: (1) Motor, (2) maniacal, (3) paralytic, and (4) cardiac, to which two other forms may be added, (5) latent, and (6) residual. In the motor form the movements take the chief place and may be so severe that the child is unable to sleep or feed and is in danger of death from exhaustion. In the maniacal form the child is seriously ill and has all the appearance of one suffering from severe toxemia. The paralytic form usually supervenes upon one in which the movements have been active. Its most striking feature is the extreme atony of the voluntary muscles. In the cardiac form the heart is seriously affected, while the signs of chorea are proportionately slight. Latent chorea is frequently overlooked. It is characterized by slight fidgetiness and mild psychical unrest, with deterioration of school work, especially in writing and arithmetic, and a weakened mental concentration may be the only indication of chorea. Residual chorea is the name given to a condition which persists, sometimes for several weeks after the disease has ceased to be active. It may have all the features of latent chorea. In the treatment of chorea rest of body and mind is essential. The food should not be restricted, for an ample diet is required to supply the loss of energy which may be very considerable. Sodium salicylate has a special sphere of usefulness. The ill effects of this drug most to be feared are those of acid intoxication. This may be avoided if the bowels are not allowed to be constipated and if sodium bicarbonate is administered at the same time as the salicylate in double the amount. The author does not favor the use of arsenic.

3. **Rules in Artificial Infant Feeding.**—Eustace Smith has formulated three simple rules for the hand feeding of infants. (1) One should take care that the infant is bathed as quickly as possible in hot water, and that his

feet and legs are never allowed to get cold. (2) One should see that a sufficient variety of flavor is contained in the several meals. (3) One should see that the feeding apparatus is absolutely clean, that the food is fresh, and that the sanitary arrangements are generally in good order.

4. Oral Sepsis in General Practice.—A. Mills concludes that oral sepsis is a very prevalent condition, that its effects are definite and far-reaching, and that it forms an important factor in the general health of the community. As many forms of oral sepsis are not associated with pain, the patient rarely complains of the condition of the mouth, and as his general appearance and symptoms are frequently strongly suggestive of anemia, the true state of the case may easily be overlooked. Oral sepsis is a common cause of disorders of the stomach, is directly associated with different forms of arthritis, and either predisposes the individual to, or at times directly gives rise to, suppurative processes in other parts of the body. At critical periods in the life of an individual, as for example at puberty, during pregnancy, at the climacteric, or in the course of a chronic disease, oral sepsis may be the all-important factor in the case.

Berliner klinische Wochenschrift.

June 3 and 10, 1913.

The Abbott Treatment of Scoliosis.—Schanz concludes an article on this subject as follows: The rectification as carried out by Abbott is dangerous. The deforming process, instead of being eliminated or welcomed, is actually fanned into activity. Should we not succeed in neutralizing these effects the end results of Abbott's treatment, however brilliant it may seem, will be an actual aggravation of the disease process. The correction of the deformity by this method may become permanent; but by no means invariably. We may after an Abbott redressement cure, continue to treat the affection according to old established principles, yet even then we may expect to see now and then severe relapses. The trouble with Abbott's as with all other plans is that the cause of the disease is not reached. We have nothing rational to oppose to the disease process. The latter involves a lessened support of the individual vertebræ. These are not equal to the demands made upon them, and the scoliosis then results. We know nothing as to any factors which set up this state of affairs. If we knew of such causal elements, it is difficult to see how they could be reached by treatment. Scoliosis is a disease in which complete recovery may occur. Those treated by Abbott's as by other methods should show us how these vertebræ in some patients gain or regain the ability to support properly the body weight.

Meningism.—Kayser gives a brief general summary of our knowledge of this condition. It is the same as pseudomeningitis and "meningitis without meningitis." The old doctrinaires on inflammation would have said that we have here "irritation without inflammation." It is analogous to peritonism without peritonitis. It comprises the meningeal syndrome: fever, stiff neck, hyperesthesia, headache, Kernig's sign, etc.; but the lumbal punctate is sterile. The differentiation of meningism from meningitis may therefore be made by this test. Nearly all acute, infectious diseases show some percentage of meningism. That for scarlatina is 4 per cent., formerly set down as meningitis, but now recognized by the character of the punctate as chiefly meningism. It appears to be less frequent in some of the other infectious diseases. Strange to relate, it sometimes occurs in helminthiasis. A hysterical type is known. Meningism usually recovers cleanly and does not foreshadow meningitis. The lesions comprise hyperemia and edema, but meninigism may be associated with other intracranial conditions involving the interior of the hemispheres. We know hardly anything of the actual nature of meningism and the treatment is symptomatic.

Lecithin and the Opsonic Index.—Strubell, who has tested many drugs as to their influence on the opsonic index has been investigating organic compounds. No influence was exerted by crystallized albumin or Witte peptone. He was, however, much surprised to find that a lecithin preparation exerts a marked activity in this direction. This was, doubtless, due to lecithin alone, although the special preparation employed contains iron and other ingredients. The index was tested against staphylococci and tubercle bacilli. The action was maintained for an unusually long period.

Surgical Treatment of Pericarditis.—Kolb sums up the recent work in this field. Three forms of intervention are in use. First is puncture, which is also utilizable for diagnosis. Its surgical uses are in pericarditis with effusion, whenever the latter "tampons" the heart and cripples its action. The puncture is also made in effusion of blood into the sac. The operation is not to be undertaken except on the strictest indication on account of the danger of puncturing the heart itself. A puncture which is unwarranted usually results in a pericardiotomy. There is no typical puncture point, and many surgeons have their favorite localities. The fluid should be allowed to come away very deliberately, else the heart may collapse. The second method of intervention is pericardiotomy with resection of the ribs. This is preferred by some surgeons to puncture, but is employed by all for pus in the pericardium. This operation is of course borrowed directly from that in common use for empyema. There are many localities and methods for establishing the thoracic window. One is a simple trepanation of the sternum. The third resource or cardiolysis does not compete with the first two, and is meant solely to separate pericardial adhesions. The credit for planning and executing the operation belongs to Brauer. Some of the adhesions are external and it is naturally these which are most burdensome to the organ and are also accessible to surgery. The intervention is not one of great severity. A thoractomy is performed and the adhesions detached. The number of cardiolyses performed thus far is small. Done as a strictly lifesaving procedure it appears to have accomplished its purpose without injurious consequences.

Lime Treatment in Spasmophilia.—Blühdorn writes of the treatment of lime starvation and spasmophilia in nurslings. After much study he announces that if lime is given in the hope of securing a rapid action it must be administered in very large doses. The best lime salt for the purpose is the uncrystallized chloride. The action of the lime is prompt but transitory. In acute manifestations of spasmophilia its action is valuable, but in convulsions chloral cannot be dispensed with. Lime is well suited for administration over long periods, and spasmophilia may at last be pronounced cured, even if the electric excitability of the muscles never becomes normal. With the lime treatment dieting need not be carried out to the usual extent. Lime is not a specific but simply corrects symptoms.

Duodenal Ulcer.—Küttner states that surgery is now recognized as offering more promise of cure of this condition. Direct excision of the ulcer, theoretically indicated, has thus far been much less employed than resection, for it does not exclude the likelihood of recurrence. Resection if often performed, but, according to the author, when the ulcer is large and hard, suggesting a possible cancerous future. The best procedures are found in elimination of the duodenum by eliminating the duodenum by a gastro-enterostomy. Moynihan, Mayo and Kelling simply fold over the mucosa which is the seat of the ulcer if the latter is on the anterior wall. Wilms transplants a few muscular fibres from the rectus aponeurosis. Von Eiselsberg, in the interest of cure, eliminates the pylorus. In

bleeding Mayo both sutures the ulcer and does gastroenterostomy. In perforation into the peritoneum the operation, whichever one, must be done immediately. Hardly any survive after 48 hours delay. About one-half may be saved if only 24 hours have elapsed.

Münchener medizinische Wochenschrift.

June 10, 1913.

Therapy of Raynaud's Disease.—Schreiber praises Noesske's new method of incising the finger tips and applying intensive aspiration treatment. The cyanotic, blue black and sensitive finger tips have the pulp incised transversely, whereupon a suction cup is applied and strong negative pressure used. The success was astonishing, for within thirty-six hours the fingers appeared normal and were free from pain. The treatments were frequently repeated and after 14 weeks Noesske pronounced the man entirely cured. The case has never relapsed. The author, who is an assistant of Professor Bier, waited for a case of Raynaud's to appear at his clinic. In the first patient, the initial results were as brilliant as in Noesske's case, but this result was not permanent. It seemed natural to test Klapp's hot-air apparatus, and this was used upon the original patient who had had no treatment for some time. Most of her fingers were cyanotic and painful, The working of the hot-air douche also caused much improvement, but this too was short lived. In another patient the hot-air douche gave surprising results which seem to be permanent. It is evident that both methods have good possibilities and the author does not wish to give the impression that Noesske's method is a failure because it did not cure his case.

The Pseudocholecystitis of Typhoid.—Bennecke speaks of the occurrence of pain in the course of typhoid as relatively infrequent. Colicky pains over the gall bladder have led to operations for a cholecystitis which was not found to be present. Nor was there present a subphrenic abscess, the only other condition to be suspected. We have long been led to believe in the frequent occurrence of cholecystitis in typhoid, but this often pursues a latent course and is found only at autopsy. How shall we explain the pain in the false cases? The author concludes as follows: The colicky pains in the gall bladder area will be found to be unassociated with jaundice, nor is there any radiation of pains toward the spine. It will doubtless be found that their existence is due to accidental complications, as acute hepatitis or pleuritis. Either a second disease is present, or else the pains may be due to an anaphylaxis.

Case of Mixed Labor.—Kreisch reports that a woman visited him who had not menstruated for about a year. A child had been looked for at the proper period, but no labor was forthcoming. After having had a few pains cease without any change in the os, she noticed that fetal movements had ceased. Two months elapsed without any unpleasant developments. The abdomen resembled that of a woman at term. No evidences of fetal life. As closed, the diagnosis lay between mixed labor and ectopic pregnancy. When the temperature went up laparotomy was performed. The uterus was found to have very poor muscular development, insufficient for the demands of labor. Macerated fetus and its placenta readily removed. The uterus was extirpated without the adnexa, and the woman made a good recovery.

Deutsche medizinische Wochenschrift.

June 5, 1913.

Radioactive Substances in Riggs's Disease.—Levy states that especially in pyorrhea alveolaris and also in marginal gingivitis, luecoplakia lingualis and ulcerative stomatitis radioactive substances produce results superior to those obtained by the old methods alone. The author, however, warns against overestimation of the new resources; and whoever tries to employ radium rays must determine in advance the accurate dose or be guilty of a technical defect. The action of the rays on the mucosa of the mouth is not as yet understood. In a specimen case of Riggs's disease, involving several incisors and molars, the author, after the removal of all calculus, massaged the gums with radium paste. Teeth became fixed in four weeks.

Paratyphus B.—Knauth, an army surgeon, describes the following syndrome upon which the diagnosis of paratyphus B was made. The bacteriological examination of the stools was positive, which enables him to give the accompanying clinical features. Incubation period very short—in no case over 24 hours. Affection began with chills, vertigo, headache, general prostration. Later nausea, vomiting, malaise, colic, and liquid diarrhea. In no case was there prostration. The patient had the typhoid look, spleen only occasionally enlarged, transverse colon invariably tender, pulse relatively slow, roseola absent. Diarrhea persisted for some days after close of febrile period. The cases were isolated, and no contact infection developed among the doctors and attendants.

Antisepsis and Manual Delivery of the Placenta.—Sievert reports 42 cases of this procedure and arrives at the following conclusions: Antisepsis cannot be dispensed with in obstetrics; asepsis is insufficient, especially for general practitioners and midwives. Acid vaginal irrigations are sometimes of value and rubber gloves are as a rule not needed in obstetrics. Death from hemorrhage after delivery may be prevented by paying attention to the chief predisponents and by compression of the aorta.

Bromine-Borneol Combinations for Disturbances of the Climacteric.—Oppenheim refers to a well-known proprietary drug having the above active constituents, which by reason of its purely sedative action has been tested extensively in disturbances of the climacteric. The results are said to surpass all expectations—every form of nervous disturbance being satisfactorily controlled. The drug however is not supposed to take the place of ovarian extracts in making up for the withdrawal symptoms, and the two should be given whenever the latter are in evidence.

Varicella in Adults.—Kämmerer comments on the note by Krause in the Wochenschrift No. 19 which cites some work of his in this field. The author after complaining that he is referred to as "Kamminer" denies that his work is merely confirmatory of the labors of earlier authors and adds that his critical observations referred to the strong general increase of lymphocytes in the blood. The previous authors on the contrary upheld the claim that only mononuclears are increased. In other words, there was a mononucleosis which corresponds to the same state in variola. The mononucleosis of the French authors was probably an artefact or other result of defective technique.

Strange Use of Formaldehyde.—The lessee of premises, on the expiring of his lease, contended, apparently in good faith, that he had a right to continue in possession. The lessor made an abortive attempt to gain possession of the premises by force, and as a result of this attempt the lessee, with a number of his employees, remained in the building overnight. The premises adjoined a theater occupied by the lessor, and about midnight the lessor's manager bored a hole through the partition separating it from the rooms occupied by the lessee, and, using a bicycle pump, injected about two quarts of formaldehyde solution into the room where the lessee and his employees were dozing. The lessee sued the lessor for damages. The latter's defense that the formaldehyde was used to fumigate the room and only incidentally to make its occupants uncomfortable if they wanted to get out was not sustained, and he was held liable in damages.—Saros v. Avenue Theatre Co., Michigan Supreme Court, 137 N. W. 559.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

ELEMENTARY PRINCIPLES OF LIFE INSURANCE.

Distribution of the Surplus.—The amount of surplus is determined at the end of each year by the process already described. The former practice of deferring dividends for five, ten, fifteen, or twenty years has practically been eliminated and is, moreover, prohibited by law in some states.

The subject of participating and non-participating insurance calls for some attention at this point. The discussion in the preceding chapters has been confined chiefly to the consideration of participating insurance on the ground that the matter of interest, loading, mortality and surplus will be of most interest to those who carry participating policies.

The laws of some states prohibit a home company writing both participating and non-participating insurance, so that, on the whole, the few companies writing both forms of contracts may be disregarded. Under these restrictions mutual companies are obviously confined to the writing of participating contracts, but mixed and stock companies may choose one or the other form.

Participating Insurance.—The great bulk of the participating insurance is issued by mutual and mixed companies, and according to these contracts the surplus belongs solely to the policyholders. The only exception to this arrangement is found in the case of the very few mixed companies in which there is usually a comparatively small amount of capital stock entitled to reasonable and fixed dividends.

The advocates of participating or mutual plans of insurance, in discussing the methods of this system as compared to those of non-participating or stock plans, argue that, as the exact cost of insurance cannot be predetermined, the mutual companies deliberately make an overcharge in order to preserve a healthy margin of absolute safety, and, as this excess is returned in the form of dividends at the end of each year, the companies sell insurance at net cost. The term "dividends" as applied in the case of mutual companies is not a suitable one, as the funds distributed in this way represent the savings and gains from interest, loading, and mortality returned to the owners and are not profits in the sense of returns from ordinary business transactions.

The methods of computing dividends due to each of the numerous classes of policyholders vary in the different companies. The procedures are so complicated and technical that this space is not appropriate for a description of them. It may be sufficient to say that the actuaries of each company have arranged the distribution on a perfectly equitable basis and their methods meet the approval of the insurance departments of the different states.

A policyholder usually holds the option of accepting the dividend in different ways. He may elect at the end of each dividend period to draw the dividend in cash, apply the dividend towards payment of the premium, apply the dividend to the purchase of a paid-up addition to his policy, or let the dividend accumulate at the interest rate assumed by the company in establishing its legal reserve. In comparisons made by the representatives of the mutual companies, tables are exhibited to indicate that the actual cost of insurance on the participating plan with its larger premium and the return of the overcharge becomes less after the first few years than insurance on the non-participating plan with its lower premium and no refunding of the excess.

Non-Participating Insurance.—The great bulk of non-participating insurance is written by stock companies. The policyholders receive no return in the way of dividends, all profits going to the stockholders.

The advantage of this system, as claimed by its representatives, is the low premium. As the net premiums of mutual and stock companies on the same reserve basis are equal, the reduction in the gross premiums is accomplished by charging a smaller percentage of loading. The loading is usually less than sufficient and the companies meet the deficit in expenses and provide for a contingency fund by using for this purpose a part of the excess of interest earned and the saving in mortality. Nevertheless, a certain amount of excess in the loading must be collected by the stock companies, but competition has brought about an effort to compute a fair premium which will allow for a moderate margin of profit on the capital invested.

Comparative Advantages.—After all arguments, it may be said of the best companies of either system that the question becomes one of initial cost to the person who pays the premium. The claim will be surely paid in either case. Perhaps the greatest difference between a mutual and a stock company is the voting right, the control and ownership resting with the policyholders in one form and the stockholders in the other.

Children in Relation to Conservation of Public Health.—Dr. J. S. Lankford, Medical Director San Antonio Life, says that his experience has taught him that the time to begin with conservation work in the interest of public health is with the school child. The business man has not the time and will not give it the time; the mother of the household is too busy with her manifold duties to consider it; but put up to the school children and there is scarcely any limit to what may be accomplished, and when they have been given the truth they will remember it. Everything cannot be accomplished in a few years, but when the children of the public schools—15,000,000 in number—have been taught some idea of the causes of preventable diseases, as for instance, that the mosquito alone is responsible for the infection of malaria and yellow fever, and that extermination of the pest will abolish the disease in a large measure; that the tubercle bacillus shown under a microscope is the cause of consumption, and that care and precaution will in time exterminate tuberculosis; then an impression has been made, and it is to be reasonably supposed these children will grow up to become responsible citizens and will see that laws are passed to aid in the prevention of disease. If life insurance companies would pay more attention to the opportunities afforded them in the public schools, much more good in the line of conservation of public health could be accomplished.—Medical Section, American Life Convention, Hot Springs, February, 1913.

Appendicitis Rating.—Dr. James H. Stowell states that the rating of appendicitis cannot be done properly without inquiring carefully into each individual case, as habits and modes of living are large factors in the production of this trouble. Overeating, overdrinking, poor food, often improperly cooked, all may be contributing causes of appendicitis.

Book Reviews.

THE BIOLOGY OF TUMORS. The Bradshaw Lecture delivered at the Royal College of Surgeons of England, 1912, by C. MANSELL MOULLIN, M.A., M.D. Oxon, F.R.C.S.; Consulting Surgeon to the London Hospital; Member of the Council and recently Vice-President of the Royal College of Surgeons of England; formerly Fellow of Pembroke College and Radcliffe Travelling Fellow, Oxford; and Examiner in Surgery at the Universities of Oxford and Cambridge. Published by request of the Council of the Royal College of Surgeons of England. Price 2 shillings net. London: H. K. Lewis, 1913.

THOSE interested in the subject of cancer will find this Bradshaw Lecture of Mansell Moullin a well-written general review of our present notions concerning the nature of tumors. The writer's general conclusions are that tumors are independent growths not due to parasitic causes and that heredity plays some part in rendering the tissues susceptible to the development of neoplasms. The final paragraphs point out the direction from which we may reasonably expect some therapeutic benefit.

LA BIOLOGIE SYNTHÉTIQUE. Par STÉPHANE LEDUC, Professor à l'école de médecine de Nantes. Avec 118 figures dans le texte. Études de biophysique. Paris: A. Poinat, 1912.

As a contribution to the theory that physical and chemical explanations are sufficient for the interpretation of all the phenomena of life, this small pamphlet is not without interest, though not perhaps so convincing as some of the recent statements of other members of the physical school. Loeb, for instance. The neovitalists are promptly shown the door on the first page, never to reappear in the text. The evidence presented is largely in the form of photographic illustrations to show how closely purely physical phenomena, such as osmosis in mixtures of various inorganic salts, may produce forms resembling very closely cells of tissues, karyokinesis, ciliary structures, and the like. Whether this proves that there is or is not a vital directive force inside of cells, and that cells simply find it convenient to submit to ordinary laws governing symmetry in inorganic solutions, is not very evident. To obviate any criticism as to the immediate acceptance of his ideas, Leduc quotes Kepler's famous saying that his book might very well wait for centuries for a reader since the Creator had been willing to wait thousands of years for so profound a thinker as himself.

DIE GROSSSTADT ARBEIT UND IHRE HYGIENE. By San. Rat. Dr. B. LAGNER, Wiesbaden. Price 1 mark. Marhold: Halle, 1912.

THIS little book deals with the pathological results of work in larger cities and the possibility of their prophylaxis and cure. The author considers conditions in different countries and makes suggestions of acceptable characteristics found in each. The book refers to the middle classes more particularly.

TUBERCULIN IN DIAGNOSIS AND TREATMENT. By FRANCIS MARION POTTENGER, A.M., M.D., LL.D.; Medical Director Pottenger Sanatorium for Diseases of Lungs and Throat, Monrovia, Cal. Price $3.00. St. Louis: Mosby Company, 1913.

THE material for this book, the author states, is from books, men, and experience. The latter far outweighs the former two, for he has treated 2,000 cases with tuberculin. The interpretation of the cutaneous reaction is given and the time limit for active cases is put at twenty-four hours. As to treatment Pottenger says tuberculin offers the best possible chance of cure, but cannot overcome fibrosis, mixed infection, etc., and in the later stages no more should be expected of it "than is possible to be obtained." He discusses the misuse of tuberculin from the time of Koch when Virchow's "myth" assailed it and he believes it is the physicians who are at fault. The technique of administering is fully given with charts. The book justifies and lauds Koch and favors the use of tuberculin as it has probably never before been favored.

BACTERIOLOGICAL DISEASES OF RESPIRATION AND VACCINES IN THEIR TREATMENT. By R. W. ALLEN, M.D., B.S., late Editor *Journal of Vaccine Therapy;* late Clinical Pathologist to Mt. Vernon Hospital for Diseases of the Chest, etc. Price $3.00. Philadelphia: P. Blakiston's Son & Co., 1913.

THIS book is quite a new departure in some ways. The author begins with a discussion of the bacteriology of the respiratory tract in health and disease—the bacteria found and the methods of collecting and examining them. He describes vaccine therapy as an artificial stimulant of the defenses against bacterial invasion and gives favorable reports of many sera and vaccines in such diseases as postnasal catarrh, bronchitis, asthma, pneumonia, and tuberculosis. To collect these diseases under such a heading is quite a new idea and the book shows careful study along these lines.

MALARIA—CAUSE AND CONTROL. By WILLIAM B. HORMES, M.A. Assistant Professor Applied Parasitology, University of California; Officer in charge Malaria Investigations, California State Board of Health. Price $1.50. New York: The Macmillan Co., 1913.

THIS book is dependent upon four years' study of malaria in California, and malaria is discussed from an economic as well as a medical standpoint. Malaria is not fatal, but expensive and the anopheles mosquito must be exterminated, to make life on the farm in California worth living. The mosquito was discovered as the cause in India in 1898 and is usually found in warm localities of low altitude. The life history of the parasite is described, especially the anophiline variety, and good illustrations are given. The essentials of control *e.g.* drainage, oiling pools, etc., are laid down and the author believes that the influx of colonists would more than offset the expense of extermination.

ÉTUDES D'ENDOCRINOLOGIE. By Dr. NAAME. Paris: A. Maloine, 1913.

ACCORDING to Dr. Naame glandular therapy has a very large field still untried. He reports cures of extreme cases of Asiatic cholera by the use of adrenalin. He also cures the sweats of tuberculous patients in the same way. In hysteria he gives parathyroid extract; also in epilepsy. The idea of ovarian extract in vomiting of pregnancy seems more in accordance with what we already know. His work is not based on laboratory experiments, but, as he says, upon "raisonnement expérimental," and needs further proof.

LE POST PARTUM NORMAL. By Prof. CONSTANTIN DANIEL (Bucharest). Paris: A. Maloine, 1912.

THIS book represents the results of the study of five thousand parturients. The author divides postpartum into three stages of one day, eight days, and five weeks respectively, and gives the symptoms and anatomical changes of all three.

DISEASES OF THE THROAT, NOSE, AND EAR. By W. G. POTTER, M.B., B.S.C., F.R.C.S., Edinburgh; Surgeon to Eye, Ear, and Throat Infirmary, Edinburgh; Surgeon to Ear and Throat Department Royal Hospital for Sick Children, Edinburgh; Aurist to Edinburgh Royal Institute for Education of Deaf and Dumb. Price $2.50. New York: William Wood & Company, 1913.

THIS is a book for the practitioner and senior student and deals with diagnosis and treatment as far as possible for the non-specialist. The illustrations are excellent and very clear. Diseases of the pharynx are discussed—acute and chronic inflammations and chronic infections (syphilis, tuberculosis). Diseases of the tonsils follow this, including diagnosis of chronic lacunar tonsillitis, etc. The methods of examining the larynx are next given, together with the diseases—acute and chronic inflammations, tumors, neuroses, etc. Under neuroses are descriptions of superior laryngeal paralysis, laryngeal spasm, phonasthenia, recurrent paralysis, etc. Rhinoscopy, with methods of examination, is clearly set forth, including transillumination and skiagraphy. Diseases of the nose and nasopharynx follow; also diseases of the accessory sinuses, with their semiology diagnosis and treatment. In the chapters on ear, examination is given both functional and otiscopic. Chronic suppuration is discussed at length with its complications. While the book does not describe any major operations it gives sufficient indication for these and describes the less complicated diseases so as to familiarize the uninitiated with them.

FOODS—NUTRITION AND DIGESTION. By SUSANNA COCROFT. Author of "Growth in Silence." "Self-Sufficiency," etc. First Edition, 1906. Second Edition, 1912. Chicago: Physical Culture Extension Society, 1913.

FOODS, by which is meant assimilable nourishment to form heat and energy, are classified into the old hackneyed groups. Water drinking at meals is found from 7,000 cases to increase flesh. Digestion is discussed, salivary, gastric, and intestinal, and the food value of different articles is discussed. There is a chapter on cooking; also diets are written out for different diseases. This latter list might be of use to the physician; the other chapters would probably interest housekeepers. The book is written by a lay person and has little, if any, scientific value.

Pathology. A Manual for Teachers and Students. By W. T. Councilman, M.D., Shattuck Professor of Pathology, Harvard Medical School. Boston: W. M. Leonard, 1912.

Professor Councilman has here written a textbook of pathology on an entirely new plan. While most similar manuals have also come from the hands of teachers, never before, we believe, has the planning and execution of a text been so subordinated to the object of producing a thoroughly efficient pedagogic implement. Its underlying thought is the conception, recognized by all instructors but only rarely carried out with logical completeness, that those things are most satisfactorily learned which the student acquires largely by the exercise of his own powers of observation and reason. Accordingly, it is the function of the teacher and also of the textbook so to guide the learner's efforts that he may not through his inexperience be led aside from the truth, or be caused unnecessarily to waste time in his progress from one step to the next while at the same time he is encouraged to make most of his advances on his own account. The present volume is most admirably adapted to serve in just this capacity for instead of being a mere catalogue of facts it comprises a complete scheme of laboratory work with the needful explanations and suggestions for enabling the student to make observations and deductions that will end by his building up a treatise on pathology of his own. For this purpose many blank pages are left on which the student is to make his records and his drawings, for none of the latter are supplied in the book, so that the volume in a sense is not complete until the intentional gaps have been filled in by its user. The plan is a difficult one to carry out consistently, and only an instructor of the author's experience and judgment could hope to vitalize such a skeleton of the subject sufficiently to give it flesh and blood outside the classroom. This Professor Councilman has succeeded in doing, however, and though of course the book is intended chiefly for undergraduates readers of all classes will find it of interest and value.

Die Behandlung der Krankheiten der Behaarten Kopfhaut. By Herxheimer and K. Altmann. Frankfurt a. M. 52 pages. Price 1.50 M. Halle a. S.: Carl Marhold, 1912.

The authors have considered only those diseases of the scalp which are worthy of special notice and which are amenable to treatment. Among these are: 1, chronic eczema; 2. hypertrophic processes, as ichthyosis, scleroderma; 3, neuroses, as pruritus zoster; 4. acute infectious diseases, erysipelas; 5, phlegmonous inflammations; 6, chronic infectious diseases, as syphilis, tuberculosis; 7, infectious diseases in which the organism is not yet known, as sycosis; 8, tumors.

Human Physiology. By Professor Luigi Luciani, Director of the Physiological Institute of the Royal University of Rome. Translated by Frances A. Welby. Edited by Dr. M. Camis, Institute of Physiology, University of Pisa. With a Preface by J. N. Langley, F.R.S., Professor of Physiology in the University of Cambridge. In Four Volumes. Vol. 1. Circulation and Respiration. Vol. 2. Internal Secretion, Digestion, Excretion. Skin, price per volume, $5.25 net. London: Macmillan & Co., Limited. New York: The Macmillan Company. 1911 and 1913.

Luciani has long held a great and deserved reputation as a physiologist and as a remarkably lucid writer. A sample of his powers of descriptive writing is given in the chapters on living matter, the first three of the first volume. The chapters on the blood are very readable, comprehensive and concise. The author allots the honor of discovering the circulation of the blood to his compatriot Cesalpinus. He refers to Harvey indeed, but only as a genius who wrote a little book of 700 pages which came out in Frankfurt in 1628 and which was unmistakably the masterpiece of a genius. Prof. Langley, alluding to this in his introduction, says: "It will be a shock to many English readers to find that Prof. Luciani allots the discovery of the systemic circulation of the blood to his countryman Cesalpinus. That the circulation of the blood was described and demonstrated by Harvey no one doubts. That there were a number of forerunners of Harvey who understood this or that important fact connected with the circulation is equally undoubted." No less than forty years ago Prof. Luciani revived the theory of "diastolic activity," which theory Stefani has placed on a firm experimental basis. The professor is therefore an authority on the mechanics of the heart and cardiac physiology. Nevertheless, so much has been found out by the investigations of Mackenzie and others that in many respects knowledge concerning the heart has undergone revision. Sixty pages are given to cardiac muscle and nerves, a subject on which the author is eminently fitted to speak. He deals with this matter in great detail. Thirty pages devoted to the vascular muscles and nerves complete the story of the circulation. The chemistry and physics of respiratory exchanges are clearly considered, together with an historical account of the same. Luciani himself, as is usually the custom of European medical writers, does not refer, except in rare instances, to the result of the researches of English-speaking scientific men. This omission, however, is, to some extent, rectified by the editor, Dr. Camis, who adds to each chapter the modern literature of the subject, of which the English part is somewhat scrappy. In the chapter on respiration no mention is made of most important work by Haldane, Hill and others.

The second volume is concerned with internal secretion, digestion, excretion and the skin and, of course, like the first volume, is beautifully written. Some of the subject matter, in the light of the revolution which has taken and is taking place in the views of scientific medical men with regard to the functions of the internal secretions, is scarcely up to date. It is a matter for wonder that the work of the veteran professor of physiology, one of the early Italian pupils of Ludwig, has not been translated into English before. It is a model of style and lucidity, and if the term fascinating is applicable to a medical book it is applicable to Luciani's work. It will serve, too, to introduce to American and English readers, not only his own work but much of the work done by his compatriots, of which but little is known. Than Luciani no one has, perhaps, a more comprehensive all-round knowledge of physiology. Miss Welby has acted as an efficient translator. It is to be hoped that there will be less delay in bringing out the future volumes. The first volume was published in 1911 and the second volume has been issued but a short time. The books are well bound, well illustrated and well printed.

Who's Who in Science. International 1913. Edited by H. H. Stephenson. London: I. & A. Churchill, 1913.

This issue of Who's Who in Science is an improvement upon its forerunner in that greater discrimination in the selection of names has been exhibited and it is not, as in the former edition, more British by far than international. A new Section on Scientific Societies and their publications has been added. Other new features are the recommendation forms and the frontispiece, consisting of portraits of eminent scientists who have died during the preceding year. There is yet room for improvement in the selection of names, the sins of omission are more obvious in this respect than the sins of commission. The book is well printed and bound and fulfills in a fairly satisfactory way the object for which it was written.

Conférence sur les Accidents du Travail et les Affections Traumatiques. By Dr. Olivier Lenoir, former interne of Paris Hospitals, laureate of surgical society, etc. Price 3.50 Fr. Paris: Vigot Frères, 1913.

This book has to do with forensic medicine though the choice of diseases discussed seems most peculiar in this connection. The author first speaks of the medicolegal aspect of tuberculosis and shows experiments to prove that this disease may be aggravated or localized by industrial injury but never caused by it. In syphilis, which he next takes up, he states that where innoculation occurs by industrial accident the patron is held responsible. Cancer is the third and last disease discussed. Full statistics and references of jurisprudence are given. The book will be of value chiefly to those concerned with the medicolegal aspects of the subject.

Die Chirurgie der Blutgefässe und des Herzens. By Dr. Ernest Jeger. Price 9 M. Berlin: August Hirschwold, 1913.

This book is based upon a thorough up-to-date study of the literature including much of Carrel's work, as well as personal observation. The illustrations are numerous and good. Technique for the different anastomoses, as well as intrathoracic work, is given. Also the results of these and of arterial transplantation. The changes of circulation following different anastomoses, such as the vena cava, with the portal vein, the splenic vein with the renal artery, the pulmonary artery with the aorta are described. Then follows a chapter on transplantation, *e.g.* kidneys, ovaries, heart and lungs, etc. The uses in human surgery of these experiments are given, for example, aneurysms, varices, transfusion, etc. The endothoracic aortic surgery, also the surgery of the pericardium and the technique of heart surgery are given. The book is excellent in many respects.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-Fourth Annual Meeting, Held at Minneapolis, Minn., June 16, 17, 18, 18, and 20, 1913.

(Special Report to the Medical Record.)

(Concluded from Vol. 83, page 1195.)

SECTION ON SURGERY.

DR. A. F. JONAS OF OMAHA IN THE CHAIR

Tuesday, June 17—First Day.

Chairman's Address: The Surgeon and the Research Laboratory.—Dr. A. F. Jonas of Omaha read this paper, in which he made the plea for a closer relationship between the operating surgeon and the research laboratory. The art of the practice of surgery was more than an art. It was to aim toward being a science, which was possible only by the application of the results obtained in the research laboratory. Clinical and bedside findings were more important than those of the laboratory, but were not sufficient. Ideal surgical institutions should have laboratories in connection with the operating rooms for the immediate study of specimens, and experimental work must be carried on close at hand. These departments must be in cooperation, otherwise proper applications were not made. The blood pressure apparatus was used 50 years in the laboratory before clinical use was made of it. In closing, the speaker urged particularly the study of the cancer problem.

Posterior Gastroenterostomy in Acute Perforated Ulcer of the Duodenum.—Dr. John B. Deaver of Philadelphia read this paper, which was based on his personal experience in over thirty cases. He emphasized the following points: Death was certain without operation; cure was certain with early operation. The diagnosis was based on the picture of acute indigestion, so called, with the sudden onset of violent agonizing, unbearable pain, abdominal rigidity, and the history of indigestion. Patients must be operated within first 24 hours; after 24 hours nearly all died. Of 26 cases operated on by the speaker before the end of 24 hours after the onset of symptoms 25 recovered. The early peritonitis was chemical, later the peritonitis was bacterial. The speaker advocated the following procedures: (1) Infolding of the ulcer with the plication of the duodenum in order to throw it out of function. (2) posterior no-loop gastrojejunostomy; (3) pelvic drainage through suprapubic stab; (4) avoidance of irrigation: (5) the sitting position, enteroclysis, and nothing by mouth until peristalsis was resumed; (6) ice bags to the abdomen; (7) masterly inactivity in the after-treatment, and (7) the free use of the stomach tube.

Dr. Ochsner of Chicago, Dr. Coffey of Portland, and Dr. W. H. Mayo of Rochester all agreed with the reader, making the point, however, that the skilled surgeon alone should practise enterostomy and that the amateur, who frequently must operate in these cases in order to secure early interference, should alone close the perforation and institute drainage.

Postoperative Ileus.—Dr. Angus McLean of Detroit read this paper which was based upon a vast amount of experimental work performed upon the dog. Artificial obstructions were instituted at various places in the alimentary canal and the chemical analysis of removed contents was made. The speaker's conclusions were that death in ileus was not due to toxemia, but was due to the loss of bodily fluids. He therefore advised as treatment enteroclysis and intravenous impressions to make up for such deficiency.

Congenital Dislocation of the Knees with Report of Two Cases.—Dr. John W. Perkins of Kansas City read this paper and demonstrated photographs and skiagraphs. He advised the resection of the joints and the permanent use of properly formed false joints.

Proctoclysis: An Experimental and Clinical Study.—Dr. Hugh H. Trout of Roanoke, Va., gave the results of his experimentation with plain tap water and normal saline solution for enteroclysis. He found that tap water was preferable to the saline in that it possessed all of the virtues of the latter and none of its objectionable features, as rectal irritation and actual salt thirst.

Etiology and Significance of Membranes about the Cecum and Colon.—Dr. David Cheever of Boston read a paper based upon the study of embryos, infants, and adults. He had reached the conclusion that there are several varieties of membranes about the cecum and colon. Some were congenital, that was, they were embryonic in origin. Others were inflammatory, but all were rarely of clinical significance. He advised against surgical interference except in the rare instances of actual obstruction.

Wednesday, June 18—Second Day.

External Bone Clamp versus the Internal Bone Plate in Fractures of Long Bones.—Dr. Leonard Freeman of Denver read this paper, and pointed out the following advantages: The simplicity of its use with minimum disturbance of the tissues; ease of removal at any time, which might be accomplished without anesthesia; fewer cases of delay or non-union, and the great advantage of not burying a permanent foreign body in the tissues. He claimed that the reduction was just as perfect as with the internal bone plate. The clamp should preferably not be used too near the epiphyses in compound fractures, particularly when infection was anticipated. The clamp was by all means the method of choice, not alone not doing harm but the screws themselves proved avenues for drainage.

Dr. Murphy of Chicago in discussing the paper recommended the use of the external bone clamp, saying that the plate should never be used in cases of compound fracture.

Dr. McArthur of Chicago reported very satisfactory employment in 210 cases of open fracture of the worst character occurring during the building of the Panama Canal.

The Mechanism of the Production of Fractures.—Dr. Emmett Rixford of San Francisco read this paper in which the subject was presented from the standpoint of the teacher, great stress being laid upon the fact that the principles of the mechanism were most important to the proper understanding on the part of the student. Incomplete fractures in children in the majority of cases were fractures by buckling; they were improperly designated in this country "green-stick" fractures. The Germans more correctly call them subperiosteal fractures. Fractures of adult long bones usually resulted from tensile stress. Spiral fractures resulted from twist, and so occur always in the direction of the twist. Fractures of short bones resulted from the compressive or tensile stress.

Surgical Management of Injuries to the Elbow Joint, Primary and Secondary.—Dr. John B. Murphy of Chicago said the poor results obtained in the treatment of joint injuries were bringing more discredit to the profession than any other branch of the practice. The time was not distant when the profession would be held financially responsible for these avoidable evils. Poor results in the treatment of injuries of the elbow joint follow luxation, and fractures were next in frequency to those of Colles' and Pott's. By more careful and thorough diagnosis, an insistence upon perfect reduction and the maintenance of the same these results could be avoided. When perfect reduction could be obtained and maintained by conservative bloodless manipulation, operation and the nailing of fragments must be resorted to. Fractures of the external and internal condyle, or both, might be nailed with the ordinary eight, ten or twelve pennyweight carpenter nail through a small nick in the skin. This could be done with impunity, and great numbers of skiagraphs demonstrating practically perfect results were thrown on the screen. Fracture of the olecranon process was also held better by nailing than by the former method of subcutaneous wiring. The non-union of fractures had become a very common condition; ten times more common since the year 1895 than previous to that time. Dr. Murphy believed that this was due to the too perfect and rigid holding together of fragments, as by the bone plate and plaster cast. Slight motion and irritation to the ends of fragments favored osteogenesis. Lane distinctly advised against the use of the bone plate in cases of non-union for this same reason. The Germans in applying plaster casts always had the patient walk about so as to obtain this desired stimulation by irritation of bone production. Volkmann's paralysis was a traumatic myositis followed by degeneration atrophy of the muscle fibres due to too tight bandaging and always occurred within the first 48 hours. He absolutely deprecated the practice of passive motion. Passive motion caused irritation, laceration, increased hæmorrhage, and so increased osteogenesis, resulting in the over-production of callus formation with the subsequent limitation to the function of the joint up to and including the degree of ankylosis. Very useful joints could be made of these ankylosed conditions by resections or the formation of artificial non-union above the elbow joint.

Drs. Cotton of Boston, Lemon of Milwaukee, Sherman of San Francisco and Willy Meyer of New York discussed the paper, all of whom agreed with Dr. Murphy in

urging less passive motion in the after-treatment of fractures in the neighborhood of joints. They all, however, believe that the conservative non-operative methods were sufficient in the great majority of cases, and operation should be the last resort.

Surgery of the Thyroid.—Dr. CHARLES H. MAYO of Rochester read this paper. His conclusions were based on the observation of 5000 operations. Drinking water seemed to have much to do in the etiology of thyroid disease. Transplantation of the gland in cases of defective thyroid was of no more value than the feeding of such gland, as it was in a short time eaten by the host. The vocal chords and all enlargement of the glands should be examined, as paralysis of one of the chords from pressure frequently occurred without alteration of the voice, due to the pressure of the recurrent laryngeal nerve, the left being more commonly involved. Substernal thyroid was more common than was generally appreciated and should be regularly examined for. Diagnosis was made by dullness on percussion over the sternum and by *x*-ray examination. Iodine was of benefit in the simple hyperemic goitre. It was of real danger when given to cases of fetal adenoma or old colloid goitre, in which, due to the stimulation a state of thyrotoxicosis developed, the latter condition in a short time giving myocarditis. *X*-ray treatment was of value at times in carrying a patient over an acute exacerbation of the exophthalmic type. The operation of litigation was very important in severe cases as a preliminary step in the preparation of the patient for the more radical procedure. Partial thyroidectomy cured the progression of the thyrotoxicosis but the injury already caused to the nervous system, heart, etc., was permanent. Removal of the superior and middle sympathetic ganglia frequently cured the exophthalmia.

Dr. OCHSNER in the discussion of the paper told of a village in Switzerland in which 70 per cent of the inhabitants were afflicted with goitre. A change in the water supply very greatly reduced the development of thyroid in young individuals. He advocated the boiling of water in thyroid districts.

Study of the Circulation in Some Cases of Gangrene of the Feet.—J. E. THOMPSON of Galveston said that from the very careful study of three cases of gangrene, one of thrombosis and two of diabetes, and review of the literature, the author concluded that amputation through the lower third of the thigh was invariably the proper site. Even with the main trunks completely blocked the collaterals would be sufficient to nourish the flaps in this location.

Extrathoracic and Intrathoracic Esophagoplasty.—Dr. WILLY MEYER of New York read this paper. The author urged complete radical extirpation of all malignancy of the esophagus, removing the malignancy wide and providing for the replacement of the function of the esophagus later. A tube outside of the thorax would enable the patient to swallow as well as inside, or plastic formations of new tubes by employment of skin or even transposed coil of small intestine has been successfully employed. The rubber tube connection employed outside of the thorax between the stomach opening and the oral opening was very satisfactory. Cancer of the lower third of the esophagus in the light of recent animal experiments would probably before long be likewise radically dealt with.

Oration on Surgery: Who Shall Do the Surgery?—Dr. WILLIAM D. HAGGARD of Nashville, in this address said: Modern surgery has made such great advances and become such a large subject that special preparation is required for its practice. The profession must insist upon better trained men, otherwise great discredit will result therefrom. Of 4500 graduates there are 3000 internes, which is not enough, and the writer recommended that all medical schools should require the fifth hospital year. He urged the establishment of special courses for the training of surgeons, and then a special degree as of M.S.—Master of Surgery—be given to those qualifying themselves. This work should consist particularly of the study of gross pathology, surgical anatomy, operative surgery on the cadaver and animals, and research laboratory work done in connection with clinical work at hospitals. Following this, an apprenticeship of from three to five years with an established surgeon was recommended

Chronic Focal Infections as a Causative Factor in Chronic Arthritis.—Dr. FRANK BILLINGS of Chicago presented this communication. As a result of work experimental and clinical performed in close co-operation by medical, nose and throat, laboratory and surgical practitioners a great deal of information regarding chronic arthritis and myositis and neuritis was obtained. His conclusions are that they are practically all due to chronic focal infections. Focal infections of the tonsils, of the sinuses of the head, of the dental alveoli, of the prostate, of the seminal vesicles and of the urethra, gall bladder, appendix, and elsewhere are causative. The treatment is removal of the cause. Gratifying results have been obtained by autogenous vaccines.

Infections of the Prostate and Seminal Vesicles: Their Rôle in Toxemia.—Dr. HUGH YOUNG of Baltimore said that prostatitis and vesiculitis were very commonly involved in gonorrheal urethritis without symptoms, manifesting themselves in later life by rheumatic infections. Prostatitis was frequently caused by infections from the rectum, more commonly in cases of hemorrhoids. These lesions frequently caused lumbago, sciatica, multiple arthritis, bursitis, myocarditis, and nervous symptoms, all of which had been cured by attention to the cause. For prostatitis and vesiculitis the treatment was massage, prostatectomy, or incision of the seminal vesicles.

Injection of Boiling Water for Hyperthyroidism.—Dr. MILES F. PORTER of Fort Wayne, Ind., read this paper. From a clinical observation of over twenty cases the author recommended the employment of the treatment in very severe and mild cases of hyperthyroidism. The immediate effect of the injection of the boiling water was the actual destruction of the thyroid cell in the vicinity of the injection and thus diminution in the quanitty of tissue forming the secretion.

Thursday, June 19—Third Day.

Nephritis as a Surgical Problem, and Its Treatment as a Preliminary to Operation.—Dr. J. F. PERCY of Galesburg, Ill., in this paper, advocated the use of desiccated thyroid gland in large doses as a means of improving the surgical risk in cases of nephritis. He reported some cases of actual cure of the condition. The treatment is contraindicated in cases complicated by incompensation of the heart, in severe chronic myocarditis, and in inflammations of the kidney secondary to infections of the genito-urinary tract. The thyroid extract may be of value as an agent in cases of suppression of the urine.

Technique of Röntgenoscopy of the Gastrointestinal Tract, and Interpretation of Screen and Plate Findings.—Dr R. D. CARMAN of Rochester, Minn., from the observation of a large number of cases advised more routine *x*-ray examination, many unsuspected lesions being found by so doing.

The Added Responsibility of the Surgeon when Called On to Treat Surgical Lesions in Their Earliest Stages.—Dr J. C. BLOODGOOD of Baltimore made a plea for greater attention and more thorough examination of patients with mild symptoms. A failure to diagnose malignancy in its incipiency is a much greater mistake than later in the disease, for in the early stage the condition is curable by operation, and in later never. The real problem of surgery today is the one of making early diagnosis, and particularly in cases of malignancy.

Fetal Peritoneal Folds and Their Relation to Postnatal Acute and Chronic Occlusions of the Large and Small Intestines.—Dr. J. RILUS EASTMAN of Indianapolis cited cases of acute obstruction of the colon due to Jonnesco's parietocolic fold, or Jackson's membrane. Acute obstruction has been caused at various places in the alimentary canal by these membranes. Many of the cases of intestinal stasis, chronic autointoxication, are frequently caused by the persistence of these fetal membranes and folds.

Symptoms and Diagnosis of Membranous Pericolitis.—Dr JABEZ N. JACKSON of Kansas City, Mo., read this paper. He said that pain along the course of the ascending colon, general diffuse tenderness over the whole abdomen, constipation, mucous colitis, tympanitis, digestive disturbances, neurasthenia, all resulting in loss of weight, were the main symptoms in the diagnosis of membranous pericolitis. Roentgenoscopy was of great value in demonstrating the stasis and sites of obstruction. Temperature and pulse disturbances were always absent.

The Necessity of Preserving the Periosteum in Bone Transplantation.—Dr. CLARENCE A. MCWILLIAMS of New York read a paper based upon a vast amount of experimental work in bone transplantation. The author concluded that the life of the bone graft depended exclusively upon its blood supply, the periosteum or marrow present or absent having no particular effect. Small fragments of bone denuded of their periosteum would live in tissues without absorption, due to rich blood supply. Large fragments without periosteum died because of insufficient blood supply. The periosteum was bone forming and lived when

the bone died because of its ability to appropriate nutrition. Complete subperiosteal bone resection was followed by the reforming of the bone.

Röntgenoscopy of the Liver and Biliary Passages.—Dr. JAMES T. CASE of Battle Creek, Mich., has found the *x*-ray examination of the liver to be of value in diagnosing changes in the size and shape of the liver, local tumors, hepatic and subphrenic abscesses, adhesions, and in many cases of gallstones giving vague symptoms.

Original Uses of the Bone Graft in Surgery.—Dr. FRED H. ALBEE of New York reported the results of his use of bone graft in the treatment of fractures of the spine, all long bones, neck of the femur, and club foot, showing a large number of skiagraphs and pictures as proof. His results had been very satisfactory and the paper was well received. Dr. Albee uses graft with periosteum and bone marrow, believing the latter two conditions, though not always essential, to be of value in insuring future life of the graft.

Symposium on Anesthesia.—Dr. HARRY G. SLOAN of Cleveland, in his paper on nitrous oxide and oxygen anesthesia claimed that it was particularly indicated in very bad surgical risks, they taking it the easiest. It was the anesthetic de luxe; it was pleasant to take and causes less post-anesthesia nausea. Diabetics did well with the anesthetic. Due to the inability to obtain complete relaxation as with ether local blocking of the nerves was resorted to. The principal disadvantages were the cost of the apparatus, the necessity of a skilled anesthetist, and the difficulty of obtaining pure gas.

Dr. CHAS. H. PECK of New York gave a report of very satisfactory employment of the intratracheal insufflation anesthesia in 334 of his personal cases of all varieties.

Dr. J. F. MITCHELL of Washington, D. C., referred to the extensive use of local anesthesia in Europe and predicted its greater employment by American surgeons. It was particularly indicated in operative work in the aged, and whenever general anesthesia was contraindicated. By the intravenous method of Bier all major surgery of the extremities might be performed, the particular value of its employment being the protection of the center nerve system from shock due to the blocked condition of the nerves. Practically all surface surgery of the torso, and all of the major surgery of the extremities might be performed under local anesthesia.

Surgical Aspects of Intestinal Stasis from an Anatomical Point of View.—Dr. JOHN E. SUMMERS of read this paper. Mechanical obstruction and interference was responsible for a large number of cases of intestinal stasis. Neglect of the function, and disease of the nervous system also played a part and frequently result secondary to the mechanical condition, forming a vicious circle. The recent interest in these various constricting membranes had been occasioned by the writings of Lane and Jackson, who were, however, only redescribing conditions observed and recorded by Jonnesco and Juvara, Treves, Reid, and others. These were mostly due to embryonic conditions. Some were of inflammatory origin and gave rise to the conditions of obstruction and intestinal stasis, which could alone be relieved by operative interference.

Friday, June 20—Fourth Day.

Gastric Tetany.—Dr. W. L. RODMAN of Philadelphia claimed great satisfaction in the treatment of gastric tetetany by gastroenterostomy or pyloroplasty. The relief obtained was usually very prompt. The indication in the treatment is that of gastric drainage. Gastric lavage continued for long periods of time may carry a patient along, and now and then result in a cure. Sedatives such as morphine, bromids and chloral are indicated.

An Experimental Study of the Mobilization of Ankylosed Joints.—Drs. NATHAN ALLISON and BARNEY BROOKS of St. Louis read this paper. The following conclusions were arrived at as a result of the review of the literature and personally conducted experiments and clinical work. Mobilization of ankylosed joints was based upon the freeing of such ankylosis, and the interposing of materials to prevent a return of the ankylosis: Cargile membrane, Baer membrane, silver nitrate fascia, fascia with a pedicle, free fascia and killed fascia. Among these the interposition of fascia had yielded the most satisfactory results.

Therapeutic Possibilities of Transfusion.—Dr. BERTRAM M. BERNHEIM of Baltimore said transfusion of blood was indicated in cases of exsanguination, in toxemias, and many of the blood conditions as splenic and pernicious anemias. It should be performed in earlier stages of these conditions to ascertain its real value, as the method gives promise of great value. The method was harmless, and the difficulty in the past had been that it had been performed usually only upon moribund patients, and even then with marked degrees of success.

Theory and Practice of Transfusion.—Dr. J. J. HOGAN of San Francisco concluded as a result of experiments to ascertain the comparative values of solution for transfusion that the beneficial effects from the salines while very marked is very transitory. Human blood serum is of much more permanent value, and whole blood the superior of all.

Thyroglossal Cysts and Fistulæ: Report of Three Cases.—Dr. HERMANN B. GESSNER of New Orleans read this paper. Thyroglossal cysts and fistulæ were of embryonic origin, being remnants of the ducts leading from the foramen cecum to the isthmus of the thyroid. The fistulæ always opened in the median line of the neck in contradistinction to those resulting from permanency of branchial cleft structures. The skiagrams of injected fistulae were of great diagnostic and operative value. The treatment was by excision.

SECTION ON MEDICINE.

Wednesday, June 18—Second Day.

The Clinical and Pathological Relationship of Hyperplastic and Nonhyperplastic Goiter.—Dr. H. S. PLUMMER of Rochester, Minn., presented this paper in which he stated that clinically cases of goiter might be classified into simple or exophthalmic, or equivalent terms, and the pathological classification of thyroids removed at operation into those with and those without sufficient hyperplastic or hypertrophic changes to characterize the gland; hyperplastic changes were found in from 70 to 90 per cent. of the thyroids removed for exophthalmic goiter. In the main the length and severity of the case history could be pointed out from the pathological findings. Toxic goiter heart was recognized in a certain proportion of cases not diagnosed exophthalmic goiter. A review of the clinical histories and pathological reports of their entire series in the latter part of 1908 led the author to the following conclusions: 1. There were at least two distinct types of thyroid intoxication, one associated with non-hyperplastic goiter, the other associated with hyperplastic or hypertrophied thyroids. 2. All cases having thyrotoxic symptoms with notable hyperplastic thyroids should be diagnosed exophthalmic goiter and that cases having thyrotoxic symptoms, without notable hyperplastic thyroids, should be classified with the toxic goiter heart. The main objection to these conclusions was the difficulty of making the clinical and pathological diagnosis agree in about 10 per cent. of the cases. He had attempted to answer the questions brought up with the least possible amount of data, using the following factors: the age at which the goiter was first noticed by the patient; the age at which thyrotoxic symptoms developed; the presence or absence of exophthalmos; the presence or absence of notable hyperplasia in the thyroid. The term thyrotoxicosis was applied to the constitutional state associated with goiter. The cases had been classified pathologically as hyperplastic and non-hyperplastic, and clinically as hyperplastic toxic and hyperplastic atoxic, non-hyperplastic toxic and non-hyperplastic atoxic. Following this classification for the new cases, 2,917 coming to operation between January 1, 1909 and January 1, 1913, 42.8 per cent. were hyperplastic and 57.2 per cent. were non-hyperplastic. Of those which were hyperplastic 99.2 per cent. were toxic and 0.8 were atoxic. Of the non-hyperplastics 23.3 per cent. were toxic and 76.7 per cent. were atoxic. Patients coming under observation with non-hyperplastic toxic goiter gave a history of having first noticed the goiter at the average age of 22 years, and the evidence of intoxication at the age of 36.5 years. The corresponding ages for hyperplastic goiter were respectively 32 and 32.5 years. That non-hyperplastic goiter was noted ten years earlier in life than hyperplastic goiter, that 14.5 years elapsed between the appearance of non-hyperplastic goiter and the development of notable toxic symptoms, and that the constitutional symptoms were noted but a few months later; that the goiter in the patients affected with hyperplastic thyroid was alone sufficient to show that they were dealing with at least two distinct pathological and clinical groups. That one was not the sequence of the other was self-evident. The majority of hyperplastic goiters coming to operation had moderate toxic symptoms indicating that the activity of the thyroid was proportionate to the degree of hyperplasia. Though there was much evidence on the affirmative side one could not definitely state at the present time that hyperplasia of the thyroid was more prevalent in the first two decades of life than they had definite knowledge of, neither could it be affirmed definitely that this hyperplasia of the thyroid

could be sharply distinguished from the hyperplasia associated with Graves' disease which developed at the average age of 32. As to whether the exophthalmos of thyrotoxicosis was always associated with hyperplastic goiter, the pathologists' reports failed to show the presence of hyperplasia in the cases in which exophthalmos was noted by the clinician six times in 1909, four times in 1910, two times in 1911, and not a single instance in 1912. In 1912, 911 new cases of goiter came to operation. In most of the exceptions to the rule previous to 1912, they had been able to prove that there was an error on noting the presence of exophthalmos. It was quite possible that exophthalmos might be associated with non-hyperplastic toxic goiter, but, if so, it was so rare that it must be in a way considered accidental. As a matter of convenience in this paper he had considered the symptom complex accompanying hyperplastic goiter and directly attributable to disturbed thyroid function, and while he did not wish to discuss this subject at the present time he called attention to a point in support of this theory, that so far as he knew had not hitherto been made, namely, that an individual 22 years of age, with an adenoma of the thyroid, had a definite chance of developing a train of symptoms during the thirty-sixth year so similar to the symptoms complex associated with hyperplastic thyroid that the best trained diagnosticians were constantly confusing the two conditions. The author thought that at present they could not associate the symptom complex of non-hyperplastic toxic goiter with any definite pathological change in the thyroid.

Diseases of Porto Rico.—Dr. ELMER F. OTIS of Penuelas, Porto Rico, read this paper. He stated that there were only two or three diseases strictly limited to the tropics, and if they considered all the diseases that occurred in the tropics they would have to cover the entire field of medicine. They had the arthritides and rheumatism even in warm climates. Tuberculosis presented a more puzzling problem in the tropics than in the temperate zones. This disease had increased with the increase of population and crowding, and was fostered by the prejudice of the people against ventilation. Typhoid fever was endemic in the island and malaria presented some uncommon phases; it was much more malignant than in the north. Eye affections, especially cataracts, were frequent, particularly in those affected with the hookworm. Intestinal obstruction was common owing to the irregular habits of the natives. There were thirty cases of leprosy on the island, but yellow fever no longer visited them. The plague had visited them in 1912 but was controlled by the sanitary department of the island and the United States War Department, and that without obstructing commerce It was evident that through the enforcement of sanitary regulations they could cope with disease as effectively in the tropics as elsewhere.

Study of a Case of Congenital Hemolytic Jaundice.—Dr. ERNEST T. F. RICHARDS of St. Paul, Minn., reported this case, and gave a very accurate description of the condition of the blood in these subjects. The only rational treatment seemed to be iron unless one wished to resort to splenectomy. He illustrated the blood picture with lantern slides, showing the diminished osmotic resistance of the erythrocytes and the point higher than normal at which the patient's corpuscles showed slight hemolysis. He also illustrated the marked decrease in the size of the erythrocytes and the anisocytosis in congenital hemolytic jaundice.

Dr. WILLIAM S. THAYER of Baltimore reported a case that had come to him a year or two ago. The girl had always been jaundiced. The spleen was enlarged a hand's breadth below the costal margin. As the jaundice in this case was slight and as the symptoms were so light in his patient he did not think that the condition called for splenectomy. The congential type needed little treatment except for the cosmetic effect but acquired cases might be instances of pernicious anemia.

Dr. JOSEPH L. MILLER of Chicago said that a case under his observation at the present time showed that the blood hemolyzed at about normal. When a patient had chronic icterus the blood had a marked difference in resistance of red blood corpuscles in this form.

Federal Control Over the Manufacture of Serums and Vaccines.—Dr. JOHN F. ANDERSON, Director Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., read this paper, which gave an account of the way in which the United States Government safeguarded the manufacture of important products, such as diphtheria antitoxin, tetanus antitoxin, vaccine virus and other similar preparations. He showed that the manufacture and sale of these products was under the strictest kind of supervision and that the least deviation by the manufacturer from the established methods in the preparation of these products was at once checked by the Government. Before the U. S. Public Health Service was given authority by Congress, in 1902, to exercise this supervision the manufacturers were under no control as to potency or purity of their product, being guided solely by the commercial considerations involved in putting out a better preparation than their competitors; but since the enactment of this law giving authority to the Public Health Service to supervise the manufacture of these important preparations every safeguard has been thrown around them, and physicians in the United States using a package of diphtheria or tetanus antitoxin could now be assured that the patients would receive the full therapeutic effect of the contents as stated upon the label. The enforcement of this act had been of inestimable value in the safeguarding of biological products.

Treatment of Pneumonia by Specific Serums.—Dr. RUFUS I. COLE of New York read this paper. He stated that pneumococci might be divided into several groups, each with specific biologic characters. An immune serum which was active against members of one of these groups was not active against the member of other groups, and this explained why pneumococcus sera had so often proved of no value in particular cases of pneumonia. Therefore, in an attempt to treat pneumonia by specific serums it was necessary to determine first the specific group to which the infecting organism belonged. In determining to which group the pneumococcus in a given case belonged they examined cultures from the sputum, the blood, and sometimes from the lung. They had studied 74 cases of pneumonia which had fallen into four groups which they had designated as type I, type II, type III (pneumococcus mucosus) and type IV (heterogeneous organisms). Of the 74 cases 47 per cent. belonged to the first group, 18 per cent. to the second group, 13 per cent. to the third, and 22 per cent. to the fourth. They had had a mortality of 24 per cent. in the first group, or 61 per cent. in the second group, 60 per cent. in the third and 7 per cent. in the fourth. The mortality in the whole group was 32 per cent. When the culture was not agglutinated by serum of the first or second groups it was taken that the case belonged to the third or fourth group. Of 20 cases treated there were 13 of type I and three of type II. They had found serums that seemed to be active against the first two groups, but thus far no serum had seemed to have any effect on the third and fourth groups. In order to avoid anaphylaxis they gave a preliminary dose of four c.c. of the serum. All of the cases showed a marked reaction after the injection of the serum; some had chills and a rise in temperature and others had serum disease some day after the administration of the serum. It was not clear just how the serum acted, but there seemed to be a lessening in the degree of toxicity. The author also discussed the protective power of the serum when administered at different times during the progress of the disease and said that this protective power seemed to be greater the earlier the serum was given. He felt sure that further study in this field would be productive of definite results. He thought that part of the action of the so-called antibacterial serums might be antitoxic.

Antistreptococcic Serum.—Dr. GEORGE H. WEAVER of Chicago read this paper, in which he described how the antistreptococcic serum was produced and his theory of the mechanism of its action, and also how passive immunity was produced and the mechanism of its action, discussing the action of opsonins and antitoxins. A protective serum had little curative power in active infection. To secure the best results the serum should be brought in contact with the infecting organism as soon as possible and to effect this the intravenous method of administration gave the quickest method. Larger doses than were usually administered were required to produce an effect. Thirty to 100 c.c. when given subcutaneously gave results only after from twenty-four to forty-eight hours. When there was a fall in the opsonins after an earlier rise the dose was repeated. The author discussed the conditions and indications for the use of the serum. A bacteriological diagnosis furnished the only dependable basis as to whether the administration of the serum was indicated. There was, of course, no use in administering a streptococcus serum in case the infection was due to some other organism. Again one must be sure that the serum was active. The doses usually used had been too small—10 to 20 c.c.—while a dose of 50 to 100 c.c. was nearer the correct one.

The Treatment of Lobar Pneumonia with Partially Autolysed Pneumococci and Pneumococcus Extracts.—

Dr. E. C. Rosenow of Chicago read this paper. He said that he had been working for four years on the autolyzed products of pneumococci and pneumococcus extracts in the hope of finding some product of the pneumococci which would be useful in the treatment of pneumonia. Passive immunity had failed to give the protection necessary and it was necessary to have the pneumococci in a state of high virulence. From the work of Dr. Cole it now looked as though this might be possible. A highly virulent culture placed in salt solution had no particularly toxic effect after a certain period; at first a highly toxic substance was autolyzed, but if the autolyzation proceeded still further the toxicity was lost to such an extent that it could not be restored by any methods thus far employed successfully with other bacilli. When autolyzed pneumococci in twenty million doses were injected there was a prompt increase in opsonins. During the past two years they had used a combination of the partially autolyzed and the non-toxic serum and they had had better results. They had treated 150 cases during the past three years in the Cook County Hospital and had used 150 cases as controls. In 1911 the mortality among the treated cases was 32 per cent., while among the untreated control cases it was 48 per cent.; in 1912 the mortality among the treated cases was 23 per cent., while among the untreated it was 31 per cent.; in 1913 the mortality was 14 per cent. among the treated cases and 32 per cent. among the control cases. The cases were of the character usually received in such institutions, the mortality being far higher than in private practice. While Dr. Rosenow did not wish to be over-enthusiastic he said he believed that the detoxicized pneumococcus was a remedy that would do good in lobar pneumonia. In 75 per cent. of the cases treated last year he found that if the pneumococcus serum was given early the disease was cut short. If, however, consolidation was complete the temperature showed no definite change after the administration of the pneumococci. He had no explanation to offer which would explain the action of this preparation of pneumococci which was in accord with the present knowledge of immunity. If it proved useful they should use it and continue to search for the explanation. While he did not advocate practically autolyzed pneumococci as the remedy *par excellence* for pneumonia, he thought that its proper and early use was of real benefit.

Typhoid Vaccination in the Army.—Dr. Frederick F. Russell of Washington, D. C., read this paper and gave a lantern slide demonstration. He said that vaccination against typhoid was begun in March, 1909, on volunteers from the Medical Corps, Hospital Corps, and Army Nurse Corps. The first year 1,887 persons were vaccinated; in 1910, 16,073. In March, 1911, compulsory vaccination was ordered for troops on the Mexican border (20,000), and in June, for all recruits, numbering from 2,000 to 3,000 per month. In October it was ordered for all persons in the service under 45 years of age. The results were shown in the following table:

Year	Mean Strength	Absolute Cases	Number Deaths	To each 1,000 soldiers of the command, the ratios are:	
				For Cases	For Deaths
1901	26,515	250	17	9.43	.64
1902	39,736	341	34	8.58	.86
1903	42,264	246	12	5.82	.28
1904	43,940	247	12	5.62	.27
1905	42,834	133	13	3.57	.30
1906	40,621	230	12	5.66	.28
1907	35,132	124	7	3.53	.19
1908	46,316	136	11	2.94	.23
1909	57,124	173	16	3.03	.28
1910	55,680	129	9	2.32	.16
1911	55,240	44	6	0.80	.11
1912	58,119	15	2	0.26	.03

The vaccine was made from a carefully selected single strain of the bacillus typhosus grown on agar. The first dose was 50 million bacilli, the second and third, given 10 and 20 days later, 1,000 million. No ill effects had been reported. The last case of typhoid in the army occurred on December 9, 1912.

The same vaccine offered protection against the typhoid of all different localities. The statistics showed that vaccination against typhoid was as successful as that against smallpox. A preliminary vaccination did no harm if typhoid fever did develop. They did not know the duration of immunity conferred by vaccination and hence they vaccinated every four years because they aimed to get the maximum immunity. There was no evidence to show that it activated tuberculosis or any other chronic disease. At the present time they did not care to use a vaccine containing living bacilli, since they were sure that the vaccine now used produced no harmful results. Cases of paratyphoid fever were so rare that it was not advisable to double the dose of bacteria in order to reach them. In patients who had been vaccinated the diagnosis was made by a blood culture. The fact that the men were vaccinated did not lead them to slight any other sanitary measures.

Dr. Joseph L. Miller of Chicago, Ill., said that there was no study so full of difficulties as that of therapeutics, and especially in acute infections. The percentage of recoveries varied greatly in different epidemics, and there was a great variation in the degree of the intensity of the infection in different individuals. One must have a wide experience as to individual data and a suitable number of control cases if he would reach reliable conclusions. The papers read had been of unusual value in that they dealt with facts and not with impressions.

Dr. W. V. Brem of Los Angeles, Cal., related an instance in which he had used a streptolytic serum, together with a normal human serum in a case of streptococcic meningitis. He administered 100 c.c. subcutaneously, and although he obtained a negative spinal fluid so far as the streptococcus was concerned and there were none in the smears, yet the septicemia increased and the patient died. After hearing the papers he would now give a large intravenous injection in such a case. He said he wished to take advantage of this opportunity to speak of the doubtful laboratory products against which the government could not as yet protect them. Many were using the phylactogens; the reports in regard to the action and benefits of these products that were given them were from the proprietors; there were only two or three reports in medical literature. The reports in regard to such products should come from the prophets of the profession and not from the manufacturers.

Thursday, June 19—Third Day.

The Water-Trap Stomach: Symptomatology, Diagnosis and Treatment.—Drs. G. Reese Satterlee and L. T. LeWald of New York presented this communication and made the following deductions: (1) While the condition of water-trap deformity was observed in early youth the usual time these cases presented themselves for radical treatment was between the age of 30 and 40. (2) These patients had invariably suffered for years. With symptoms erroneously diagnosed as "neuralgia of the stomach," "ulcer of the stomach," "nervous indigestion," "neurasthenia," or "dyspepsia," the limit of endurance had only been reached after sixteen years of suffering. (3) Coloptosis, nearly always present, was not present in 16 or 100 cases. (4) "Residue" or food remaining an abnormal length of time in the stomach gave in 16 cases symptoms such as pain five or six hours after eating, most frequently at night in the early morning, and flatulence. Fifty per cent. of the 16 special cases had the symptoms and the residue was demonstrated by the *x*-ray. In the 100 cases 55 per cent. showed residue by means of the *x*-ray. This residue was caused by sluggish motoric functioning of the stomach. (5) The drag was evidenced by symptoms of a dragging sensation in the abdomen, flatulence and eructations. These symptoms were caused by the constant pull of the ptosed hollow viscera upon the visceral nerves and blood vessels. Symptoms were present in all of the 16 cases. This sensation of "drag" had been one of the most constant symptoms and one of the first to be relieved by proper treatment, whether medical or surgical. (6) There was loss of weight. This was present in 13 out of the 16 selected cases. In the cases that showed improvement after treatment, medical or surgical, there was a gain in weight of ten or more pounds. (7) Vomiting was not a prominent symptom, and was present in only four of the 16 cases studied in detail and in 35 out of the 100 cases. (8) Constipation was present in 13 out of the 16 cases, but in only 45 out of the 100 cases. It was undoubtedly a factor, but its exact relationship was not easy to determine. (9) In the 16 cases reported in detail only four were in multipara. Eighteen of the 100 cases were treated by abdominal section. In practically every case in which a thorough form of suspension technique was employed had up to date done well. The operation of choice was gastropexy and colopexy. Indications for Operation.—1. In those cases of water-trap stomach of a severe grade with a residue in the stomach after six hours and that had resisted medical treatment for a considerable length of time. 2. Those cases that showed a gradual steady loss of weight and strength under the

same conditions and treatment. 3. Those cases that could readily demonstrate that there was a constant discomfort from the condition after a reasonable amount of medical treatment. Contraindications.—The simple ptosed stomach and the simple dilated stomach. The rule in these cases was subjected to occasional modifications. Gastrocoloptosis in multipara with lax abdominal walls and with no evidences of the water-trap deformity. The medical treatment as outlined in the large majority of the cases consisted of (1) correcting the position and drag by (a) proper fitting abdominal supports; (b) elevating the foot of the bed to limit of tolerance; (c) turning the patient on the right side after meals, with the thighs elevated.

2. Attention to a digestible diet and hygiene, especially if constipation was present. These patients were not to be put to bed but kept on their feet. If rest was necessary the indications for operation should be carefully considered. The author drew the following conclusions: I. The water-trap stomach was a morphological entity, a "deformed organ" which gave rise to a certain definite train of symptoms. II. That its origin was probably largely embryological and developmental. III. The water-trap stomach should be distinguished from a simple gastroptosis. IV. It occurred mostly in women. V. Constipation, although it might not be an exciting cause, was present in over fifty per cent. of the cases. VI. This condition was very frequently wrongly diagnosed as an ulcer of the stomach or duodenum. VII. So far, its exact diagnosis did not seem feasible without the aid of the *x*-ray. VIII. In the mild grades medical treatment alone was necessary. IX. In the severe grades operation was often indicated, and in some of these was the only means of relief.

Gastroscopy, with Demonstration.—Dr. Henry H. Janeway of New York read this paper. He said that all admitted the need of gastroscopy, provided a satisfactory view of the interior of the stomach can be safely obtained thereby and without causing the patient to suffer. The demonstration accompanying the paper should satisfy the first of these conditions. The clearness of the views depend in a large part on the improved telescopes. With them it was possible to get a satisfactory view of the vertical portion of the stomach in the majority of cases. Fifteen carcinomas of the stomach had been diagnosed by this means by the writer. In the majority of these the diagnosis was confirmed by sections of a portion of a piece of tissue removed at the time of the examination. The intratracheal anesthesia, particularly by nitrooxide and oxygen, satisfied the second condition. There should be no excuse therefore, for the failure to include gastroscopy among the routine methods of gastric examination. Gastroscopy completed the radiographic examination of the stomach in the cardiac region where radiography found a smaller field in usefulness. In the same manner radiography complemented gastroscopy in the pyloric region of the stomach.

Points of Value to Be Derived from Röntgenoscopy of the Gastrointestinal Tract.—Dr. R. Walter Mills of St. Louis, Mo., presented this paper. After pointing out the deficiency of the ordinary methods of auscultation and palpation in determining the topography and conditions of the gastrointestinal tract he pointed out the advantages of the *x*-ray in the diagnosis of obstructions, diverticuli, carcinoma, cardiospasm, etc., of the esophagus, in which locality the shadows gave the best information. The *x*-ray had changed their ideas regarding the position and relation of the stomach to habitus, tonus, and atony. The findings in gastric ulcer were dependent upon the location of the ulcer. Ulcer was indicated by localized spasm, delay in filling, incisura, and functional hour glass stomach. There was delayed motility in ulcer, the food remaining in the stomach as long as forty-five hours in some instances. The author pointed out the relation of pressure sensitive points to *x*-ray findings, and illustrated the findings in gastric tumors by stereopticon views. He also illustrated the location of tumors in or contiguous to the stomach and of the correlation of clinical and *x*-ray findings. He also illustrated the use of the *x*-ray in duodenal lesions, in affections of the small intestine and in colonic affections. It was of special value to the surgeon in localizing gastric lesions and in the determination of their nature. By a judicious use of the *x*-ray the number of exploratory operations could be greatly limited. The *x*-ray to be really valuable must be used in connection with clinical findings; there was still need for conservatism and confirmation of the findings as knowledge of this subject was still incomplete.

The Permanent Place in Medicine of Radiography after a Bismuth Meal.—Dr. Russell H. Boggs and Dr. Joseph Foster of Pittsburgh, Pa., presented this communication. They declared that since antiquity intestinal poisoning as a fountain head of disease had been recognized, but chaos existed in the ideas of medical men as to its cause and treatment. In the last ten years—mostly in the last five years—by the systematic study of the alimentary canal after a bismuth meal, more actual usable knowledge had been gained regarding the true causes of bowel poisoning, and more genuine scientific advance had been made in the treatment of the condition than in all the centuries preceding. The authors then gave a lantern slide demonstration illustrating the normal position of the alimentary canal and variations from normal, and described the effects that followed the deviations from the normal. The treatment was both medical and surgical and should be checked up and controlled by the *x*-ray. The author gave a retrospect of the work done up to the present time and correlated it with his own experience.

Dr. Chevalier Jackson of Pittsburgh, Pa., said that in regard to the gastroscope it was idle to say that the technique was easy to any one unless he had been trained in the details of gastroscopy. The difficulties were twofold, instrumental and technical; Dr. Janeway had overcome the instrumental difficulties and his instrument was practical. The stomach was in constant motion and it was difficult for the inexperienced to get much information, but the carefully trained worker could see a great deal. The man who would operate the gastroscope successfully must be a trained mechanician. There were many technical difficulties which could not be overcome without instruction and experience.

Dr. John Draper of New York said he had watched the development of Dr. Satterlee's work in water-trap stomach and had come to look upon the condition as a morphological entity. He had examined one hundred stomachs after death and found that the variations were greater than was shown here. Water-trap stomach differed from ordinary dilated stomach. Dr. LeWald had suggested that it had an origin similar to inguinal hernia, a congenital potential defect which did not show itself until some other factor was added. The symptoms began when the stomach had a residue, but the symptoms were not due to the residue, but seemed to be dependent on enzyme exchange. When the food was delayed in the stomach the water was absorbed, thus interfering with the enzymes causing peristalsis, and leading to the train of symptoms found in water-trap stomach.

Dr. Lewis S. Cole of New York said that he had seen Dr. Janeway make gastroscopic examinations and he had been able to do this with less discomfort to the patient than was incurred in an ordinary cystoscopic or urethroscopic examination. It was remarkable the way in which the gastroscopic findings dovetailed with the *x*-ray and supplemented it. The combination of the gastroscope with the *x-ray* excelled all other methods.

Dr. M. L. Graves of Galveston, Texas, said that great conservatism was necessary in interpreting the findings by these methods. They should be followed up by observations at the time of operation. If the stomach was dilated with atmospheric air the *x*-ray showed the dislocation if one existed. Most of the cases diagnosed as water-trap stomach would have pyloric opening or duodenal fixation and it was easy to diagnose them with the *x*-ray, but another class of cases had mobility of the pyloric end and a ptosis and they were not normal, as Dr. Mills had suggested, but represented a pathological condition.

Dr. Fenton B. Turck of New York said that this presentation was important to both the surgeon and the physician. Attention had been called to the congenital chracter of this condition. They had produced practically the same results in dogs as the result of fatigue. In their studies on chronic fatigue they had used forced feeding and overloading the stomach and produced chronic fatigue which resulted in a condition analogous to the water-trap stomach. This seemed to show that treatment along the lines of rest and exercise was logical. Purely mechanical treatment failed unless rest and exercise were brought to its assistance. Food should be withdrawn at first; then one meal a day was permitted, and later two, but never more than two meals a day. The exercise was given by means of air injections. The colon should be treated at the same time; in addition measures of general hygiene should receive attention. These usually effected a cure unless mechanical obstruction was present. This was a physiological condition and should be treated by physiological methods and not by mechanical means.

Dr. Henry H. Janeway, in closing the discussion, cautioned his hearers against too much hopefulness in regard to the gastroscope. It was a practical method and was applicable to the diagnosis of cancer in the early

stages. The question arose as to how early the patient with cancer complained of discomfort and it was his belief that most of these cases came under the eye of the physician early in the course of their disease. It was perfectly possible to remove a specimen of the growth within reach of the instrument, and he had diagnosed twenty-five cases of cancer in this way up to the present time; this diagnosis had been confirmed by the pathologist. Local anesthesia was possible in the vast majority of cases.

Dr. G. Reese Satterlee of New York, in closing the discussion, said that he was glad to see the trend of opinion toward the belief in the embryological causes of this condition. The water-trap stomach was not an enteroptic type. They did not want the impression to be conveyed that all water-trap stomachs required operative treatment. They required operation only when the lesser curvature was below the umbilicus. As mentioned before there was no one normal type of stomach; the stomach fitted the shape of the body, and thus one learned to diagnose the water-trap stomach by the build of the patient and especially by the long narrow thorax. In regard to the medical treatment he cited the case of a woman who without any abdominal support, but by raising the foot of the bed, lying on the right side after meals and attention to hygiene, had been relieved of pain, nausea and eructations and had gained eighteen pounds in four months.

Dr. L. T. LeWald said he could not understand the great discrepancies between the *x*-ray findings and the findings at operation referred to by Graves. He had seen some apparent discrepancies; like hernia the stomach might be reducible. When the patient was in the recumbent position it went up into a better position, but it could be drawn down.

Dr. R. Walter Mills called attention to the loose way in which the term enteroptosis was used. It was employed to indicate ptosis, atony, and dilation. Much difficulty could be saved by regulating the use of this term. During anesthesia, when the abdomen was opened, the tonus was lost and injections of the stomach in the cadaver gave false impressions. The basis of everything was the ability to study the individual stomach and to realize that the individual stomach fitted the individual body.

Cause and Treatment of Diarrhea.—Dr. Richard C. Cabot of Boston, Mass., read this paper. He said there were three general questions to be answered. What lesions of the intestines were associated with diarrhea and how often? What clinical features were associated with each lesion? What was the prognosis and treatment of diarrhea? In his consideration of the subject he excluded diarrheas incident to typhoid fever, those common only in the tropics and those epidemic in character. In making a distinction between the acute and chronic types of diarrhea Dr. Cabot said that chronic enteritis might present acute symptoms or a long standing diarrhea might be without organic basis. He had made a careful study of the relation of food indiscretions to diarrhea and had come to the conclusion that this factor was greatly overestimated. Ptomaine poisoning was an expression sadly misused; this had become a fashionable diagnostic term, which was usually found to mean acute pancreatitis, gallstones, etc. It was a condition very much rarer than was supposed. Diarrhea was infrequent in tuberculosis of the intestines and the latter was usually secondary to tuberculosis of the lungs. Mucous colitis was a neurosis with the fixed habit of examining the stools and bringing samples to the doctor. It was accompanied in three-fourths of the cases by constipation; it was rarely a diarrhea and never a colitis. Dr. Cabot had made a study of the record of 3,000 cases in Bellevue Hospital and a like number in the Massachusetts General Hospital. He found diarrhea present in acute and chronic enteritis in 40 per cent. of the cases in Bellevue Hospital and in 45 per cent. in the Massachusetts General Hospital; where there was disease of the colon he found diarrhea present in 52 per cent. of the cases in Bellevue Hospital and in 32 per cent. in the Massachusetts General Hospital; in tuberculosis of the intestines he found dirarhea present in 29 per cent. of the cases in Bellevue and in 32 per cent. in the Massachusetts General; in tuberculosis of the lung it was present in 15 per cent. of the cases in Bellevue and in 11 per cent. of the cases in the Massachusetts General Hospital. Out of 725 cases of diarrhea in the Massachusetts General Hospital, 473 occurred in acute enteritis, 130 in chronic enteritis, 76 in cancer of the colon, 25 in tuberculosis of the bowel, 15 in Graves' disease, 14 in pernicious anemia, 10 in mucous colitis, 9 in amebic dysentery, 7 in fat intolerance, and 6 in nervous hyperperistalsis. Compensatory diarrhea as a feature of chronic nephritis had not been established. It was difficult to tell from the symptoms whether the small or the large intestine was affected. If the rectum was affected there was tenesmus. Stool examination was valuable in prognosis. The duration of the diarrhea did not run parallel with the severity of the lesion. The prognosis was more grave where there was ulceration. As to the prognosis of the chronic cases they had been unable to cure 40 per cent., while in 60 per cent. the diarrhea had been checked, though they were not sure that it had been permanently cured. As to the treatment, when there was a history of severe intractable diarrhea, the patient was put to bed and twenty-four hours consumed in making the necessary examinations. The patient received no medication during this twenty-four hours and often at the end of that time there had been no movement of the bowels; this happened so frequently that they were forced to the conclusion that rest in the recumbent position was a most potent influence in chronic diarrhea. In acute case starvation combined with purgation was the treatment; there was nothing new in the method of purgation. The diet was largely nitrogenous, omitting the carbohydrates and fats for a short time. The psychic side of the question was more important than was generally recognized. Dr. Cabot cited the instance of 125 men suffering from diarrhea who belonged to the United States Army who were taken aboard a transport in Cuba. Inside of two days many of them had broken into the larder and had eaten bread and butter and the diarrhea had stopped in all but a few cases. They had received no treatment. The great factor here was psychic; they thought they were going to die in a foreign country, but when there was hope of home, together with the influence of the sea air, they quickly recovered. In long standing cases irrigations with normal saline solution were effective. A weak solution of silver nitrate was sometimes beneficial; however, if the first injection did not afford relief there was no use in repeating the dose. Emetine had given the same results as were previously mentioned. Bismuth in large doses was sometimes beneficial. There was no benefit to be derived from opium in the chronic or ulcerative cases. Sodium salicylate gave relief in a few cases.

Dr. W. S. Thayer of Baltimore said that in a large proportion of the cases of diarrhea it was not possible to name the cause and this was what they wanted to find out. The stools should be examined with care, as one often got hints in regard to treatment from the character of the stools. It had been demonstrated that diminished gastric acidity or anacidity was a common cause of peristent diarrhea. In such cases large doses of hydrochloric acid were indicated. In these cases one would expect to find a large amount of fatty acids in the stools, associated with diminished gastric secretion. In cases of mucous colitis all were familiar with the nervous attitude of the patient. This was one of the most interesting conditions with which they had to deal, not because of the mucous colitis but because of the associated condition. Mucous colitis might often be found to be due to mental and physical strain. If one studied the general conditions surrounding the patient he could often do much good. These cases often depended upon small local infections. Mucous colitis was commonly associated with constipation with occasional outbreaks of diarrhea. He emphasized what Dr. Cabot had said in reference to rest in bed in the recumbent position. The results of this factor in the treatment agreed with the suggestion that fatigue played a part in the etiology of mucous colitis.

Dr. P. S. Roy of Washington, D. C., called attention to the fact that hydrochloric acid controlled the opening and closing of the pylorus and this had much to do with the diarrheal attacks. He agreed that fatigue might be a cause of diarrhea; the diarrhea of exophthalmic goiter was a fatigue diarrhea and that was why rest was so important.

Dr. F. M. Pottenger of Monrovia, Cal., said that diarrhea in tuberculosis did not mean that there was tuberculosis of the intestines. Tuberculosis of the intestines might be present when there was no diarrhea. In open tuberculosis the tubercle bacilli were frequently found in the stools and this did not mean tuberculosis of the intestines.

Dr. J. S. McLester of Birmingham, Ala., spoke of diarrhea in connection with pellagra. This disease was usually recognized by changes in the mucous membrane of the mouth and by the patella reflex. The examination of the stools gave no help. It was possible that the diarrhea of pellagra had as its basis a nervous disturbance. Most of these cases had a lowered gastric acidity and hydrochloric acid checked the diarrhea.

Dr. Seale Harris of Mobile, Ala., said that diarrhea associated with pellagra was more frequent than supposed.

In Chicago only nine deaths had been attributed to pellagra and he believed that the number must be much larger, and that many cases passed unrecognized. In many patients suffering from pellagra the only symptoms were those of a gastrointestinal nature as diarrhea, stomatitis and burning in the abdomen and rectum. Three-fourths of the patients suffering from pellagra and having diarrhea had lowered gastric acidity or anacidity. In cases in which there was no decrease in acidity constipation was noted. The treatment of diarrhea associated with pellagra consisted in abstinence from corn products, rest, and the administration of hydrochloric acid. The diet should be largely nitrogenous.

Dr. Fred W. Bailey of Cedar Rapids, Iowa, said he was glad Dr. Cabot had been an iconoclast with reference to the ptomaine poison fad. He hoped he had dealt this fad a death blow.

Dr. Richard C. Cabot of Boston, in closing the discussion, said that the question of achylia gastrica was not so simple as it appeared. In the achylia of pernicious anemia they had the achylia present all the time but not the diarrhea, hence there must be another factor involved. Mucous colitis and morning diarrheas were to be cured by psychic methods, or change of environment. Achylia gastrica seemed to have no direct relation to Graves' disease; sometimes it was present and at others not. The most impressive cures in mucous colitis were effected by encouragement and stuffing.

Cerebrospinal Fluid in the Diagnosis and Treatment of Syphilis.—Dr. Walter V. Brem of Los Angeles, Cal., presented this paper, in which he discussed the relation between the Wassermann reaction in the blood and in the cerebrospinal fluid and the relation between the Wassermann reaction, cell count, and butric acid test in the cerebrospinal fluid. The examination of the cerebrospinal fluid was the criterion of the cure of syphilis. Parasyphilitic and metaspyhilitic affections were really active syphilitic processes. The problem was to prevent local lesions in the central nervous system. The Wassermann test might be negative in the blood when it was still active in the cerebrospinal fluid. It was possible to have a positive cerebrospinal reaction when there were no symptoms of syphilis. Before a case of syphilis was pronounced cured it should be demonstrated that the cerebrospinal fluid was negative. The incipient cases of paresis were the ones that showed the greatest improvement under this treatment. He administered one-tenth of a gram of salvarsan to every 20 pounds of body weight. He had given as much as eight-tenths of a grain intravenously. The reaction was stronger than from smaller doses. After the reaction became negative he gave three additional doses together with a course in the mercurials.

Dr. A. R. Dochez of New York said that lumbar puncture should be practiced more frequently in syphilitic cases. It had been found that a persistent Wassermann reaction was often due to infection of the central nervous system. In treating syphilis it was not an uncommon practice to wait for a positive blood reaction, but this did not appear until six days after the initial lesion. The appearance of the Wassermann reaction and secondary manifestations showed that the infection had become a general one. A diagnosis should be made early and the disease treated before it became disseminated. This could be done by making a dark field preparation from the lesion. The great frequency of the involvement of the central nervous system suggested the importance of making lumbar puncture in every case of syphilis.

Dr. Richard C. Cabot of Boston called attention to Homer Swift's method of injecting salvarsanized autoserum into the cord; he injected 30 c.c. of the patient's own salvarsanized serum. One should assume the involvement of the central nervous system until it was proved to the contrary.

Dr. Frederick F. Russell of Washington, D. C., said that he thought they now had a standard for the cure of syphilis. They had several things upon which to rely; the length of time without symptoms should be one year; there should be no positive Wassermann reaction during one year, and negative spinal reactions at the end of a year.

Dr. J. S. McLester of Birmingham, Ala., said they had followed the Swift method in parasyphilitic affections. They injected salvarsan intravenously and then after one-half hour drew the blood and reinjected 30 c.c. of the serum intraspinously and they were elated over the results.

Dr. Brem of Los Angeles, Cal., said that he had referred to Swift's method in his paper and that it might prove the method of choice, but he hoped that the method of giving large doses of salvarsan would prove effective, as it was simpler and would reach a larger number of individuals.

The afternoon session was devoted to a symposium on leprosy.

Dermatological Aspects of Leprosy.—Dr. Isadore Dyer of New Orleans read this paper. He divided these cases into the following nine groups: (1) Macular. There was a general impression that the individual was carrying in the circulation the infection which was the cause of the disease. The eruption was not at all characteristic, but quite evanescent. It occurred usually over the back of the hands and on the legs and was brownish in color. Some of these patches were anaesthetic, and others were not. It was quite easy to demonstrate the lepra bacillus in these cases. Macular leprosy should be differentiated from syphilis and erythema multiforme. In the latter, the eruption lasted for many months. (2) Tubercular. In this class there were two forms, the large and the small. In the former the color was quite characteristic, being a brownish-red. Both lupus and syphilis might be confused with this form of leprosy. The small tubercles were dirty-yellow in color and the condition grew rapidly in its course. The lesions were likewise anaesthetic. (3) Bullous. The lesions appeared most often in the hands and feet and deformities resulted from the loss of bone resulting from ulceration. The ulnar nerve was usually involved in this. (4) Pigmentary leprosy. (5) Nodose leprosy. This was usually facial and the features were much changed because of the resulting necrosis. (6) Scaly epilepsy. This was a very rare condition. Peripheral nerve changes were found at the same time with the scaly condition. (7) Ulcerative leprosy. The lesions were usually located on the soles of the feet. (8) Mutilating leprosy. In this form the lips dropped off, as well as the fingers and toes; the fingers and toes, one by one, falling off. In this form exacerbation occurred, and there was a rise of temperature producing the so-called "fever of leprosy." (9) Papular form. By studying and learning the lesions occurring in leprosy it was possible to recognize this disease by differentiation. The diagnosis meant so much in the care and the cure of these patients. Dr. Dyer gave an interesting lantern slide demonstration which showed the different forms of leprosy and also the conditions with which they were liable to be confused.

Clinical Aspects of Leprosy.—Dr. E. Boeckmann of St. Paul, Minn., read this paper. He first showed how the disease affected the muscles of the face causing atrophy, especially of the masseters. It then affected the extremities, and produced the characteristic walk. The skin lesions exposed the patient to many injuries and infections. The author followed the course of the disease until it reached the stage of purulent periostitis, necrosis of the bones, and finally dropping off of fingers, toes, eyelids, etc. One peculiar feature of the disease was that the mucous membrane of the nose and throat remained intact until late in the course of the diseases.

Bacteriology and Specific Therapy of Leprosy.—Dr. C. Duval of New Orleans, La., not being present Dr. Isadore Dyer read his paper. He said that since the discovery of the Hansen bacillus in 1879 many attempts had been made to cultivate the bacillus. The casual relation of the Hansen bacillus to the human disease had been established. There was much difference of opinion as to the botanical status of the bacillus. It was now possible to grow the bacillus outside the body, and his oldest cultures of this germ in purity were now three years old. The bacilli could not be grown on the ordinary media used by bacteriologists, the media must contain the split products of protein obtained by decomposition. The bacillus was first grown on bits of leprous nodule obtained from the human body and planted onto an agar medium in alkaline reaction. The bacilli grew very slowly, requiring from eight to ten weeks to develop. The author drew a comparison between the lepra bacillus and other acid fast saprophytes and with the tubercle bacilli.

Public Health Aspects of Leprosy in the United States.—Dr. Rupert Blue presented this paper, which, in his absence, was read by Dr. W. C. Rucker. He stated that on account of the communicability of leprosy it was a disease that should cause common concern. It existed in many States and insular possessions of the United States. There were four leprous areas in the United States: the Atlantic seaboard; Gulf States; Pacific Coast, and in Minnesota. There were 146 cases under control in 1912. In all there were so far as could be found out 3,224 cases in the United States and its possessions, there being 2,754 cases in the Philippines. The author reviewed the various measures which Congress had passed for governing the exclusion of lepers from the country and providing for

their deportation, and also the measures regulating their interstate transportation. It was pointed out that there were too few cases at present to warrant the establishment of a leper colony in each State, but that a single colony under federal control was the most desirable method of providing for the proper care and segregation of the victims of leprosy. The great stumbling block in the way of such an institution was the fear of each congressman that the institution might be located in his State. Owing to the long incubation period of the disease it was exceedingly difficult to measure its progress, but there were reasons to believe that if it was not properly controlled during the present generation it would become a much more serious problem by the end of one hundred years. The disease was being studied in government laboratories in Hawaii and Molokai. Different States were dealing with the problem in different ways. In Minnesota they practiced self isolation; in Massachusetts and in Louisiana provisions were made for segregation; in Hawaii and the Philippines segregation was more or less effectively enforced. Some localities, notably New York, purposely avoided the problem.

Dr. H. M. Bracken of Minneapolis, Minn., said there were now sixteen known cases of leprosy in his State, seven of whom were born there. The disease was not readily communicated and there was no danger of infection from street cars, railway cars, or in public places. In Minnesota the cases were cared for in their own homes if the patients were in comfortable circumstances and able to use the ordinary precautions.

Dr. M. L. Graves of Galveston, Texas, and Dr. G. H. Sumner of Des Moines, Iowa, spoke in favor of a national leprosarium.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

Dr. F. F. Simpson of Pittsburgh in the Chair.

Tuesday, June 17—First Day.

Chairman's Address: Right-sided Hypertension with Occasional Cardiac Dilatation as Postoperative Complications.—Dr. F. F. Simpson of Pittsburgh related his experience and observation both in experimentation on dogs and in his surgical practice as regarded the effect of position, intravenous injections, anesthesia, etc. Large injections of saline solution into the jugular vein, and the long continuance of the Trendelenburg position were two things that produced hypertension and dilatation. If the heart condition was good to begin with, the results following such strain were not especially bad; but if on the other hand there was a tendency to a weakened condition of the heart walls, there was evidence of acute dilatation following operation. In a series of 102 cases there were no deaths due to such ill effects. The treatment was elevation of the head of the bed and the administration of heart stimulants.

Some Newer Methods of Reducing the Mortality of Operation on the Pelvic Organs.—Dr. George W. Crile of Cleveland read this paper. He stated that whereas uncomplicated operations for fibroids, chronic pyosalpinx, benign tumors of the ovary, procidentia, prolapse, etc., called for no special discussion, because they were all easy risks, they might become formidable operations if performed on patients with too high or too low blood pressure produced by infection, hemorrhage, or other causes. The experienced surgeon had learned to select his patients according to what he knew he was able to do, and oftentimes the handicapped patient was turned aside because, for want of method, the operation could not safely be performed. The purpose of the paper was to show that nearly all such patients might be reclaimed and operated upon safely. Some eight thousand abdominal operations furnished the basis for study. In his paper Dr. Crile went into the effect of nervous strain, anesthesia, vomiting, and nausea, and showed by means of latern slides, the changes that took place in the cells of the brain when exhausted or fatigued. His method of operating under novocain injections locally he believed to be responsible for a greatly reduced mortality in his surgical work. In four years it had dropped from 6 per cent. to 1 per cent.

Postoperative Renal Infection.—Dr. Henry Dawson Furniss of New York stated that this condition occurred oftener than was generally believed, which explained many otherwise unaccountable postoperative temperatures, inflammatory bladder complications, and other urinary troubles which might follow some time after the patient was supposed to have recovered from the operation. While such infection might arise after any operation, it was more apt to occur with surgical procedures on the intestinal tract. He believed that the inactivity of the bowels of patients lying in bed, or even catharsis practised to overcome this inactivity, accounted for many colon bacillus infections.

Dr. Draper Maury of New York, in discussing this paper, said that he and Dr. Braasch of Rochester had carried out a number of experiments on dogs in which they tried various means to produce postoperative urinary infection, but were never able to cause an ascending infection of the kidney.

Final Results Following Operations for Ectopic Pregnancy.—Dr. Richard R. Smith of Grand Rapids, Mich., read this paper. Taking 193 women on whom the operation had been performed five or more years before, he had inquired as to whether these patients had borne children, or had had a repetition of the ectopic pregnancy. In his questionaire he sought to bring out whether or not the prevailing custom of leaving the opposite tube, if it were healthy, was rational. His conclusions were that the age of the patient, her social condition, and the number of children she had already borne, should determine whether the opposite tube should be left or removed. Of the 193 cases inquired into, 53 were not able to have children, leaving 140 who could have had as far as one might say. Forty-one of these did bear subsequent to operation. Twenty-one suffered a second time from ectopic gestation.

In the discussion which followed the general opinion was that if the other tube were healthy it should not be removed. At any rate it ought not to be removed unless the patient and her husband demanded it, rather than run the risk of a repetition of the trouble.

The Movable Kidney.—Dr. J. H. Carstens of Detroit read this paper. Various degrees of mobility all produced symptoms. Mechanical support did give some relief, but the only permanent cure was by proper surgical fixation. He thought that many of the symptoms were due to a disturbance of the solar plexus.

Dr. Hall of Cincinnati, who had operated on many patients stated that in many instances his work had been followed by disappointment—the kidney would not stay fixed nor would the symptoms always disappear.

Dr. Goldspohn of Chicago believed there were cases of displaced kidney that really demanded operation and were benefited thereby. His way of determining whether a given case would be helped by surgery was to apply a very uncomfortable belt to the patient that would mechanically help to hold the kidney in place. If the patient admitted that she felt better with this device pressing into her abdomen than she did without it, he was satisfied that operation would effect a cure.

Further Points on the Sterility of Women.—Dr. Edward Reynolds of Boston read this paper, dividing the subject into (1) those cases which are dependent on conditions of the secretions; and (2) ovarian conditions which result in a failure in the release of the ovum. Of the first he mentioned the altered condition of the mucous membrane and the altered condition of the vagina, cervical canal, endometrium, and tubal mucous membranes. His treatment was chiefly one of drainage. Of the alterations of the ovaries as a cause of sterility, he spoke of a thickened capsule, multiple retention cysts, and persistent corpora lutea.

Dr. Frank of New York thought perhaps Dr. Reynolds placed too much importance on the effect of secretion, especially vaginal, and cited instances in which conception took place under all manner of disturbed mucous membrane secretion. He mentioned one case in which conception took place through a uterovaginal fistula. In his study of the subject he was of the opinion that ovarian and uterine conditions were the most frequent causes of sterility.

Dr. Bacon of Chicago said he had used the extract of corpus luteum with some degree of satisfaction in conditions of sterility.

Dr. Jacobson of Toledo thought a great deal depended on the patency of the Fallopian tube.

Wednesday, June 18—Second Day.

Prolapse of the Uterus: Its Surgical Treatment.—Dr. Franklin H. Martin of Chicago advocated the interposition of the uterus below the bladder and beneath the anterior vaginal wall in women past the menopause. Amputation of the cervix was recommended to be done at the same time, especially if it were long. The same operation was recommended in extreme cases with the additional procedure of sterilization if the woman were past forty years of age. At the same time the floor of the pelvis should be restored when necessary in order to overcome prolapse of the lower rectum.

Vaginouterine Prolapse and Its Efficient Treatment.—Dr. E. E. Montgomery of Philadelphia read this paper,

in which he discussed the form of prolapse through the vaginal outlet, denominating the condition as a hernia of the bladder, rectum, and vagina, accompanied or not by the uterus. The fundus of the uterus might maintain its position although the supravaginal portion of the cervix had become attenuated, permitting the external os to form the most dependent part of the protrusion. He believed that greater comfort to the patient could be secured if the uterus were removed, and, to secure the best results, the bladder and rectum must be widely separated from their relations, the one supported on the overlapping broad ligaments, the other held up by the rectovaginal interposition of the levator ani muscles. It was also recommended that redundant portions of the vaginal walls, both front and back, should be removed.

The Anatomy and Surgical Utility of the Sacrouterine Ligaments.—Dr. GEORGE B. SOMERS of San Francisco presented the subject from an anatomical and mechanical standpoint. Little attention was paid to these ligaments, and their surgical utility was not well defined.

A Study of the End-Results of the Webster-Baldy Operation.—Dr. JOHN OSBORN POLAK of Brooklyn reviewed the basic principles of uterine support, and showed wherein the Webster-Baldy operation failed. He thought that in many instances it was due to faulty technique. The procedure commonly had the effect to draw the fundus of the uterus forward and downward. His observations were based on several hundred cases, quite a number of which had subsequently undergone another operation. Many of the women became pregnant after the operation, suffering no unusual inconvenience therefrom.

Tuberculous Salpingitis.—Dr. PHILEMON E. TRUESDALE of Fall River, Mass., brought out the insidious origin, period of occurrence, relative frequency, and the difficulties in making an early diagnosis. Very commonly the condition was discovered on the operating table when the abdomen was opened, perhaps for some other affection. He laid great stress on the importance of family and social history, declaring that the various tests for tuberculosis were unreliable. He believed the exploratory incision was warranted in doubtful cases, and early operative treatment was necessary if a cure was to be hoped for. In early cases the procedure was simple, but became difficult and dangerous later. Only in mixed infections would he close the abdomen with drainage. Slow healing was the rule. The after-treatment should be based on the best hygienic principles.

Dr. CARSTENS of Detroit criticised the operation and could not see why a "little insignificant tubercle" on the tube should be so radically attacked when similar tubercles were allowed to remain in countless numbers in the peritoneal cavity.

Dr. MURPHY of Chicago insisted that since the focus was in the tube and since the tubercles extended from that point the diseased oviduct should be excised.

Infections of the Pelvis from a General Surgeon's Point of View.—Dr. JOHN B. MURPHY of Chicago contended that every labor and abortion should be considered as a surgical procedure as far as the dangers and conditions of infection were concerned. He divided the avenues of infection into perineal, vaginal, cervical, fundal, and tubal, the route of transmission from the point of infection being along the lymphatics, veins, and arteries, and by contiguity of surfaces. The infective microorganisms commonly were carried to the primary vaccination direct, but might be carried by indirect or hematogenous routes. He compared an infection within the pelvis to one of the arm or other exposed surface of the body, and said that it should be viewed in very much the same light Specific and not generic terms should be used in discussing and considering pelvic infections, and since they were similar to or identical with the processes that took place elsewhere in the body, the treatment should be based on the same surgical principle.

Thursday, June 19—Third Day.

Report of Committee on the Question, "Should the Puerperal Uterus Be Emptied of Ovicular Remains in the Presence of Infection, and if So, When?"—Dr. JOSEPH B. DE LEE, Chicago, reported that a series of questions had been sent to several hundred obstetricians and surgeons, Europeans as well as Americans, from whose replies he had drawn certain conclusions. The result of his inquiries had been good. His questionaire contained several items, the chief of which were the treatment of the uterus (1) when it contains an intact, but infected egg; (2) when the fetus has escaped but the placenta is retained; (3) treatment of a patient after full-term delivery, with an infected piece of placenta retained. In the main, obstetricians, general surgeons, and the general practitioners answered the questions alike, the preponderance of opinion being that the uterus should be emptied, the dull curette, the finger, or the placental forceps being used. He gave as his own opinion that in septic abortion one should try to determine if there be any perforation of the uterus, since such a complication often accompanied induced abortions. If satisfied that the infection was confined to the cavity, he first packed the vagina with iodized gauze and later cleaned out the uterus. The treatment was practically the same for propositions 1 and 2, but, in case of puerperal sepsis, he would not invade the cavity of the uterus; indeed, he is very much afraid of such interference. Of the curette he said that while it might be used in abortions, he never employed it after labor. As to the use of serums, he believed them practically valueless. In short, his management of sepsis was expectant and conservative rather than specific and active.

Care of the Umbilical Stump: A Bacteriological Study.—Dr. FRED L. ADAIR of Minneapolis called attention to the importance of treating the umbilical cord aseptically. It should be handled as carefully as a wound. He believed that fever and jaundice of the newborn oftentimes are due to infection entering through the umbilical vessels. A series of observations were made, both clinically and by culture, which seemed to prove that fewer infants suffered from morbidity whose umbilical stump was treated with alcohol and tincture of iodine than did those who simply had a sterile dressing applied.

Dr. HEANEY of Chicago believed the stump should be left an inch or more long, claiming that it separated and dropped off in a shorter time than when ligated close to the abdomen.

Local and Spinal Anesthesia in Gynecology and Obstetrics.—Dr. GEORGE GELLHORN of St. Louis read this paper, maintaining that for minor gynecological operations such as curettage, dilatation, trachelorrhaphy, and amputation of the cervix, local anesthesia was all-sufficient, and when such operations preceded laparotomies, its use materially reduced the amount of ether required. To diminish pain during the first stage of labor, he recommended the injection of novocain into the cervix.

Spinal Anesthesia in Gynecology, Obstetrics and Abdominal Surgery.—Dr. W. WAYNE BABCOCK, Philadelphia, based his observations on over two thousand cases in which spinal anesthesia was employed. The most marked effect was the influence it had on the cardiovascular system, and he specially warned against its use in conditions of low blood pressure. He spoke of the marked relief from ileus that followed spinal anesthesia.

Dr. HERTZLER of Kansas City left it to the patient whether general or spinal anesthesia should be employed.

The Thyroid Gland and Its Degeneration in Relation to Obstetrics and Gynecology.—Dr. CHANNING W. BARRETT of Chicago read this paper. In it he discussed the biology, embryology, physiology, and anatomy of the thyroid gland as it related to the reproductive organs. From analogy he concluded that, from the close anatomical relation between the thyroid and the uterus observed in some animals, there must be a mutual influence between the two organs. From a physiological standpoint he called attention to the preponderance of enlargements, degenerations, and vitiated activities of the thyroid gland of the female; its correlation with puberty, menstruation, marriage, excessive coitus, sexual desire, and pregnancy.

Case of Lymphangioma Resembling Hernia of the Lung.—D. C. L. Fitzwilliams reports the case of a boy aged six years, whose mother had noticed that something was wrong with the right side of his neck when he cried. She states that she noticed this vaguely when she was washing the child, and she can recall it as far back as twelve months ago, but she took little notice of it until it began to get larger during the last three months. In November the child got whooping cough and this lasted until the end of December. During this time his mother noticed that the lump in his neck got very large during the spasms of coughing. On examination, there is a fullness of the root of the neck above the right clavicle and behind the sternomastoid muscle. It is all defined and quite soft, and small nodules can be felt in it. It seems to disappear under the fingers toward the region of the subclavian artery. On coughing or straining the root of the neck fills up and bulges in a prominent manner, and on palpation the tumor again subsides. Percussion is unsatisfactory as there is so little resistance, and though breathing sounds are heard they are probably transmitted The condition at first sight is extremely like a hernia of the apex of the right lung, but there is no indrawing on deep inspiration, nor can any ring be felt in the deep part of the neck.—*Proceedings of the Royal Society of Medicine.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DIE LIQUORVERÄNDERRUNGEN IN DEN EINZELNEN STADIEN DER SYPHILIS. By Dr. WILHELM GENNERICH. Paper; price 2.80 mks.; 88 pages. August Hirschwald, Berlin.

DREI VORTRÄGE UBER TUBERKULOSE. Bq JOHANNES ORTH. Paper; price 2 mks.; 62 pages. August Hirschwald, Berlin.

LEHRBUCH DER HEILRESHEILKUNDE. By ARNOLD HILLER. Paper; price 7 mks.; 244 pages. August Hirschwald, Berlin.

THE CHILD, ITS CARE, DIET, AND COMMON ILLS. By E. MATHER SILL, M.D. Cloth; illustrated; price $1.00 net; 207 pages. Henry Holt & Company, New York.

PATHOLOGICAL INEBRIETY; ITS CAUSATION AND TREATMENT. By J. W. ASTLEY COOPER. Cloth; price $1.50 net; 151 pages. Paul B. Hoeber, New York.

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CLINICS, DEPARTMENT OF PUBLIC CHARITIES

CALENDAR, JULY 1913

MONDAYS

Cumberland Street Hospital, Brooklyn.	Surgery	Dr. Walmsey	3:00 P.M.
	Laryngology and Rhinology	Dr. Stewart	4.00 P.M.
	Oral Surgery	Dr. Shea	4:30 P.M.
Kings County Hospital, Brooklyn	Gynecology	Dr. McNaughton	9:00 A.M.

TUESDAYS

Neurological Hospital.	Neurology	Dr. Byrne	9:00 A.M
Cumberland Street Hospital, Brooklyn.	Gynecology	Dr. Burnham	1:00 P.M.
	Ophthalmology and Otology	Dr. Warner	3:00 P.M.
	Surgery	Dr. Iler	3:00 P.M.
Kings County Hospital, Brooklyn	Surgery	Dr. Barber	11:00 A.M.
	Genito-urinary Surgery	Drs. Morton and Fraser	2:00 P.M.

WEDNESDAYS

City Hospital	Genito-urinary Surgery	Dr. Fuller	2:00 P.M
	Obstetrics	Dr. Shears	2:00 P.M.
Neurological Hospital.	Neurology	Dr. Maloney	10:00 A.M.
Kings County Hospital, Brooklyn	Dermatology	Dr. Winfield	1:00 P.M.
	Orthopedics	Dr. Truslow	9:00 A.M.
	Orthopedics	Dr. Napier	2:00 P.M.
Coney Island Hospital	Pediatrics	Drs. Beck, McQuillan, Pendleton and Van Wart	3:30 P.M.

THURSDAYS

City Hospital	Gynecology	Dr. Stearns	2:00 P.M.
Cumberland St. Hospital, Brooklyn.	Gynecology	Dr. Burnham	1:00 P.M
	Surgery	Dr. Walmsey	3:00 P.M.
	Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
Kings County Hospital, Brooklyn	Otology	Dr. Alderton	1:00 P.M.
	Surgery	Dr. Barber	2:00 P.M.
Coney Island Hospital	Gynecology	Drs. McEvitt, Mills, Mayne and Rankin	10:30 A.M.
	Surgery	Drs. Fiske, Bogart, Murphy and Lack	3:00 P.M.

FRIDAYS

City Hospital	Laryngology and Rhinology	Dr. Dougherty	2:30 P.M.
Neurological Hospital.	Neurology	Dr. Abrahamson.	9:00 A.M.
Cumberland Street Hospital, Brooklyn.	Ophthalmology and Otology	Dr. Warner	3:00 P.M.
	Surgery	Dr. Iler	3:00 P.M.
	Surgery, Oral	Dr. Shea	4:30 P.M.
Kings County Hospital, Brooklyn	Gynecology	Dr. McNaughton	9:00 A.M.

SATURDAYS

Neurological Hospital.	Neurology	Dr. Walsh	2:00 P.M.
Kings County Hospital, Brooklyn.	Surgery	Dr. Barber	11:00 A.M.

All registered physicians, visiting and resident, and medical students, are cordially invited to attend these clinics.

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Original Articles.

METABOLISM AND THE CIRCULATION.

By ALEXANDER HAIG, M.A., and M.D. Oxon, F.R.C.P.,

LONDON, ENGLAND.

CONSULTING PHYSICIAN TO THE METROPOLITAN HOSPITAL; SENIOR PHYSICIAN TO THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.

It must be obvious to anyone who thinks for a moment, that the circulation controls the life of the whole body. Block an artery, the part it supplies passes into gangrene. Press on an artery, the parts for a time become poorly nourished. When capillaries are blocked and the circulation through them is slowed to one-half of its ordinary rate we get cold extremities, swelling, edema, chilblains, dead hands, and other phenomena showing serious alterations of nutrition in the affected parts. Life is circulation; apart from it there is no continuing life. The better the circulation the better the life.

Then if we look at the functions of such organs as the skin, the heart, the kidneys, the liver, the salivary glands, the stomach, and intestines, we see similar phenomena testifying in no uncertain manner to the fact that all their functions are most intimately related to a free circulation in their capillary vessels. The vessels which bring nourishment and oxygen and remove waste products, and generally provide for that life of the tissues from moment to moment which we call metabolism or combustion. The results being heat, brain-power, energy, in a word, life.

The skin, after exposure to years of defective capillary circulation, becomes yellow, harsh, rough, scaly, and dry, perspiring only slightly and with difficulty, it loses its natural soft, velvety texture, its glands atrophy, and, as I have proved, its thickness may diminish to one-half of that which is normal; and, as the skin is a most important organ of life's metabolism, such changes are a very serious matter for its owner.

The heart, though it is the great central driving power of the circulation, is, nevertheless, like the rest of the body, dependent on muscular nutrition, and the moment its driving power begins to fail from weakness or continued starvation (*e.g.* chronic under-feeding continued over months and years) its muscle fibres begin to suffer from defective nourishment, the nerve structures that regulate its movements begin to degenerate, and function falls off to a corresponding extent. Then there is no doubt that defective capillary circulation affects the structures of the heart just as it does those of the skin, leading first to debility, and then to atrophy and degeneration. Hence fatty degeneration of the heart is so common a sequel to a long-drawn-out battle against excess of waste products in the blood (collemia), which at one and the same time increase the work of the heart and diminish its power. Hence the deadly power of collemia in depressing the metabolism and combustion of the whole body.

The kidneys again yield most interesting testimony to the power and importance of capillary obstruction by waste products. For not only does the urine vary from hour to hour in direct relation to the amount of obstruction, but the chief nitrogenous excretion of the kidney (urea) is also controlled by it. This, of course, is not, strictly speaking, a kidney effect, for when urea is in solution in the blood it is under all conditions very promptly excreted by the kidney (except, of course, in collapse, when there is very low blood-pressure). But the control of urea excretion by capillary obstruction is due either to a defective formation of urea from its antecedents or to the temporary locking up of urea or its antecedents in the tissues and their interstitial fluids; but in either case this control of excretion is good evidence of the power of the circulation over metabolism. In Bright's disease, where we meet with this phenomenon to the most marked extent, anything that suffices to clear the blood of collemic obstruction (*e.g.* fever) is sure to be followed by a very marked rise in the excretion of urea, for circulation and metabolism are relieved, waste products are freely formed, and as freely removed from the tissues and excreted. But the same occurs in physiology every morning and evening throughout life, only to a smaller extent. There are always more waste products in the blood in the morning, and this is accompanied by a lessened excretion of urea, but anything that clears the blood of waste products at this time of day at once produces both a diuresis and a rise in the hourly excretion of urea, no food or fluid having been taken.

The clearing of the blood from waste products, as it occurs in the physiology of the daily round, is always accompanied by a feeling of increased power (muscular, nervous, and mental), for the capillary circulation in the organs that produce these feelings has improved, and the knowledge we thus obtain from the physiology of our daily life can be used practically to increase both the power and endurance of athletes and the brain-power of statesmen and orators, and many in both classes, without knowing the explanation of the facts, have used drugs (*e.g.* opium), which clear waste products out of the blood, for their bodily and mental effects. Mercury and other metals will produce similar results, and a course of salicylate does the same by removing most of the available urate from the body. Not only in physiology does the excretion of water from the kidneys vary from day to day and hour to hour with the quantity of waste products in the blood; not only does every diuresis occur when the blood is clear of uric acid, and scanty urine when the blood is loaded with it, but by controlling the

amount of uric acid in the blood we can make the urinary water anything we please, and this explains the action of all diuretic drugs. They all clear the blood of uric acid, and so freeing the circulation in the capillaries of the kidneys, allow water to pass out. If any such drug fails to affect the quantity of uric acid in the blood it also fails to alter the excretion from the kidneys; and this failure can be read in the rate of the capillary reflux, the condition of the blood under the microscope, and the excretion of uric acid and urine from the kidneys. If you diminish the uric acid in the blood you have diminished it also in the urine, and by such increase or diminution you alter the rate of the capillary circulation in the skin and throughout the body. Thus to touch the skin surface with the point of a finger, to squeeze it white and watch the rate at which the capillary circulation restores the color (capillary reflux) will tell you more about the physiology and pathology of the whole body than any other single observation. When you find a capillary reflux (C.R) of 6 or 7 half seconds you know that the physiology of the bodily circulation is not far from normal. If you find a C.R. of 2 or 3 half seconds you know that the patient has fever (unless there is local inflammation or venous obstruction at the point touched). If you find a C.R. as slow as 10, 12, or 14, and beyond, you know that he has some defective metabolism and combustion, and must look for such troubles as headache, epilepsy, mental depression, neurasthenia, weak or diseased heart, Graves' disease, Bright's disease, diabetes, etc.

Behind the quick C.R. of fever you may find gout, rheumatism, acute skin disease, specific fever, but not respiratory disease such as bronchitis or pneumonia, because in these the blood is not cleared of uric acid, as the acids, which are formed in ordinary fever, and clear the blood by rendering it a poor solvent of uric acid, are in these respiratory diseases not formed owing to lack of oxygen. We thus learn that fever quickens the C.R. only when it is able to clear the blood of uric acid by altering its alkalinity. Everything else that clears the blood of uric acid quickens the C.R. in the same way and to a more or less similar extent. But when there is dyspnea, acids are not formed in fever to the same extent, the alkalinity of the blood is not diminished, it is not cleared of uric acid, and consequently the C.R. is not quickened.

The liver again testifies to the power of the circulation by becoming larger or smaller with every change of blood-pressure. Not only does the liver get dark, hard, and congested in chronic morbus cordis, as we have all seen it in the post-mortem room, but every rise of blood-pressure which dilates the heart even for a few hours also enlarges the liver; every fall of blood-pressure which allows the heart to get smaller also reduces the size of the liver. So that in the liver we have a reliable index of all important fluctuations of blood-pressure and of their effect on the heart, *i.e.* of its strength. And so constant is this relation between the size of the heart and that of the liver that if I find an alteration in one of them without a corresponding alteration in the other I go over my measurements again to see that I have made no mistake. Just as C.R. is slower, B.P. higher, and heart larger every morning, so is C.R. quicker, B.P. lower, and heart smaller every evening, and with every fluctuation of these things, when well marked, there is a corresponding change in the size of the liver.

What applies to the liver applies also to the stomach, duodenum, and pancreas. When the liver is enlarged and congested, so are they. And when the duodenum is congested there is apt to be blocking of the ducts with diminished outflow of bile and pancreatic secretion as well as diminished excretion from other intestinal glands. Hence, as we know in chronic collemia, digestion may come to more or less of a standstill, and putrefaction take its place. Hence the stools passed in such conditions are not only deficient in bile, but extremely offensive. And here we see in full the causation of a so-called "bilious attack." A patient takes some excess of acid fruit, or exposes himself to cold, in either case he gets a retention (accumulation) of say five, ten, or even fifteen grains of uric acid; then if later on some condition, such as deficient food, dyspepsia from indigestible food, warm weather, or other cause of increased solubility of uric acid supervenes, some part of the quantity which he has accumulated by the retention is dissolved and passes into his blood, this obstructs the capillary circulation, enlarges the heart, congests the stomach, liver, duodenum, and pancreas, and the "bilious attack" is soon in full swing, as the result of the mechanical conditions above mentioned. Here we have a complete explanation of the fact that those who get uric-acid-free soon cease to suffer; for them such congestion of liver, stomach, and duodenum is no longer produced by changes of weather. Their circulation tells us why it is not.

Further, we know that under such conditions of collemia with capillary obstruction and secondary congestion of abdominal viscera the absorption of drugs ceases for a time, but begins again as the circulation returns to normal. This is well seen, for instance, in the natural history of the epileptic disturbance, which I have worked out at some length in my larger book on "Uric Acid," page 287 *et seq.* We now know that collemia plus heart failure is the cause of the epileptic attack as well as of the bilious attack, with the congestion of the abdominal viscera that often accompanies it. Hence the temporary cure of epilepsy by heart tonics, such as digitalis.

The salivary glands again tell the same tale, for in collemic conditions with obstruction of capillary circulation their excretion is diminished and the mouth becomes dry and sticky, thus exactly paralleling the excretion of water from the kidneys and the lungs under similar conditions. But take a dose of mercury, or, for that matter, anything that will clear the blood of uric acid, and the mouth becomes moist, just as the excretion of water from the lungs and kidneys increases. (See "Uric Acid," Ed. VII., pp. 318, 378, and 609.)

The record of the water excreted from the lungs shows that uric acid controls their entire capillary circulation, just as we already know that it does that of the rest of the body. In this way a diet which blocks their capillaries with uric acid exposes them to deficient removal of waste products, defective supply of nourishment, to various forms of chronic congestion, and so to microbic invasion. The microbes have their chance, and, as they are almost ubiquitous, they rarely neglect it. On the other hand, with the splendid capillary circulation, good nutrition, and efficient removal of waste products which are present throughout life in those who live on a sufficient quantity of natural food the microbes get no chance at all, but are quickly burned up in the fires of life; and this means the

exclusion not only of tuberculosis from the lungs, but also the absence of catarrh and various forms of pneumonia and congestion which did so much to favor microbic attack. (See "The Circulation as a Factor Which Determines the Effects of Microbic Invasion." MEDICAL RECORD, Sept., 1910; also "Gout of the Intestines," same journal, Oct., 1912.)

Then the effect of the circulation on the function of the brain is great and obvious, for we all know that the man with the quick C.R. takes a cheerful view of everything, while he with the slow C.R. cannot be cheered even by the greatest good fortune, so that the vast effect of capillary circulation on all the tissues of the body is obvious and can be completely demonstrated from hour to hour by the mental conditions alone.

Bad capillary circulation also causes anemia, as it no doubt hinders the functioning of the blood-forming glands, just as we have seen that it hinders the functions of the liver, pancreas, salivary glands, kidneys, and lungs. And so constant is this action that the condition of the blood over weeks and months is practically an absolute guide to the quantity of uric acid which is passing through it. Again, those who have good blood and a normal capillary circulation, do not harbor microbes, or allow of their multiplication, but quickly burn them up and get rid of them. This is the case with the microbes of such troubles as catarrh, influenza, malaria, tubercle. Catarrh does not touch those who are uric-acid-free, however much they may have suffered in their poison-taking days. It is the same with influenza, and malaria, if it touches them at all, it does so but lightly, so that the really uric-acid-free need not trouble about quinine and mosquito nets. Tubercle is cured by a free capillary circulation of good blood; and fresh air and double food are only a means to this end; but fortunately they are not the only means to that end so desirable in itself.

Natural food, free from poisons, and in sufficient quantity, always produces this good blood and free circulation, and all who have these and live a natural life in the fresh air are, I believe, immune to tubercle. But be this as it may, all the drugs that are useful in treatment have this result in common: —that they clear the blood of uric acid, and thus produce a free capillary circulation, and they at the same time directly or indirectly strengthen the heart if it has been weakened in the chronic fight against collemia. What is the use of the tonic so frequently used in phthisis, say nux vomica? Is it not to strengthen the heart and thus improve the circulation through the diseased lungs? What is the effect of fresh air and increased food but to clear the blood of uric acid and so again improve the circulation? Among drugs take, for instance, chloride of magnesium. I have proved that this clears the blood of uric acid, and under its use the consumptive patient exhibits an improving blood quality; he gains five, six, or more pounds in weight, after a time the bacilli disappear from the sputa, and the local lung condition becomes quiescent, and he appears to be on the road to recovery. It is said to cure in the course of nine months, but I have never seen a cured case, simply, I believe, because hospital patients, the only ones in whom I have been able to try it, are unable to continue the treatment for a sufficient length of time. Now in this treatment we produce for a short time, by means of a powerful drug, the very conditions, good blood and a quick circulation, which are permanent in those who live on a correct quantity of natural and nonpoisonous foods. We are here laboring hard with drugs, fresh air, and diet, to produce a condition which would be ours naturally and constantly if we lived rightly. No wonder we suffer from tubercle in these degenerate days of flesh and tea poisoning.

Even the diurnal variations in the rate of the capillary reflux, and the height of the blood-pressure are certain guides to causation, for they vary with the quantity of uric acid in the blood and often with that only. They can be made to vary in either direction at pleasure by altering the quantity of uric acid in the blood. Then by removing the uric acid factor, which we can do at pleasure, it is easy to see what other factors are left. We either control the whole of the abnormal condition of the circulation or we do not.

Thus, fever, apart from dyspnea, practically clears the blood of uric acid. It therefore quickens the capillary reflux and lowers the blood-pressure. Thus in fever we see exactly how much of a given blood-pressure has been due to resistance of tissues, thickened, or degenerate vessel walls, etc. Many years ago I remember being quite startled by a case of Bright's disease I was watching in the out-patient room of the Metropolitan Hospital. This patient was thought to have the high blood-pressure of chronic Bright's disease, with some thickening of the vessel walls. However, one morning she came with a temperature of 102° F., and the artery was soft, and could no longer be rolled under the finger; in fact, it was impossible to define the position of the vessel except by feeling for the pulsation within it. Here the whole trouble was the obstruction of the capillaries by uric acid, which the fever cleared up, and my belief in a thickened vessel wall was, in this case, mere scientific imagination. A really thickened wall, or a degenerate vessel, would not have disappeared in this way; thus fever enables us to gauge pretty accurately the vascular conditions with which we are dealing. A similar result can be produced by drugs, if they, like the fever, clear the blood of uric acid; thus we can in all conditions tell the approximate condition of the vessel walls by eliminating the uric acid factor and watching what is left.

I will now narrate a case which illustrates in a very definite way the great power of the circulation over nutrition and metabolism and thus makes evident the enormous influence which uric acid exercises in both physiology and pathology, in the production of what we have rashly called disease, which is more accurately "physiology disturbed by poison-taking." In this case the whole of the disturbance corresponded, as we shall see, with a rush of uric acid into the blood, which I have elsewhere spoken of as a uric acid storm. In this case the uric acid rushes into the blood as the result of quite ordinary causes, causes which under slightly different conditions might have produced the functional disturbances known as migraine or epilepsy, but none of these things have ever been diseases; they are symptoms of food-poisoning. Hence the way in which they occur together or in sequence in an almost indescribable variety of relations.

When the uric acid is in the blood it obstructs, as we have seen, the capillary circulation, this obstruction fatigues, overpowers, and finally dilates the heart and all the rest of the visible phenomena

are results of these effects. When the rush of uric acid expends itself, being largely cleared out by the kidneys, if we leave nature alone, or being cleared out by food and drugs, if we do not let it alone, the capillary circulation improves, the heart recovers itself and all is once more physiological.

The "disease," as we shall see, has been called "Purpura Rheumatica," but I merely regard it as a phase in the symptom complex of uric acid (food)-poisoning.

Florence H., aged 14, admitted under my care in the Royal Waterloo Hospital, February 23, 1912. Her notes are headed "Purpura Rheumatica." Result, "Cured." I agree neither with the diagnosis, as I have said, nor with the statement of result. The patient has gone home and doubtless in spite of all we can do or say and have done and said she is now exposed to the very conditions of food poisoning which produced her departure from physiology, and these will continue to produce the same or similar results in accordance with her age, work, exposure to weather and other conditions of home, school, or service life, so long as the poisons are continued or till they produce more serious and fatal trouble.

On admission she had hematuria, also bleeding from gums and nose. Three and a half years ago she first noticed red spots on her legs, and these have recurred from time to time but have been notably worse for the last six months since the monthly period established itself. She has pain and excessive loss at the periods which last five days. (See remarks on this point by Kenneth G. Haig, "Health Through Diet," Methuen, London, p. 118.) Her mother has rheumatism and morbus cordis. Patient had scarlet fever five years ago.

She is pale, temperature 99°, pulse 78, respiration 17. There is a marked petechial rash over face, chest, and abdomen, and it is very marked over both legs. There are also a few spots on the tongue. Heart's apex beat is in the 5th space in the left nipple line, no sign of valvular lesion. Lungs normal. Has pains in the knees and occasionally in the head. Some pain in the right iliac fossa hemorrhagic appendicitis(?). Urine on admission, 1024, acid, cloud of albumin, no sugar, many red cells, some pale cells, squamous and bladder epithelium, a few uric acid crystals, no casts.

February 26. Hematuria has ceased. February 28, all spots have disappeared. Temperature chiefly subnormal, only once touched 99° F. after the day of admission.

She was put on a light diet with fish, and given a mixture containing Calcii chlor. and Tr. Ferri Perchlor., ter p. c. Also Cactina one pillet ter.

On February 28, sugar 2 oz. and 1 oz. of dried milk were added. On March 1 the sugar was increased to 3 oz. For the above notes I am indebted to Dr. Mark Lindsay, the Senior R. M. O.

I first examined her on February 26, and found a pale, debilitated and teeth-marked tongue. A capillary reflux of 11, in spite of her having been for three days on the above named drugs. Blood decimal .85, temperature subnormal, transverse diameter of the heart (C. D.) 6¾ in. (normal 4½), *i.e.* more than two inches of enlargement. Liver dullness 4¼ in., showing considerable enlargement also. She had thus a capillary reflux which was from 3 to 4 (50 per cent.) slower than normal, there were also considerable debility and anemia and most important of all a dilated heart and a congested liver. She had considerable excess of uric acid in the blood and we know from the anemia that it had been there, off and on, for some time. On these conditions a more than usually severe uric acid storm had supervened, the heart failed under the accumulating misfortunes of anemia, bad nutrition, and obstructed capillaries, the circulation in some capillary districts stopped altogether, as we sometimes see it doing in the web of a frog's foot, the nutrition of the capillary walls suffered and, when the blood circulation was again turned on, various small leaks produced the hemorrhages we saw. The purpura was the result of a reflux slower than 11, which was doubtless present on admission, and this together with failing heart-power produced some defective vascular nutrition.

On February 29 the capillary reflux had quickened to 10; on March 11 the cardiac diameter had diminished to 6 in. (¾ in.) and the liver had gone down by the same amount to 3½ in. All signs of trouble had now been absent for twelve days.

On March 18 the capillary reflux had quickened to 9 and on the 25th to 8.5. The cardiac diameter had further diminished to 5½ in., an inch and a quarter less than when first measured, and the liver had diminished to 3¼ in. She was allowed to go home on the 29th, being cautioned as to the foods that were the cause of her trouble, and if she is able to avoid them in future she will hear no more of what has been called "rheumatism" or "purpura."

The most interesting fact in the history of this case is the increase of the trouble with the establishment of the monthly period. The attack which we witnessed followed close after such a period, being contemporaneous with what I have elsewhere spoken of as "post-menstrual collemia." The monthly period as we know accounts for the relative immunity of women from gout because it increases the elimination of uric acid. It will therefore increase their tendency to collemic circulation troubles, exactly in proportion as it diminishes their liability to local arthritic troubles (gout).

When in this case the monthly period induced increased collemia and increasing capillary obstruction it increased the work of the heart and at the same time diminished its nutrition, increasing also the general anemia and debility, and these eventually led up to the heart failure with dilatation, the congestion of the liver, the stasis in the capillaries of various parts leading up to rupture and leakage which accounted for the hematuria, epistaxis, and purpuric spots, and we found along with such phenomena all the physical conditions necessary for their production.

The treatment was to clear the blood of uric acid, to feed up and strengthen the heart, to diminish the anemia. We cleared the blood of uric acid by chloride of calcium, chloride of iron, and sugar. The sugar helping to produce this effect by diminishing the alkalinity of the blood, which is demonstrated by its increasing the acidity of the urine. We strengthened the heart by rest in bed, by cactina, and by increasing protein nourishment with dried milk, and as a result, while the heart and liver got smaller and the capillary reflux quickened towards normal, the whole thing cleared up. We had removed the cause and the effects followed it. Prevention in such cases is simple enough and consists in preventing subsequent excess of uric acid by ceasing to swallow it.

Given absence of excess of uric acid from the blood-stream the capillary vessels will not be obstructed, the heart and liver will not be enlarged and congested, the capillary circulation will not be

slowed, the vessel walls will not be badly nourished and become ruptured, hence there will be no hemorrhages. Those who live uric-acid-free have neither rheumatism nor purpora.

I may, perhaps, quote in further illustration of the same phenomena that tea is now regarded as a cause of neurasthenia. But neurasthenia, as I have elsewhere shown ("Uric Acid in the Clinic," p. 81 and elsewhere), is really "cardiasthenia," being dependent on a defective circulation in the great nerve centers due to cardiac debility. We have just seen how a uric acid storm brought about cardiac debility in the case of Florence H., and the rest follows in simple sequence, for thein is a xanthin compound and tea thus introduces xanthin or uric acid into the body in large quantities, from 3 or 4 grs. per day, (the average consumption of tea per head of population) up to 20 or even 30 grs. per day in some cases; so that there is little cause to wonder at the increasing prevalence of neurasthenia even from this one source of uric acid poisoning.

Again, in the neurasthenia produced by tea and uric acid from other sources, there is often present a symptom of great interest, namely, a feeling of sinking emptiness commonly referred to the epigastrium and accompanied or followed by shortness of temper. Now the causation of these symptoms is very simple, once we understand the mechanism of a uric acid storm as seen in the case of Florence H. The feeling of sinking and emptiness means that owing to gastroduodenal congestion (the causation of which has been given above) the functions of digestion and absorption have for a time been brought to a standstill and so there is no longer any passage of fresh proteid from the digestive organs into the blood. The blood is short of the only substance (proteid) which makes fresh force available. (I have given several instances of this in "Uric Acid"; see also under the causation of force in "Diet and Food.") We shall also find, if we examine the urine, that at the same moment as this feeling of shortage of force appears, any drug which may be lying in the stomach has ceased to pass into the urine, which no longer gives the chemical reactions due to it, but the reaction will return if the circulation is restored. The circulation was bad first of all on account of the collemic obstruction of capillaries, but we now have another factor added to this, namely, deficient heart and muscle power from want of protein to stoke the engines. The circulation throughout the body at once becomes still worse, and the now very defective circulation in the brain causes irritability and bad temper. Hence the saying "A hungry man is an angry man," which applies specially to the hungry poison-taker and not to the uric-acid-free. The remedy is to clear the blood of uric acid and then digestion is resumed, fresh proteids are absorbed, the feelings of powerlessness and bad temper vanish, and the chemical reaction appears once more in the urine. Attacks of migraine and epilepsy furnish, if examined, a complete series of parallel phenomena, for they also, like the sufferings of Florence H., are results of a collemic storm; and an epileptic attack is often a result of an intracranial circulatory condition which differs merely in degree from that producing bad temper.

While we have these facts in mind, it is easy to explain a point recently brought to my notice by a patient residing in South Africa who had been told by his local doctor that a glycosuria from which he suffered was due to eating too much fruit. I have no doubt that his doctor was perfectly right and had probably seen other cases of glycosuria produced in the same way. When I saw this patient he had got rid of his glycosuria but still had a very defective circulation due to excess of uric acid in his blood. From these facts I inferred that at the time of the glycosuria the circulation was decidedly more defective, just as the circulation of Florence H. was worse at the onset of her purpura and hemorrhages than when these phenomena had ceased. This man was quite wrong in eating fruit in the way he did, for he took it along with beef, mutton, pork, tea, and coffee; if he had taken it only with nuts and left the rest out we may suspect that he would never have had any glycosuria. But when he allowed the acids of the fruit to cause considerable retention in his body of the poisonous waste products contained in flesh, tea, coffee, etc., he laid up a store of trouble for himsef in the future. When at some later date the uric acid so stored rushed into his blood it produced, as we saw it doing in the case of Florence H., congestion of stomach, duodenum, pancreas, and liver, and thus a temporary glycosuria was easily accounted for. When I saw him the worst of the storm had passed over and the circulation, though still abnormal, was not nearly so bad as it had been, and so the glycosuria had departed.

In collemia the circulation, and consequently the metabolism of the whole body, is slowed and obstructed, and these conditions will obviously be greatly increased the moment we get heart failure added to the collemia. Then this collemia and obstruction will continue till retention has been reestablished or till the whole of the accumulated uric acid has been cleared out of the body. Hence there is only one way out of collemia and its troubles and that is to remove all accumulations and prevent their reforming by ceasing to swallow the abovenamed foods. For all retention must mean collemia at some future time; nevertheless in Bright's disease, for instance, we have sometimes to cure by retention, for when the stores of urate in the body are large an attempt to cure by elimination would mean an increase of collemia sufficient perhaps to stop all metabolism and destroy life. Now the question arises: What happens in Bright's disease when we cure it by retention or when nature cures it by intercurrent fever? The retention clears the blood of uric acid and at once the excretion of urea rises by leaps and bounds, the water passes freely through the kidneys and dropsy vanishes, food is completely absorbed and metabolized, and the heart and muscular tissues are properly nourished, the fires of metabolism burn up and the uric acid is kept out of the blood for days, weeks, months, even years, and the Bright's disease may be cured. What then happens to the uric acid accumulated by the fever or the retentives? The improvement of metabolism keeps up the retention and a store capable of producing future damage is produced once more. Yes, if the patient goes back to ordinary (poisonous) diet, this is so, but if he lives uric-acid-free there will be a slow solution and removal of the stored uric acid, which passing through the blood only in small amounts does little or no damage, and then in the course of years the body gets free from accumulations and all goes well.

We see then that albuminuria and glycosuria are both failures of metabolism due to defective circulation. This explains why the two great factors of defective circulation, viz., excess of uric acid in the

blood and deficient heart power, are so constantly found in association with them and why they parallel each other in so many directions and bear identical relations to pregnancy, for instance, which puts increased work on the heart, and relatively weakens it, and why both clear up and disappear when the time of heart stress comes to an end with delivery. The one thing obvious on the surface in albuminuria, glycosuria, Bright's disease, and diabetes is the very slow capillary circulation in the skin, and this is accompanied by signs of weak heart and subnormal temperature, the great clinical sign of defective combustion.

This causation also enables us to explain the relation of these metabolic failures to the natural history of bodily development, and the stages of life; but for full details of this matter I must refer to "Uric Acid," p. 236, and will merely point out here the well-known fact that both albuminuria and glycosuria are most commonly met with in the decline of life, in what I have called the second collemic stage, when all the uric acid accumulated in the second retention stage (prime of life) rushes into the blood, blocking and disordering the whole physiology of life. First obstructing the capillary circulation thus at one and the same time both overworking the heart and diminishing its nutrition, and finally causing congestion and disordered metabolism in all the great metabolic tissues and glands of the body, resulting in general mental and bodily depression, fatigue, and lethargy. We can now see that none of this is, or has ever been disease; it represents merely the primary secondary and tertiary effects of chronic food-poisoning.

Collemia is proportional to the uric acid available, that is to say, it is proportional to introduction plus retention. The slowing of the capillary reflux by a given quantity of urate is proportional to the weakness of the heart. As the heart gets weaker and less well nourished a given quantity of urate produces ever worse and worse results as regards metabolism and combustion, and, as a matter of fact, even the most severe collemia does not produce marked albuminuria or glycosuria unless the heart is weak or becoming badly nourished.

We can see also that if the heart is weak the circulation and metabolism of the entire body will be more adversely affected by smaller quantities of uric acid than when the heart is strong, and this whether the weakness results from congenital structural defect, from mere defective use and poor muscle development, or from valvular or pericardial distortion, the result of that other phase of food-poisoning, which we have called rheumatism.

Similarly when the lungs have been damaged by such things as asthma, bronchitis, emphysema, pneumonia, or pleurisy, the bad effects of a given quantity of uric acid on metabolism and combustion will be similarly increased. Now this metabolism entails the change of certain chemical compounds in the food into other compounds in the tissues and these again into still other compounds in the excreta: the force, heat, motion, power, which make up life being got from these compounds at every change. The chief substance in the food which produces power is proteid and its end product in the excreta is urea, hence when anything hinders metabolism some proteid remains incompletely metabolized and force and urea (its end products) are not obtained or at least not in their right quantity. If this process stops at a certain stage a wrong kind of albumin is left stranded in the blood, a diffusible in place of a non-diffusible albumin; then this diffusible albumin passes into the urine as well as into various other excretions and this has been looked upon as the first stage of Bright's disease. But we can now see that it was by no means the first stage of the metabolic disturbance, and on tracing this back to its real cause we find that there is not and has never been such a thing as Bright's disease, at least as a separate pathological entity, for the whole trouble originated in the swallowing of poison along with food.

If we define disease as discomfort or a lapse from health, this has undoubtedly been produced at various stages in the course of food poisoning. But we have always been careful to say that the coma of opium or the rash of belladonna poisoning, though undoubted lapses from health are not diseases but toxic states, and logically we cannot continue to call Bright's disease and diabetes pathological entities once we know that they are but stages in poisoning by foods containing uric acid and xanthin. We can now see the way in which the defective circulation of collemia exposes the lungs to parasitic invasion and that this condition will become still more favorable to parasites if heart failure is added to collemia. The conditions that favor the onset of phthisis are therefore the exact parallel of those that produce albuminuria or glycosuria. Microbic invasion is greatly favored by certain stages of food poisoning and is hindered by its absence.

There are only two causes of defective metabolism or combustion in the body, and the one leads on inevitably to the other. The first and therefore more important is the obstruction of the capillary circulation throughout the body by uric acid in the blood stream. Then, as I showed many years ago, every excess of uric acid in the blood lowers the excretion of urea in the urine because it interferes with the metabolism of albumins and thus diminishes the formation of urea. The other great factor which interferes with tissue circulation and so with tissue metabolism is a weak and diseased heart; and this may be either mere muscle weakness (just as a gymnast's biceps is weak when he has not used his arm for six months), or congenital structural deformity, or rheumatic lesion of the valves or pericardium.

Now chronic excess of uric acid in the blood leads to defective nutrition of the heart muscle, and, at the same time, increases its work. And these two effects being continued, must inevitably lead to dilatation and progressive loss of power in the heart muscle; and thus these two factors in combination lie at the root of that defective metabolism of proteins which has been called Bright's disease as well as of all defective metabolism.

It is thus clear that Bright's disease originates in excess of uric acid in the blood, in other words, it is an effect of uric acid poisoning, just as coma is a result of opium poisoning. It was merely called a disease by Bright and others who did not understand its origin.

Then the defective metabolism which affects protein may also diminish the combustion of sugar, and thus we get excess of sugar left in tissues, blood, and urine. And this again is no more a disease than is Bright's disease, it is a mere result of food poisoning by uric acid. The same is true of the defective combustion of fat (obesity). All defective combustion, except that due to deformity of heart or lungs, is a mere phase in food poisoning; none of these things are diseases, they are results of poison-

ing by excess of one single substance—uric acid.

Now nothing is ever gained by calling things by their wrong names or by attributing them to causes which do not exist, for if knowledge is power, ignorance must be lack of power, and so it proves in this case. Once we know that these things with their many names and supposed numerous causes are not inevitable and incurable diseases, but mere results of poisoning we come at once into possession of a power previously unknown which embraces prevention and cure. You have only got to leave out the uric acid to prevent their appearing. Further if the poisoning has not been so long continued as to produce serious structural change, leaving out the poison will bring about cure. But this is not cure of disease, we have removed the poison and the symptoms of poisoning cease.

If the kidney has become a fibrous nodule its wonderful structure cannot be replaced. If the arteries have become as hard as pipe stems they cannot be made young and elastic again. You do not cure Bright's disease, for it never existed, but you can stop uric acid poisoning at any stage it may have got to short of actual and immediate danger to life.

Practically the rate of the capillary circulation together with the condition of the heart and kidneys are the guides to the stage of poisoning that has been arrived at, as well as to what you can do in the way of repair and recuperation by shutting out the poisons. Precisely the same applies to glycosuria and diabetes, also to obesity and all defects of combustion and metabolism due to food poisoning; the circulation is the guide both to what has been done and to what can be done.

When you see a very defective capillary circulation the first thing to do is to estimate the uric acid in the blood, if this does not seem to be enough to account for all the defect present you will suspect heart or lung disease as a complication and the other circulation measurements will confirm this and tell the relative importance of each factor. You will next make out the condition of the heart, of its muscle and its valves, and then note the effects of these conditions on the blood and blood-vessels and beyond these on the great organs of metabolism (the skin, the muscles, the brain, the nerves, liver, stomach, duodenum, pancreas, spleen, intestines, spinal cord) and their functions, and, when you have further examined the excretion of the kidneys and its relation to the food taken, you can form a very fair estimate of the stage of poisoning arrived at and how far it may be possible by removing all further poison from the food to produce a more or less normal body. But even our estimate of normality has been debased by our lamentable experiences of chronic poisoning; the debased thing has come to be regarded as the highest standard. It will take two or three generations of growth and development on the normal food of man to show us what we have lost. The coming generations who live to see it will be fairly astonished at it, they will then see that life is not quite such a simple process or so much under their control as they had imagined.

When you find that the heart muscle is weak, perhaps becoming fatty, the aorta dilated, the arteries rough, tortuous, and pulsating visibly like snakes under the skin, the lungs emphysematous, the bronchi thickened, the liver fibrous from oft repeated chronic congestion, the stomach, duodenum, and pancreas tending in the same direction with chronic congestion and frequent catarrhal exacerbations, when intestines are catarrhal and partially atrophied, the kidneys fibrous, and the urine of low specific gravity, when there has been a cerebral hemorrhage and mind and memory are impaired, when dilated vessels stand visible on the skin everywhere, and large veins in knots and nodules are on view all over the lower extremities, and when the whole skin is discolored, shriveled, and dry, you know that food poisoning has done its worst, and that the body is only a melancholy remains of what it might have been. There is here all the difference between life and death, between happiness and misery, between mind and its absence, between animal and man.

Writers on diabetes have frequently acknowledged that its problems are still obscure, and Frerichs has named it the Sphinx of medicine. ("Uric Acid," p. 652.) But obscurity is simply another word for ignorance of the real cause, and if I am right in saying that diabetes also is not a disease and has never been one but represents only one stage or one side issue in the course of chronic food poisoning, we may find that this pathology, if more correct, will throw fresh light on some of its problems.

I have elsewhere pointed out the way in which the relationship of glycosuria to collemia enables us to explain the well known fact that a quantity of bread or fruit which at once produces an increased excretion of glucose if given in the morning hours, can be given in the evening hours without producing any bad effect. (See "Uric Acid," Ed. VII, p. 633.) I have there also pointed out that the explanation of these facts which is commonly given, viz., that starch and sugar given when the stomach and intestines are empty and free from work pass more quickly into the blood and urine in the morning than under the opposite conditions in the evening is not correct. And further investigation shows this to be but one instance of a general law, that products of incomplete combustion move together and in the opposite direction to that of the products of complete combustion. Now urea is a product of complete combustion, as sugar and albumin are products of incomplete; therefore when sugar and albumin rise or fall, urea will move in the opposite direction. When a mixed meal is given in the morning to a patient who suffers from both albuminuria and glycosuria the excretion of albumin and of glucose will rise more quickly than in the evening, but the urea will rise more slowly; but if the commonly given explanation were true that stomach and intestines are empty and metabolism free they should *all* rise more quickly in the morning hours. On the other hand my general law explains all the facts completely, products of incomplete combustion rise more quickly in the morning because combustion is then more incomplete, owing to defective circulation which is obvious on the surface of the body, and for the same reason urea rises more slowly; in the evening products of incomplete combustion rise more slowly because circulation is obviously quicker and combustion more complete, hence urea rises more quickly. The rise of sugar in the morning hours after a dose of fruit which will produce no glycosuria in the evening, is not due to increased absorption, but to diminished combustion, and exactly the same applies to albuminuria. Albumin, *when it is a product of defective combustion*, rises more quickly in the morning, and this fact can, as I have shown, be used to distinguish between albuminuria due to that defective combustion from food poison-

ing, which has wrongly been called Bright's disease, and that due to a mechanical cause, *e.g.* oxaluria. Albuminuria due to oxalates is at its worst in the night hours when the acidity of the urine is at its highest and the precipitation of oxalates greatest; albuminuria due to defective combustion is at its worst at the opposite pole of the day, the morning hours; and you can prove this in the same way that you can in the case of metabolic glycosuria, give some extra albumin in the morning and the albumin in the urine will increase, while an extra dose of albumin will produce no effect on albuminuria due to oxalates or any other mechanical cause.

We have also a complete explanation of the fact that fever, when it clears the blood of uric acid and so quickens the capillary circulation throughout the body, diminishes the excretion of sugar and albumin, but increases that of urea, while with subnormal temperature go collemia and slow capillary circulation, a large excretion of sugar or albumin, and a low excretion of urea; thus the subnormal temperature itself is always a sign of defective combustion. In fact sugar, albumin, and urea, the correlative of albumin, rise and fall all day long with the quantity of uric acid in the blood, and when fever does not clear the blood of uric acid, when, as in pneumonia, lack of oxygen prevents increase of oxidation and rise of acidity, then also does fever fail to diminish albuminuria and glycosuria and to increase urea. And if you examine the blood in pneumonia or other febrile conditions accompanied by dyspnea you will find that the fever has failed to clear the blood of uric acid and all the other metabolic failures are the result of this. Thus the rate of the capillary circulation is an absolutely complete index of the quantity of uric acid in the blood, and the temperature and all metabolic phenomena are controlled by this.

Further we shall see presently that most of the well attested causes of glycosuria and diabetes have one thing in common, they all slow the capillary circulation, and they do this either by increasing the uric acid in the blood or by weakening the driving power of the heart. For it is obvious that the weaker, or less effective, the heart power, the greater will be the effect on the circulation of a given quantity of uric acid.

For instance, there are quite a number of drugs that are known to produce glycosuria, and these all belong to the group of what I have called retentives, *i.e.* they increase the uric acid in the body by causing it to accumulate or be retained. Later on, when this accumulated uric acid rushes into the blood stream, severe collemia is produced and very defective capillary circulation results for a time. This is illustrated for instance in the common causation of migraine (the uric acid headache); a man exposes himself to cold or takes some excess of acid wine or of fruit out of season and thus accumulates some 8 or 10 grs. of uric acid, and some days later, when this gets a chance of passing into the blood, he gets a high-blood-pressure headache, and this may be accompanied, as we know, by an albuminuria or a glycosuria or both. Now among the drugs known to cause glycosuria are morphine, perchloride of mercury, uranium salts, nitrite of amyl, copaiba, etc., and each of these will be found mentioned in "Uric Acid" as a powerful retentive. They would all equally cause bilious attacks, "chill to the liver," headache, epilepsy, mental depression, insomnia, or any other of the variety of names with which medical writers have dignified food poisoning and its phases, the whole phenomena of "the uric acid storm" of which, as we now know, albuminuria or glycosuria are but some of the final results. Then, as we have seen in the case of Florence H., they all upset the circulation in the stomach, liver, duodenum, pancreas, kidneys, and skin, in fact the circulation controlling the entire metabolism of the body, and the effects on albumin, sugar, and urea are results of this.

Then asphyxia increases the uric acid in the blood, and dyspnea is, as we have just seen, the one thing which prevents fever from clearing the blood of uric acid and thus quickening the metabolism of the body. It is not, therefore, remarkable that asphyxia, like other factors which increase the uric acid in the blood stream, should produce glycosuria.

Again, such things as mental shocks and nervous strains prove on analysis to be really heart strains; all are now familiar with the fact that blood pressure at once runs up under conditions of fear and excitement, thus tiring a heart perhaps already weakened by a long struggle against collemia and defective capillary circulation. Continued insomnia again is a fertile cause of deficient heart nourishment and increased heart strain, and the worse the heart gets, the worse also becomes the insomnia. We have here a vicious circle which must in the nature of things increase as long as plenty of uric acid is available. It is not, therefore, extraordinary that mental shock, which means heart strain, should increase the effects of collemia in the food-poisoned and thus take a hand in the production of glycosuria and diabetes. Many diseases of the nervous system, owing to their secondary effects on the heart and circulation, will obviously act in the same way.

The effects of fevers we have already spoken of in explaining the relation of glycosuria to time of day, and they obviously act just like the retentive drugs mentioned above. I have elsewhere gone at length into the effects of pneumonia, scarlet fever, measles, and malaria in this respect, and we can now easily see that they produce glycosuria through their effects on collemia.

Nor is it at all remarkable that glycosuria should accompany some diseases of the liver and pancreas. The fact that it does not constantly accompany all such diseased conditions shows that the relation is an indirect one and due to that factor which is common to glycosuria and to some diseases of the liver and pancreas, but not to all, viz., collemia. Primary carcinoma of the pancreas, for instance, may not be accompanied by glycosuria; it will be accompanied by it if it produces severe collemia and very defective combustion, but this obviously depends on factors outside the pancreas, viz., the quantity of uric acid available in the body, and the strength of the heart. Thus in some cases of primary pancreatic disease we get glycosuria and in some not, and this suffices to explain all the facts in front of us. On the other hand when pancreatic disease is due to collemia, and is but a part of similar disease affecting at the same time and in the same way stomach, liver, and duodenum, we may get glycosuria with the pancreatic changes because the glycosuria is a co-result of the collemia.

The effects of gastrointestinal troubles are again most interesting for there is nothing which is more certain to cause collemia in the food-poisoned than defective absorption or metabolism of food. It increases the alkalinity of the blood, and at once all the uric acid in the body available for solution rushes into the circulation. There is thus no more common cause of mental depression or insanity than the

collemia precipitated by dyspepsia. The poor food-poisoned one is here in the grip of a vicious circle, for collemia, as we have seen, produces dyspepsia and dyspepsia in turn increases collemia, and after several downward turns of this kind, as the heart, from continued over-work and poor nourishment by defective blood, gets weaker, the whole metabolism of the body gets steadily worse till albumin or sugar or the two alternately or together are present in the urine.

Pregnancy again, by overworking and straining the heart, will obviously increase the bad effects of collemia, and will thus account for an albuminuria or glycosuria in the food-poisoned. The first incident in the pregnancy is perhaps some little dyspepsia, and this introduces the above described vicious circle, sometimes with dire effects. But, as we now know, pregnancy in those who are not food-poisoned is altogether a different matter, and puts far less strain on the physiology of the body. (See "Health Through Diet," p. 119.)

I have often been asked why, as they are both failures of combustion due to the same cause (food-poisoning), diabetes should be harder to cure than Bright's disease, and why I have recorded a good many cures of the latter and few or none of the former? But when we view these processes in their real light, as stages in a progressive process of food-poisoning, the answer to this question is not, I think, very difficult. For in diabetes you have not only to deal, as in Bright's disease, with great debility of the heart, but there is present a condition which renders any improvement of its nutrition practically impossible, and we equally fail in Bright's disease where the heart condition has gone beyond that which it is possible to repair.

Now in diabetes we have an important added cause of deficient metabolism and defective nutrition which will, doubtless, affect the muscular nutrition in general and that of the heart in particular, viz., the change which sugar produces in the specific gravity of the blood, a change which cannot fail to interfere with the normal interchange of nourishment and waste products between the blood and the tissues.

In Bright's disease it is often possible to improve the nutrition of the heart muscle and thus obtain more driving power to counteract part of the defective capillary circulation, but in diabetes this is not so, it may be impossible to help the heart except by clearing the blood of sugar, which cannot always be done. Hence the improvement of metabolism that follows the reduction of sugar to its lowest limits by diet, and where sugar can by any means be entirely got rid of cure is possible, for the heart can now be strengthened and metabolism will improve to a corresponding extent. Till I understood this I was unable to account for the steady and continuous failure of heart tonics in diabetes. They show a precisely similar failure in Bright's disease, if we fail to get enough protein into the circulation to nourish the heart muscle. In this way glycemia is more deadly than heteroalbuminemia; and diabetes, as soon as the blood can no longer be cleared of sugar, is of necessity fatal, for the heart-failure factor and its cause cannot be removed, and generally the collemia factor cannot be so either. The obvious treatment is to clear the blood of sugar and uric acid and to strengthen the heart to the utmost of our power at one and the same time, and, if we can succeed, we shall save life; but in Bright's disease we have only two of these things to do to clear up the collemia and strengthen the heart and we are much more likely to succeed. In this case the foreign albumin in the blood matters but little, it may not interfere with the nutrition of the heart at all. Sugar on the other hand is quite a different matter, it goes to the root of nutrition and blocks all its processes. In the early stages it is possible to clear the blood of sugar, it is, therefore, possible to improve nutrition and the driving power of the heart and thus to diminish and eventually to remove the power of collemia for evil. But later on, as the heart gets weaker, glycemia will increase, and when it becomes impossible to aid the heart's nutrition owing to this increase, the vicious circle is closed against us and the power of collemia must continue uncontrolled and uncontrollable. Our only chance now is to clear the blood and body from collemia, and this is, no doubt, the way in which the salicylates, which I have made so much use of in diabetes, sometimes produce a good result. But only too often their action is hindered by increasing heart weakness, which the collemia they produce in the process of clearing urates out of the body does nothing to improve. Indeed in the cardiac debility of the old or under-fed the collemia of salicylates is only too likely to cause dangerous dilatation of the heart; and the diabetic is in much the same position. Make the capillary reflux normal and you have set free the metabolism of the body, and sugar or albumin will soon disappear from the urine. If you fail to do it you now know why you fail, and you also know, in the case of diabetes, why and to what extent the failure is final. It is similarly final in Bright's disease, once the heart is beyond repair, but heteroalbuminemia is not so great a hindrance to this repair as glycemia, hence the difference between them.

Asphyxia, of course, increases collemia and generally also directly diminishes the power of the heart by obstructing the pulmonary circulation. Thus fever and asphyxia pull in opposite directions and have to fight it out till the strongest wins; if the blood can be cleared of uric acid and the fever wins up goes the metabolism of the body and urea rises as a result of this, if it cannot be cleared the asphyxia wins and the metabolism of the body cannot be righted unless the cause of the asphyxia is removed. Every cause of asphyxia is therefore a possible cause of glycosuria or albuminuria and of these the glycosuria is the more difficult to cure for the reasons given above.

Fatigue, of course, increases the power of collemia in two ways, it increases the uric acid in the blood by increasing its solvent power, and it diminishes the power of the heart by diminishing its reserves, its muscle nutrition, and by hindering its capillary and general circulation. Then we know that fatigue will cause albuminuria in exactly the same way as it causes glycosuria; boys who faint at the end of a race are certain to be found with dilated hearts and probably with albuminuria also. Boys on natural diet who have no collemia from food-poisoning do not faint in this way and never have what is called "a bad time" nor do they show a dilated heart nor albuminuria, for the cause of such albuminuria is not athletic strain, a thing inevitable in the nature of things, but strain of a food-poisoned body by exercise which would not strain a normal one.

Again we know that a man who may be able to take sugar freely without showing any glycosuria when well, may be unable to do this when he suf-

fers from colic due to lead and other causes. But colic in any form means gastrointestinal derangement, deficient absorption of food, and increasing collemia, and increasing collemia diminishes a man's power of metabolizing sugar. Then in most cases of colic that last long, the collemia is soon backed up by the other great factor in defective metabolism, *i.e.* heart failure. Some hearts will fight against collemia for years before they give in, hence the very high blood-pressures we sometimes find in such cases; in others they seem to be overpowered in the first rush of collemia, and either never get time to hypertrophy or have not the means at their disposal of making any effective increase of power at the moment it is wanted. I mention in "Uric Acid in the Clinic," p. 87, a case in which the heart very nearly succumbed to the first rush of collemia, but nine years later had become a very powerful organ with correspondingly high blood-pressure. This was because its owner did not understand the mechanism of his trouble and so did not take the measures necessary to shut out the poisons from his food.

The relation of glycosuria to the administration of sugar on an empty stomach (*i.e.* apart from the effect of morning hours previously referred to), is again a mere matter of collemia or its absence. In the saying previously mentioned "a hungry man is an angry man" we have the key to the causation of such a glycosuria, for in the food-poisoned the hungry man is the collemic man, and the collemic man with correspondingly defective brain circulation is the angry man. Now this same defective circulation throughout the body diminishes power of metabolizing sugar completely. Give sugar before a meal to such a man and he may show some glycosuria, and yet precisely the same amount of sugar given after his meal will not cause any sugar to pass into his urine, and you will find that with this absence of glycosuria there is also good temper, he is placid and smiling and cannot easily be made angry. The explanation of this again is quite simple, and, if you had only been measuring the rate of the capillary circulation under these two conditions, you would have seen the reason of it all. Or, if you watch the excretion of urea and the quantity of uric acid in the blood, you will again see what happens. About an hour after the first mouthfuls of the meal the urea begins to rise, and with urea rises also the acidity of the urine, and the rise of acidity clears up the collemia, the circulation in the brain improves, and the angry man becomes peaceful, the same improved circulation improves his metabolism of sugar, and so there is now no excretion of glucose. This change from bad temper to happiness is in many people quite remarkable and it always corresponds to this rise of urea and acidity which takes place from forty to sixty minutes after the beginning of a meal; but the unfortunate dyspeptic in whom this rise may be more or less delayed or diminished remains morose. In all such cases you have merely to watch the capillary circulation to see exactly what is taking place. We here come in sight of the probable explanation of the morning nausea and vomiting of pregnancy, and of the reason why some early food may cure it.

Pregnancy is a time of retention and consequently the morning collemia will be rather severe, this causes some gastroduodenal congestion with tendency to nausea and vomiting. Then the digestion of food will put an end to the collemia and congestion in 40 to 60 minutes, as we see from the above considerations. This is but a special instance of what is known in Scotland as "piecey disease," *i.e.* people who are always in want of a bit (piece) of food and so eat very often, the reason being that they have gastric irritability and congestion which the food relieves for a time. They have no real hunger, but they want relief from a pathological condition. (See my paper on "Gout of the Intestines," MEDICAL RECORD, Oct. 12, 1912, under "hunger pain".)

The well known tendency of all these defects of metabolism and combustion to appear in middle and later life is again merely the expression of their relation to long continued food poisoning with the excess of uric acid which has accumulated in the body and the progressive weakening of the muscles, especially that of the heart, which places the capillary circulation and so the metabolism of the body, ever more and more at the mercy of the obstructing uric acid.

The classical bilious attack is the center and the key of the whole phenomenon, and both albuminuria and glycosuria first come temporarily in such an attack, and later, with increasing collemia and diminishing heart power, temporary becomes chronic, albuminuria becomes Bright's disease, and glycosuria passes into diabetes; but here again the capillary circulation tells us exactly what is taking place and why. Obviously all shocks and bodily injuries in the food-poisoned mean collemia and also often heart fatigue and debility, though there is no greater cause of heart failure than collemia itself. Hence those who are not food-poisoned recover from injury or operation with what appears by comparison to be marvelous ease and rapidity.

The relation of these metabolic troubles to fibroses such as fibrosis of the pancreas in the case of glycosuria, is merely their relation to chronic and repeated collemia, for not merely the pancreas but the liver and all the neighboring organs are similarly fibrosed from exposure for years to defective circulation and recurring congestion. Relapse of collemia with any shock that debilitates and weakens the heart will mean relapse of a glycosuria or diabetes and with this may often be found offensive stools like those of the common bilious attack, and these with the passage of undigested fat are but further evidence of a blocked and congested circulation in stomach, duodenum, liver, and pancreas, while jaundice, when it occurs with glycosuria or diabetes, is but one more result of similar conditions. But collemia and defective capillary circulation is the *causa causans*, and we must not attribute to local conditions in one particular organ that which is the result of defective combustion throughout the body.

Then again generalized fibrosis is but one more result of chronic collemia and congestion with defective tissue metabolism and nutrition, though localized fibrous nodules and adhesions in the organs of the pelvis or abdomen are, like the fibrous nodules so common on the fingers, mere results of urate irritation. But no doubt in many of these organs we get mixed conditions, for direct uratic irritation alternates from time to time with collemic congestion. Thus gastrointestinal catarrh and colitis (retention diseases) alternate with the congestion of the collemia that intervenes between the attacks, thus the ultimate condition of the organs concerned is the result of both processes acting in sequence. It is therefore little wonder that these conditions are

sometimes found in association with those defective combustions of sugar or albumin which we have wrongly called Bright's disease or diabetes. Many cases illustrating these points and demonstrating the utter confusion in which we are landed by the attempt to break up one continuous process of food poisoning into various so-called "diseases" merely because we constantly see it at different stages, will be found in "Uric Acid in the Clinic."

Diarrhea again, is often a mere result of gastro-intestinal congestion, as for instance the congestion produced by collemia when it becomes associated with cardiac failure, and with this also we may naturally get either a glycosuria or an albuminuria.

A glycosuria following scarlet fever or measles or malaria is again quite simple, it is a mere phenomenon of postfebrile collemia, especially if this is associated with some cardiac debility of which the precedent fever is an efficient cause. It will often disappear after 7 or 8 days as the postfebrile collemia generally only lasts about as long as the fever which produced it, and the glycosuria or albuminuria will depart with it.

In the same way administration of uric acid under certain conditions will produce collemia and cause a bias in the direction of cardiac debility, and may thus bring about albuminuria or glycosuria. Under other conditions it will act as a stimulant, clear up collemia, and remove these troubles. The result depends entirely on the power that the blood has, in a given case and at a given time, to hold uric acid in solution and so produce collemia, or to throw it out of solution and so produce gout. Even time of day has a great determining effect in such a case, a dose of uric acid in the morning will get into solution in the blood, increase collemia, and thus aid the production of any impending collemic troubles, but exactly the same dose given in the evening may clear the blood of uric acid stop collemia, but give rise to troubles of the retentive series.

It has been known for many years that to administer uric acid or urates may cause a rise in the excretion of urea in the urine, and it was at one time concluded that this rise of urea represented the administered uric acid which had been converted into urea by the metabolism of the body. This result also was looked upon as further evidence in favor of the fashionable fad of the day that the body could thus undoubtedly convert uric acid into urea, so that those who suffered from excess of uric acid did so only because they had less than the normal power of converting it into urea. That, in fact, for a normal person administration of uric acid would do no harm and would not increase the quantity of that substance in the body.

But unfortunately for this theory experimenters soon discovered that every acid administered caused a rise of urea, and the same result followed on the administration of such things as sugar and of sulphuric acid which contained no nitrogen, so that the rise of urea following the administration of uric acid did not necessarily come from the nitrogen of the uric acid, hence the fact that a rise of urea followed the administration of uric acid was no proof that uric acid had been converted into urea. Further experiment then showed that if salicylic acid (a solvent) is administered with uric acid, the whole of the uric acid is excreted day by day in the urine in the exact quantity swallowed. This showed that the uric acid swallowed was not converted into urea, but was merely retained in the liver, from which a solvent could remove it at any time. It proved also that administration of uric acid raised urea just as administration of sulphuric acid raised it by freeing the metabolism of the body from collemia.

I also demonstrated years ago in animals that injection of uric acid into the blood stream did not increase the amount in the blood and urine, it was all caught up and retained in the liver, the quantity in the blood being actually diminished.

We learn from this that to administer uric acid when it can be dissolved in the blood, *i.e.* when the blood can take up more than it already contains, increases collemia and the excretion of uric acid in the urine; but to administer it when the blood cannot dissolve any more leads to its being thrown out of solution and retained in the liver, the blood is thus more or less cleared and the excretion in the urine diminished. A small dose of uric acid is therefore more likely to remain in solution and cause collemia, and a large dose is more likely to cause retention with clearance of the blood and accumulation in the liver. Thus the solvent powers of the blood control the effects we shall produce, and by giving alkalies or salicylates we can ensure the passage of the uric acid through the body exactly as we administer it. We now know also quite well that to keep uric acid out of the food controls completely the quantity available in the body, or the uric-acid-free diet would produce no good effects.

In this way not a few glandular preparations, *e.g.* thyroid, will produce quite different effects in cases which on the surface appear to be similar. Many of these glandular substances either themselves contain uric acid or xanthin, or substances such as ammonia or urea which affect the solubility of the uric acid already in the circulation of the patient to whom they are administered. A careful measurement of the condition of the blood and its circulation will furnish the reasons for their various actions under varying conditions affecting solubility. In other conditions again, *e.g.* myxedema and obesity, measurement of the circulation will explain the similar relation of these disturbances to albuminuria or glycosuria. The same observations will tell us why either glycosuria or albuminuria may come with a certain stage of pregnancy and depart after delivery, and in other cases why they are and remain absent. Everything depends on the effects of pregnancy on the heart condition, and so on the general circulation of the body, its digestion and metabolism. Everything that slows the capillary circulation increases the tendency to albuminuria or glycosuria because these are defects in the combustion of these and other substances in the metabolism. Everything that quickens capillary circulation diminishes the tendency to them. Probably the internal secretions of various glands have no effect on these errors of metabolism except in so far as they directly or indirectly increase or diminish collemia, or increase or diminish its effects by diminishing or increasing the power of the heart.

The relation of glycosuria to pelvic disease in females is again quite simple, for everything that increases gastrointestinal irregularity or dyspepsia will increase collemia in the food-poisoned, it will also slowly diminish heart power, thus controlling or importantly influencing the two great factors in the causation of glycosuria. And obviously the operative removal of such tumor or source of irritation will cure by removing the source of abdominal disturbance. The same may apply to constipation or colitis and so to the effect of removal or short circuiting of the colon.

Watch the circulation and you will not need to consider very much the condition of special organs which is very often a mere co-result of the general conditions; if pancreatic disease or irritation causes glycosuria it very often does so merely in the same way as the pelvic tumor mentioned above by upsetting gastrointestinal digestion and so producing collemia and defective metabolism.

Again diet restriction in glycosuria has much more effect than in albuminuria, for in the former it may stop one of the causes of cardiac debility, *i.e.* one of the main factors in causation. Albuminuria on the other hand is not cured by diminished protein, as this has the most undesirable effect of increasing cardiac debility. When it is possible to put the circulation right it is possible to cure any of these errors of metabolism, but it cannot be put right in glycosuria without removing the sugar. If the heart is very strong, *i.e.* if the error of metabolism was entirely due to collemia, stopping the collemia may suffice to cure errors of metabolism, but if the heart is at all weak it will not get stronger while there is much sugar in the blood and this therefore must be cleared out. But if you try to diminish the heteroalbuminemia by diminishing the intake of protein you will have to run the chance of weakening the heart and of thus making matters worse in place of better. For this reason neither albuminuria nor glycosuria will stand protein starvation, for the power of the heart, which is largely dependent on protein supply, determines the greater or lesser effect of collemia. Thus I have had a case of diabetes recently under my care in which the patient did quite well and gained considerable weight on heart tonics with diabetic diet and plentiful protein; but when he went out of hospital and got into poor circumstances so that he could get neither the diabetic diet nor sufficient protein, the sugar quickly increased so that on admission for the second time it was more than double what it had been on the previous occasion, and we found along with these conditions no great increase of collemia, but a very marked increase in the weakness of the heart.

Obesity again presents us with a complete parallel of the other defective combustions, and when we see a mountain of fat obstructing our path with a waddle resembling that of a duck, we are certain to see also bolting eyes and to find a blood pressure round about 200 m.m. of mercury and to find that the heart is getting rather tired of continued hard work and is also somewhat encumbered by fat. As these conditions go on and continue, sugar or albumin is common enough in the urine and we have generally defective combustion of all combustibles as well as of fat. We know that the end will be cerebral hemorrhage or heart failure, according to the original structure of the heart and the cerebral vessels, and as one is weaker or stronger than the other. This again is not disease, but merely another side issue in the natural history of chronic food poisoning.

The first stage in this condition was a store of uric acid accumulated in the prime of life, the next was an increasing collemia from its solution leading to rising blood pressure and gradually increasing heart power; when the heart begins to fail in the struggle we get the stage we now see in front of us, obesity, albuminuria, glycosuria, the defective combustions, and these will affect chiefly one or other set of organs according as stress and strain or other conditions of life aid or hinder them in their functioning. Thus if such a patient is much exposed to cold the skin will be unable to continue its functions when hampered by a defective circulation inside and cold without, it will gradually become dry and atrophied and such patient will probably get albuminuria (see "Uric Acid," p. 606). Or if the skin is protected by warm clothing or a good climate the accumulating errors of circulation will produce congestion of stomach, liver, duodenum, pancreas, and spleen, thus affecting the digestion and absorption of food and then glycosuria may be produced in place of albuminuria. All the other phenomena are equally easy to explain, but one thing is now certain, that all these errors of metabolism are due to capillaries obstructed by uric acid and to relative weakness of the heart in varying combinations and that these are but the phenomena of some stages in the course of chronic food poisoning.

To understand this gives complete power of prevention, and such power of relief as is possible in the nature of things. But we have not relieved disease, but have merely put a stop to food poisoning at a certain stage in its development, by removing the cause.

We have here not merely a complete explanation of the circulation phenomena that accompany these metabolic disturbances, but our knowledge is power, we can produce or remove any of them at pleasure. By controlling the uric acid together with the other factor, heart power, we can produce any change in the circulation that is required, and we thus get a complete grasp of what appear on the surface to be the various ways in which this substance acts as a poison. We see that these various ways are apparent rather than real and that it only acts in two ways after all: (1) local irritation, and (2) obstruction of capillaries.

Only when it has produced structural change, when the machinery is broken, shall we fail in removing its effects. By controlling the uric acid we control every function of the body, including the nutrition of the heart and lungs. And having done this you will find that the life of the entire body is under your control and that you can do with it what you will.

You can make it cold or hot, fat or thin, young or old, short or long lived, liable to microbic invasion or immune, harboring parasites or not harboring them, and when you have worked all this through in a sufficient number of cases to realize your power, you will completely understand that there is here no disease, and that a number of names have been quite unnecessarily wasted on various stages of poisoning by one substance which is practically speaking not contained in the natural food of man, and with which he has come into disastrous contact only through an unwise departure from his natural food.

PSYCHOGENETIC DISORDERS; CASES SEEN IN DETAINED IMMIGRANTS.

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THE first case of psychogenetic neurosis that I remember having heard of was described by a farmer in Connecticut (although he did not use the term) in speaking of a neighbor who had lost his entire fortune in a bank failure and then developed insanity. The farmer said, "I guess the loss of that money turned Sam's head," and since "Sam" immediately recovered after the bank made good its

losses, I am of the opinion that the loss of the money did "turn Sam's head" and that his malady was one of those classified as psychogenetic.

These psychoses are thus termed because one or more distinct psychic experiences stand out as of special etiological importance in definite relation to their course. These experiences in this condition are either of a strongly pleasant or strongly unpleasant nature, especially affective to the patient possessing them. A characteristic of all psychogenetic disturbances, as in the rustic instance cited above, is that they usually disappear very soon after the psychic irritant which produced them is removed or successfully counteracted. Indeed, simple suggestion from a person of strong and pleasing personality will work wonders in most varieties of this neurosis.

Many American investigators are endeavoring to unearth etiological facts in the pathological laboratory and at the autopsy table, forgetting in many cases that there are psychosic symptom complexes whose origin is found purely and exclusively in the psyche. Some neurologists regard hysteria as the only true form of psychogenetic disturbance, but there are many non-hysterical conditions that are due to psychic experience and which cannot be classed with any variety of hysteria yet described. Whether hysteria be due to the repressed painful experiences as suggested by Freud, to the disassociation of Janet,[1] or, according to Moebius'[2] theory, the change of concepts into physical manifestations, it is always seen in individuals of the hysterical type and possessing the hysterical temperament, and is most often seen in members of an emotional race. Non-hysterical psychogenetic disorders may be seen in normally balanced individuals, in many cases in persons who have led a calm, even, easy life where strife has been unnecessary and hence no mental immunity to untoward experience has been acquired. They are seen in otherwise average persons who have been raised amid contracted surroundings, as in convents or under close parental scrutiny and censure, and in persons who have been the recipients of suggestion that certain acts and practices were wholly bad and subjected the perpetrator to certain condemnation. Individuals with the latter extreme ideas would naturally be affected more adversely when brought into contact with these same acts and practices than persons reared amid more natural conditions. One sees patients whose mental disorder can be definitely traced to one emotional shock, such as the death of a loved one, loss of money, the circulation of a scandalous rumor, sudden fame or the acquisition of wealth. Laymen have, of course, attributed insanity to such causes as these before medical men regarded them seriously.

Most of the dementia præcox cases that "recovered" and most of the maniac-depressive cases that "never recurred" were cases of psychogenetic neurosis, and in substantiation of this statement I wish to cite a case that has recently come to my notice.

Case I.—Female, aged, 26, married; detained at Ellis Island pending communication with her husband who was in the United States. She had never before left her native town and, of course, the change of environment, involuntary confinement, strange surroundings, customs and people, with the uncertainty of the ultimate disposition of her case, were conditions to which she might well act adversely. Her personal and family history (according to herself) were negative, but histories usually are in the case of immigrants, so this was hardly reliable. She had apparently been normal until one afternoon, while making rounds as officer of the day, I observed her in an attitude of supplication, which attitude she had held continuously for over two hours. She was at this time absolutely mute, although later the same afternoon she took up a stereotyped expression which was repeated for about fifteen minutes, when she became practically normal. The following afternoon she was in a condition which I took to be Ganser's twilight syndrome, in which she was highly impressionable to actions and words spoken near her. I suggested in her presence and in her own language that she be allowed to go to her husband in America. Immediately she was out of her stupor and attempting to thank me for my supposed kindness. The following day she was in a pseudo-stuporous state alternating with periods punctuated by diatribes for anyone who might be near. Cerea flexibilitas was present in the stuporous state. Upon being removed to the psychopathic ward of the General Hospital she cleared and became normal before the medical officer in charge had a chance to examine her. This was her last attack.

Some of the earlier observed facts of this case suggest dementia præcox, but the presence of definite psychic causes and recovery on obtaining that which she desired and on the change of environment point strongly toward psychogenetic disorder. There was none of the theatrical or sympathy-craving seen in hysteria.

Kraepelin has said that immigration stations afford excellent clinical facilities for the study of these disorders, and judging from the cases I have seen and from mistakes which are being made by lay-workers from various schools for the feeble-minded who are not aware of the importance of eliminating functional psychoses when dealing with conditions suggesting mental defect, I am inclined to agree with this learned neurologist. The mistake of not recognizing these disorders is, of course, an excusable one, especially in these non-medical workers, since there are all degrees of psychogenetic disturbance from a slight change of temperament to a condition in which there are psychomotor activity, refusal of food, self-mutilation, homicidal tendencies, and extreme filthiness.

Another case whose symptoms resembled somewhat those of the earliest stage seen in the manic phase of maniac-depressive insanity is the following:

Case II.—A Danish woman, aged 25, single; detained at Ellis Island because of certain legal requirements which had not been fulfilled. She had been in the United States three times before, had worked as a maid at several places in this country and had returned to Europe after each sojourn here as a matron on a liner. She was easily discouraged and was not long satisfied with any place where she was employed; there seemed to be a chronic "wanderlust" which, in order for her to retain her mental equilibrium, must be satiated. She was of pleasing appearance and neatly dressed. After being held for about three days and after having been unable to find out just when she would be permitted to leave she assumed an inimical attitude toward the matrons who had her in charge. She was at first taciturn, then became loquacious. Her smile suggested a facetious, fault-finding trend of thought. She refused to eat the food prepared for her unless it could be served to her in private; she did not wish to associate with other detained immigrants of her own class. She became abusive and indulged in profanity and abusive language. She catechised the physician when he approached but retained her dignity and urbanity until she found out that her whims could not be gratified, whereupon she told the physician what she thought of him in no uncertain terms. She was discursive and vacillating and no answer of any length could be educed regardless of the question. She persisted in her abusive tirades after having been told that such conduct was against her best interests. She was perfectly oriented, always neat in appearance, and physical examination was negative except for a slight general increase of superficial reflexes. Her face was always flushed and a lesser degree of this condition was natural to her. She had no hallucinations of vision or hearing and in fact the sum of her mental aberration consisted in a total misunderstanding of the situation and the relations that existed between the authorities and herself and a vague feeling of impending danger with reactions to the same and chafing at restraint. She was over-aggressive. Upon being re-

moved to the General Hospital she at once became normal but inside of two days was as bad as ever. In the hospital she was restless and agitated. Her condition was a hypomanic one and remained so until she left Ellis Island.

In this case the inability to gratify the unconquerable desire to wander acted as the psychic experience which precipitated the psychosis. The fact that she became normal on admission to the hospital pointed strongly to the diagnosis of psychogenetic excitement.

The nature of psychogenesis has not been fully worked out. According to certain authorities, notably Birnbaum and Bonhoeffer, the ability for mental disorder to result from psychogenetic incitation is evidence of degenerative soil or psychopathic predisposition. The above question is of great importance to the physician engaged in immigration work, since he is often called upon to render an opinion as to whether the psychosis exhibited by a given alien is "due to causes which existed prior to landing." If all of these mental disorders are engrafted on "degenerative soil" then all such cases are due to causes existing prior to landing, and such aliens will be deported. If, on the other hand, psychogenetic psychoses may arise from strong emotional shock subsequent to landing in healthy persons free from psychopathic taint, then the aliens having such disorders are not insane from causes existing prior to landing, and hence will not be deportable. Both, or either of the above conditions are present at times, and it only goes to show that each case must be studied on its own merits and a decision must not be made until all available data have been carefully gone over.

Kraepelin[3] does not believe in the degenerative soil theory, but regards psychogenesis merely as a measure of the personality, temperament, and character of an individual. The fact that one man develops a psychosis upon the death of a near relative and that another does not is merely an indication of the inherent characteristics of each man. Racial trait is important here. Of the three the Italian would be more apt to develop a psychosis under the above condition than would a Dane or Finn, simply because the former will be more affected by the experience, but it does not follow that the first man has a more degenerate nervous system than the other two.

The officers of the Public Health Service at this station are frequently called upon to proceed to certain hospitals for the insane and examine aliens with a view to determining whether causes existed prior to landing. Now many of these cases are ill-defined and atypical, and frequently no diagnosis has been made by the hospital authorities, who, in spite of the latter fact, have in recommending the cases for deportation, certified that the causes in the case existed prior to landing, said causes usually being given as "congenital psychopathic predisposition." No account is taken of psychogenetic disturbances that arose subsequent to landing. The above unscientific, routine method of issuing certificates seems pernicious and unfair to the alien. Glueck[4] is of the opinion that psychogenesis depends upon three factors: (a) the nature of the experience and the affective value which the experience possesses; (b) the degree of acuity with which it has been perceived and the intimacy which it gains to the psyche; (c) the definite character of the "psychic whole," of all the mental processes which have been at work in making an individual precisely what he is. He does not believe that psychogenetic disorders are due to existence of degenerative soil or to defective inhibitory apparatus. He asks, "Does the individual exist about whom we can say 'Here is a man whose nervous system is so stable that it can stand all manner of nervous or mental shock?'" If the emotional shock be strong enough and properly selected to suit the character of the individual, no matter how stable his nervous system, he cannot withstand it.

The symptoms of these psychoses are varied and indefinite and the diagnosis can only be made by studying their origin, course, and termination. They may simulate all other psychoses with the exception that the history will reveal a strongly affective psychic shock which can be educed by psychanalysis if in no other way. The strong influence of environment, the effect of granted desires to whims, along with the results produced in a change of scene (amelioration of symptoms or complete cure) with the absence of hysterical features make up a usual picture in the psychogenetic psychoses. The Ganser syndrome before referred to, is an important condition in this connection and is regarded by some men as hysterical and by others as a degenerative state. In a typical case there is a suspension of all cerebration for the time being. There is complete ignorance of matters of common knowledge; the name, age, and the names of familiar persons and things are absolutely out of reach of the patient. Fabrication is present but answers to questions are not altogether irrelevant, for certain familiar pictures or objects may be mistaken for other similar ones and named accordingly. Despite the above mental disability these patients are well-behaved and orderly. Vivid hallucinations of hearing or sight may be present, yet with these there is present a distinct subconscious state. Recovery occurs in a short time, and the person awakes with amnesia for incidents that transpired during the psychosis. A modification of this syndrome is seen in certain rare cases of dual personality.

Psychogenetic disturbances may result from injury to the head totally apart from the physical trauma induced. There may be a total change in personality, morals, and temperament. There may be periods of months when the patient is in a pseudo-dream state and during which time he manifests various vicious tendencies and other evidences of an altered personality. I have recently testified as an expert witness in the case of a young man who was the victim of such a combination of circumstances, and even though he presented physical signs of traumatic epilepsy (intolerance to alcohol, etc.) I found it difficult to explain the case to the satisfaction of the prosecuting attorney, who was a very practical man with limited powers of imagination and but little ability to grasp ideas of which he had not made a previous study. The recognition of psychogenetic disorders is important in the case of criminals who at the time of their hearing or trial present signs of insanity. The psychosis manifested by these men may be a result of the psychic shock incident to the crime, its discovery, the detection of the offender, and the consideration of the debt that must be paid society. Such criminals are, of course, responsible, and should be tried as soon as their mental condition has cleared, and I am not sure that it is always desirable to wait for this.

Raecke[5] speaks of a complex which he calls an "hysterical stupor in prisoners," and which is sometimes seen at immigrant stations, especially in immigrants from Latin countries; it is seen by medical officers in the army in the cases of young recruits

subjected to discipline foreign to their previous experiences. Catatonic manifestations are present in Raecke's stupor and in the cases that persist for months a diagnosis of catatonic dementia præcox may be made with the correspondingly bad prognosis, especially since such cases may present such symptoms as impulsivenes, silliness, verbigeration, stereotypy, grimacing, and the assuming of attitudes, Ganser's complexes may enter into cases of Raecke's stupor, and with the delusions and hallucinations that are sometimes present a diagnosis can be only tentative, yet dementia præcox can be excluded by the fact that in both Raecke's stupor and Ganser's twilight state the patient is sensitive to impressions arising in his immediate external surroundings, and these impressions may at any time cause him to become normal in mentality and action. The importance of and the reason for here mentioning this stupor and syndrome lies in the fact that one should be cautious about rendering a bad prognosis to the relatives of seeming præcox cases and in giving an unconditional diagnosis of catatonic dementia præcox after brief observation.

CONCLUSIONS.

(1) Psychogenesis is important in considering whether or not a given psychosis is founded on degenerative soil and hence whether the cause of a given alien's insanity existed prior to landing. Cases occur in which psychoses have arisen in healthy persons with apparently normal nervous endowment.

(2) Psychogenetic disorders are important to all who are identified with medicolegal problems since, as Glueck[6] says, most of the psychoses of criminals are psychogenetic in character.

(3) A knowledge of psychogenetic disorders is necessary in making accurate diagnoses and especially prognoses in traumatic and other organic mental diseases or supposed diseases of this nature.

(4) Immigrants suffering from psychogenetic disorders should not be examined for defectiveness while in this state, and lay-workers with no knowledge of medicine, psychiatry, or neurology, cannot detect these conditions but would call such a patient "stupid" or rate him as "seven years old on the Binet."

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THIRTY HEADS IN MESIAL SECTION.

AIR SINUSES.

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Since the Alexandrian age anatomists have been compiling records and noting the various structures in each body opened, as to their attributes and those organs which occurred within certain limits the greatest number of times were taken as "usual" or normal, noting at the same time the various differences and their percentage of frequency. Nature shapes each organism after a certain pattern, but due to heredity, parental discrepancies, birth difficulties, sex, race, climate, housing, nature of diet, hygiene, and a thousand and one other environmental factors which demand for each particular organism a special design of structure to best enable it to sustain life, she varies the pattern by structural changes and differences normal for that particular one. These same variations to another are superfluous and abnormal, depending again on its fundamental needs in beginning and sustaining life. In each the same general pattern is followed, but with such marked variations as to make each individual a type by itself. These facts are particularly emphasized by the great variety of differences found in the nasal cavities.

The practitioner and student will recall the anatomy of the nasal walls briefly, thinking of the cribriform plate above, the hard palate below, the septum dividing the cavity into two lateral halves, the three swell bodies and three meatuses with the bulla ethmoidalis and the uncinate ethmoidalis with the hiatus semilunaris between them on the outer wall. He recalls the anterior and the posterior groups of ethmoidal cells in the body of that bone; the antrum of Highmore in the body of the superior maxillary bone; the frontal sinus above the orbits; sphenoidal sinus in the body of that bone. All are lined with mucous membrane, communicating with the nasal cavity and containing air. He recalls Series No. 1 (Ballenger's terminology), consisting of the frontal sinus and its infundibulum, the anterior ethmoidal cells and antrum of Highmore, as draining into the hiatus semilunaris under the middle turbinate; and Series No. 2, consisting of the sphenoidal sinus draining into the sphenoethmoidal recess above the superior turbinate and the posterior ethmoidal cells below it. But, if this same practitioner or student had the opportunity and would take advantage of it, he would have his ideas and ideals of the nasal cavity and its accessory air cells much changed. While the same general pattern is maintained, the variations are extreme, so much so that it is practically impossible to classify into varieties from a limited number of specimens. One could start early and work late, going from table to table day after day, dissecting and carefully probing and not find two heads alike.

It has been the writer's pleasurable duty to examine a goodly number of specimens in mesial section and in this work notations were made in cases showing differences from the usual, and since every one showed some variation, the notations grew to enormous proportions. With this consideration it becomes necessary to sift the matter down to a few specimens to show the anatomical possibilities. In this review of specimens the major part of interest is lost by the absence of the case history. One can only draw on the imagination as to the possibility of nasal difficulty. In 90 per cent. of the material dissected no evidence of accumulation in the air cells or sinuses was found. In those showing these accumulations, the drainage openings, location and size of the cells and spaces corresponded as closely to the classical description as any of the others. Here the difficulty as to conclusion arises, since the accumulations may have been part of the terminal phenomena plus saprophytic activity. As before stated, we cannot review each dissection, hence a few specimens are picked at random, so the reader can see for himself what may be anticipated in the general run of sinus cases.

A.—The frontal sinus was large, extending far outward in the orbital ridges and continuous with one large anterior ethmoidal sinus (cell) behind. These opened into the bulla ethmoidalis which had its exit posteriorly and superiorly into the hiatus semilunaris. A middle group of ethmoidal cells (one single space) was separated from the anterior and posterior group by a bony wall; this space drained from its inferior aspect into the hiatus. The sphenoidal sinus was a large chamber occupying all of the body of that bone and extending into the basilar process of the occipital bone 15 mm. and laterally 25 mm. from the median line into the lesser wings of the sphenoid above the sphenoidal fissure. This left the body of the sphenoid a mere shell of bone. It drained into the recess as usual and communicated by a large foramen to the posterior ethmoidal group. This latter also consisted of a large single cell which drained into middle meatus. The opening from the maxillary sinus was below the hiatus semilunaris as very frequently found in other specimens. A mastoid had been done on this cadaver, it, too, as with the other air spaces, consisted of only a shell of bone. The general bony structure of the remainder of the head was normal (usual).

B.—There was nothing marked with the frontal sinus. The anterior ethmoid group was composed of many small cells communicating with and projecting or overhanging in such a way as to be continuous with the superior swell body. The posterior group consisted of one large sinus continuous below with many small ones in the enlarged superior turbinal. The posterior group was partitioned off from the anterior, though each had continuations into the superior turbinate, both groups drained into the middle meatus, no other openings were found. The sphenoidal sinus was very large, with shell-like bony wall, and drained into the recess as is usual. Antrum opened below hiatus.

C.—The frontal was of average size, and drained as is usual. The anterior ethmoidal cells were large and few in number, having comparatively thick bony walls and draining from below through many oval openings into a very large middle turbinate which also had firm bony walls. This middle turbinate was a sinus by itself, being hollow, the inner surface of its walls was marked by a few longitudinal ridges directed upward toward its exit which was located superoanteriorly and emptied into the hiatus. This large middle turbinate incorporated the bulla ethmoidalis. The maxillary sinus presented its opening 4 mm. below the hiatus. Series No. 2 drained in usual way, but the openings were large and cells large.

D.—Exceptionally large bulla ethmoidals. The antrum presented three openings, one into the hiatus and two below it. Two other specimens presented multiple openings from the antrum of Highmore. These hardly could have been operative in origin, since they were too high and too far back.

E.—The frontal sinus was as usual. The anterior ethmoidal cells were comparatively large and continuous below with a chain of six cells in the lateral wall of the cavity anterior to the turbinates and extending downward to the level of the inferior turbinate. The bulla ethmoidalis was a part of this chain. Below the bulla the nasal wall was smooth. Between the chain of cells and the antrum only a very thin wall of bone existed. This chain of cells drained upward through the bulla into the infundibulum. The antrum opened 3 mm. below hiatus. Posterior ethmoidal and sphenoidal cells composed of one large sinus with two points of drainage as would be normal for these spaces.

F.—The frontal sinus contracted. The infundibulum scarcely patent. The nasal cavity was generally contracted and narrow. The anterior ethmoidal and posterior ethmoidal cells were only a thin row of contracted cells; the distance between nasal cavity and orbit was about 5 mm. The opening from each set was tiny, those from the antrum and sphenoid would admit only a pin. The sphenoidal sinus scarcely existed, the body of the bone being filled by spongy bone, except pea sized spaces having trabeculæ on either side.

G.—The frontal sinus was of considerable size, consisting of one space with a large opening into the bulla. The bulla was large and communicated to the middle turbinate which was sinus like in its whole extent, but did not appear to be of exaggerated size from superficial inspection. The cavity of the middle turbinate drained anteriorly into a tube like structure which represented the end of the infundibulum. The remainder of the cells and sinuses were of the small cell type and drained as usual. Both sides alike.

H.—The frontal sinus was large, and the infundibulum directed nearly horizontally backward below a tiny ridge posteriorly. This ridge represented the middle turbinate, its length being about that of the superior turbinate, which was in every way usual. The diminutive middle turbinate was hollow and was continuous in front with an enlargement representing the bulla ethmoidalis incorporated with the anterior ethmoidal group. There were no traces of an inferior swell body on this side, but where it should be was an opening 15 mm. across, leading to the antrum. The opening of the nasal duct was present in its usual location. On the other side (left) the two upper turbinates and frontal sinuses corresponded to those on the right. The opening to the antrum was some smaller. Representing the inferior turbinate was a ridge 3 mm. high very close to the floor of the nose. The tear duct opened above it. The sphenoidal sinuses were large on both sides, separated by a septum. They ran far forward and were continuous with the posterior ethmoidal group. We believed these findings to be congenital rather than post operative or atrophic, because of the symmetry, the generally enlarged cavities and the irregularities of the middle turbinates, also an intact septum.

I.—In this group of thirty specimens only two badly bent septa were noted. One in particular stood out with interest. The septum executed a wide sweeping curve from above downward with the concavity to the left. It measured 5 mm. from the perpendicular at its summit. The left inferior turbinate was immensely hypertrophied, the other two of that side being of average size. There seemed to be ample room between the septum and the turbinates, because of the curvature of the former. A surprise awaited us on the right side. A thin probe was passed in at the anterior nares to emerge through posterior nares. This could be swept over the septum between the turbinates without meeting resistance. On removing the septum a nearly straight ridge at the level of the inferior meatus ran anteroposteriorly and crossed the vomer and triangular cartilage. The turbinates on this side were found to recede, together with the entire wall into the antrum, decreasing the content of that space very markedly, but as we saw this compensated for the bent septum by leaving a free space between the swell bodies and the septum. A further compensation was noted in that each air space on both sides was drained and ventilated by a large foramen.

J.—The frontal sinus was of usual size and with the usual drainage. The ethmoidal cells were of small type. Both sets drained from their floor. The antrum opened as usual. The sphenoidal sinuses were of the single cell type divided by a septum, the walls of which were 1 mm. thick. No opening to the sphenoethmoidal recess or to the posterior ethmoidal cells could be found, but a pin size orifice was found at the lower anterior angle into the nasopharynx. The condition was symmetrical.

K.—One of the group presented interesting fetal remains in the nature of two deep but narrow tube like structures ending blindly, whose openings were 2 mm. in diameter and situated in the nasopharynx in relation to the Eustachian tube. One of these cecal tube openings was situated vertically from the Eustachian orifice 13 mm. The other was 10 mm. from the Eustachian orifice anteriosuperiorly and about the same distance in front and below the first named malformation. These appeared to be lined by mucous membrane. They ended blindly in the tissues of the neck, but no external markings were evident as dimpling or weakened fascia. The conclusion, since the condition was symmetrical, was that the pouches were remains of the branchial clefts. One other specimen presented a similar condition, but only one fistula on each side.

L.—Another of the group presented an enlargement on the soft palate directed into the nasopharynx. It was 15 mm. in diameter and rose to an elevation of 7 mm. above its base, circumscribed, firmly adherent, and of a lymphoid like appearance. The question arose as to its being a new growth or a malformation. We cannot stain cadaveric tissue, because of the deterioration, and since lymphoid tissue in the pharynx in these specimens is always atrophic and not demonstrable we believed this to be a new growth and not an extra tonsil.

Summary.—The frontal sinus and both groups of ethmoidal cells drain from their inferior aspect, no exceptions to this being found. Two frontal sinuses were found to drain into the bulla ethmoidalis and this structure to open from its superior aspect. One frontal sinus drained into a sinus like middle turbinate, another one horizontally backwards into a hollow superior turbinate. One specimen had

three symmetrical sets of ethmoidal cells, another had a continuation of the anterior set down in the lateral wall of the nasal cavity to the anterior end of the inferior turbinate. Ethmoidal cells were found to be any shape, size or arrangement, one can possibly imagine, both symmetrical and asymmetrical, ranging from sinus to pin head sized cells. In approximately 60 per cent. of the cases the antrum of Highmore opened where it is supposed to. In the remainder it was found at various points, but always above the level of its floor. One specimen presented the opening above the middle turbinate 5 mm. in diameter, two others had multiple openings on both sides. In four the foramen was so situated in the floor of the hiatus and covered by a marked overhang of the uncinate ethmoidalis that any exudate from the remainder of Series No. 1 would precipitate inevitably into the antrum. The sphenoidal, as with the antrum, invariably drained poorly from a small foramen situated far above its floor. One unusual exception in which it drained from its inferior aspect into the nasopharynx. In ten per cent of this series the body of the sphenoid was composed of spongy bone with small air spaces on each side. In another 10 per cent. the body was a mere eggshell affair occupied by one large sinus. The remainder were septate with medium thick (2 to 4 mm.) bony walls surrounding the air spaces. Three pairs of turbinates which appeared hypertrophied proved to be hollow and sinus like. Only two badly deviated septa were encountered in this series; one of these showed marked compensatory changes. These few observations only illustrate what the rhinologist already knows regarding the complex situation he is to encounter in his specialty. They also illustrate to those of us who contemplate entering this field in the surgical world the necessity of being well prepared with knowledge amplified by experience before allowing nerve to overshadow judgment.

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THE PHYSIOLOGICAL TREATMENT OF FLAT FOOT.*

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I shall attempt to give you as terse and lucid an exposition of this subject as the short time allotted to this paper will allow, and shall not enter into the preparatory treatment of the graver and more advanced forms of flat foot, but shall confine myself to that class of cases which give discomfort and pain, with or without deformity and which comprise by far the great majority of cases.

The tremendous importance of this subject can hardly be estimated. Often, when man, woman or child complains of pain or a tired feeling in the feet or legs the lay or professional diagnosis of flat foot on "sunken arch" is made, and treatment by various devices in shoes and arch supports are instituted which invariably tend to aggravate existing conditions and actually produce a flat foot if it has not already existed. There is no denying the fact that patients do get relief for a time from almost any device which alters the position of the weight bearing foot, but therein lies the danger of the production of actual structural changes. The treatment is pernicious whether given by the specialist, the general practitioner, the shoemaker, or the shoe vender. The specialist carefully makes a cast of the foot and has a brace or arch support, and a shoe constructed upon it. No cast is ever made with the foot in proper position and bearing the weight of the body, and as the foot assumes an entirely different shape in action, a cast of a passive foot can be of no value. The general practitioner simply sends the patient to a shoemaker who works for specialists or to a shoe vender who advertises more or less extensively. They either use braces or build up the shoes with stiff counters or both and actually render any improvement impossible. Every brace and every stiffening of the shoe *prevents proper ankle motion and forces the foot into a position of eversion, and thus prohibits the use of the ankle joint in walking.*

No shoe that can be constructed is curative. The shoe that should be ordered is one that will permit absolute freedom of ankle and toe action and should fit closely in the arch and heel. The width of sole must be sufficient to permit the entire weight bearing foot to rest upon the sole. The broad part of the inner side of the sole must be extended sufficiently backward to permit the entire ball of the foot to rest upon it and the arch of the shoe must be short. Any support which may give temporary relief is vicious because it causes the weight to be borne upon the inner arch, which is unphysiological.

The anatomical and physiological studies of the foot have positively demonstrated that the inner arch was never intended to bear weight, hence the use of an arch support is unphysiological and fallacious.

The condition of flat foot is due to a faulty gait, occasioned by many varied causes, all of which tend to faulty muscular action. Hand-led children of the wealthier classes are more prone to this condition than the neglected and often shoeless children of the tenement. When the school age arrives they receive the pernicious instruction to toe out in "attention." The same thing is invariably taught in dancing schools. Later in life occupation plays an important part in the causation of flat foot. Those who are upon their feet the greater part of the day and whose activities are limited to a few steps at a time and then standing, as nurses, men on the floors of exchanges, barbers, waiters, shopkeepers, etc., are specially prone to acquire this condition, the main cause being that when they stand they do so with the feet everted, and the thighs and legs are used as pegs, permitting the arches to sink. After sprains of the ankle the timidity due to the pain caused by the proper use of the ankle joint causes eversion and consequent flat foot. The affected swagger of young swains to acquire a distinguished aristocratic gait in their promenades rarely fails to produce flat or weak feet. This is especially noticeable among Austrian army officers who appear to consider it a distinction to have flat feet, round shoulders and hollow chests. The lack of tonicity and the lack of proper and concerted action of the muscles of the hip, thigh, leg and foot are the real causative factors, not excluding the pose of the trunk. The education and strengthening of the muscles will bring about a proper gait, and a cure will be effected. The patient with a flat foot or flat feet has a swaying gait because the weight of the body is alternately swung from one

*Read at a meeting of the Medical Society of the County of New York, April 21, 1913.

leg used as a peg to the other, used in the same manner.

The power of balance upon one foot is partially or totally destroyed by improper use. This can be readily taught and restored. When the full weight of the body is carried upon the balancing foot the arch is considerably and visibly raised by muscular action. The elements of the proper gait are taught in conjunction with the acquired balance to eliminate the swaying of the body and to give a propulsive impulse to the step. The outward rotation of the thigh, and the pointing of the knee outward and upward must be overcome in order to insure the placing of the toes forward at each step. These exercises and their effect can be readily demonstrated, but it is hardly possible to give an intelligible description because the closest attention must be given to the most minute details of the various movements. The exercises must be demonstrated to be understood.

The results of this treatment are inevitable, positive, and very rapid, so much so that the majority of the distressed ones are relieved within one week, the arch is perceptibly raised within a month, and the formerly prominent maleolus is no longer in evidence.

This has been my universal experience for almost twenty years, during which time I have never used a support of any kind. The faults in each case must be carefully studied in order to rapidly and thoroughly correct the existing faulty gait and deformity or both, and the disability caused thereby.

The exercises are few in number, and can readily be executed by the patient in ten minutes, and should be persisted in night and morning. They should be done in bare or stockinged feet so that every part of the foot, including the toes, should have free play. Nothing can be more patent than the very rapid improvement and relief which is obtained by this method of treatment, and all that is desired is usually accomplished in from three to five visits.

An intelligent and unbiased consideration of the subject of this paper cannot fail to shatter the traditions of the hitherto accepted and almost universal unphysiological treatment of flat foot.

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NOTE ON THE INFLUENCE OF FOMITES IN THE TRANSMISSION OF DISEASE.

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The report of the Committee on Communicable Diseases, published in the *American Journal of Public Health* for April, contains a number of expressions of opinion in regard to measles and scarlet fever, which, in the interests of public health, should not be allowed to pass without comment. Both measles and scarlet fever, the committee state, are transmitted by means of the nasopharyngeal secretions and not by the scales of desquamation; in regard to measles, they add, "a child may infect others before the appearance of the rash or during the catarrhal stage." It is therefore surprising to read that it seems to make little difference whether the premises are disinfected or not, and that "it is fairly well admitted by all observers that measles is not transmitted by means of fomites."

Admitting as they do, the infectivity of the nasopharyngeal secretions, it surely follows that any dust on the floor of the sickroom with which these discharges may come in contact is liable to become infected; from this, again, it follows that not merely terminal disinfection, but daily systematic disinfection throughout the course of the disease is clearly indicated as a precaution which should never be omitted.

The view expressed in the report that scarlet fever "is transmitted by contact alone and that all apparent evidence to the contrary is based on lack of knowledge or a misapprehension of facts," will be accepted by few public health workers. The committee are certainly not justified in asserting that "the evidence in favor of transmission by fomites is growing less." Transmission by fomites may be doubted in certain quarters but there still exists a considerable volume of opinion in favor of the more rational view that while direct infection is probably the commoner method, indirect infection cannot safely be ignored: or as expressed in an editorial in the *Medical Council* for May, "the only perfectly safe fomites are the thoroughly disinfected ones."

In this connection it may be interesting to recall an incident related by Sir Ernest Shackleton on his return from his unsuccessful attempt to reach the pole. Some articles of clothing were taken from a chest which had not been opened from the start of the expedition three months before, and which consequently had no opportunity of becoming infected during the latter period. This clothing was distributed among six members of the party, four of whom within 36 hours developed septic sore throats. Having regard to the fact that the party had been living in the frozen regions for the greater part of the period mentioned—*i.e.* away from all other possible sources of infection—and were at the time in robust health, this incident in itself proves conclusively that infection can readily be transmitted by means of fomites. This term is defined in the committee's report of 1911 as "articles which retain the infection for a considerable period of time"; no reference is made to dust—the most active of all fomites—notwithstanding the fact that Prof. C. A. E. Winslow recently obtained 22,700 acid-forming streptococci per gram from an average of 19 samples of dust taken from New York schoolrooms, as described in the *American Journal of Public Health*, September, 1912.

The committee quote Dr. Morton, superintendent of a Scottish hospital in support of their contention that indirect infection may be ignored and that consequently disinfection is unnecessary. Against this British authority may be cited the following: English Local Government Board: "Proper ventilation of schoolrooms, avoidance of overcrowding, cleanliness, and, where needed, disinfection of schoolrooms and school appliances, do much to prevent the spread of infectious diseases." Scotch Local Government Board: "The local authority should also endeavor to see that disinfection is carried out in all places of public resort. They should arrange with the persons in charge of schools, churches, halls, theatres, markets, railway stations, etc., to have those places periodically disinfected by the officers of the local authority. The disinfection of public conveyances, such as railway carriages, tramcars, omnibuses, hackney carriages, etc., should also receive attention." Scotch Education Department:

"Periodic disinfection is advisable, even when no known infectious disease has been present." Urban District Councils Association: "That in the interests of public health it is desirable in the opinion of this Conference of Urban District Councils of England and Wales, that a regular system of disinfection be established in every school." Dr. Henry Kenwood, Chadwick Professor of Hygiene in the University of London: "These 'missed' early or mild cases spread much infection in school classrooms, and despite all the medical officers of health, the medical inspectors of schools, and the most skilled co-operation of school teachers may be able to achieve, this unrecognized infection will continue, in a reduced measure, to be a menace to the health of school children; and frequent disinfection is an easily practicable means of reducing its potency for evil." Dr. James Niven, Medical Officer of Health, Manchester: "If a number of cases of scarlet fever have appeared in any class or classes, the rooms occupied by these should be disinfected. This may also be usefully carried out in the case of diphtheria." Dr. A. Bostock Hill, Medical Officer of Health, Warwickshire: "I would again commend the absolute necessity of disinfection of dwellings and bedding being taken as a routine procedure." Dr. H. Scurfield, Medical Officer of Health, Sheffield: "For dealing with recognizable human infections, the great thing is to have a comprehensive scheme, and for this purpose, we want * * * home visiting of notified cases by visitors on the lookout for other cases among the 'contacts,' visiting of workplaces where necessary, and as a result of these visits, disinfection and removal of defects." Dr. H. W. Baillie, Medical Officer of Health, Belfast: "This [disinfection] is one of the most important precautions for the prevention of infectious diseases, and unless it is thoroughly carried out all other measures must fail."

On this question of the transmission of infection by fomites, the committee appear to have fallen into the common error of assuming that because the aerial convection theory has been abandoned, all infection must necessarily be of a direct nature: *in medio tutissimus ibis* is a safe maxim to apply in discussions of this nature. The committee express the opinion that "terminal room disinfection as at present practised by the average Board of Health, has little effect in controlling the spread of infection and that it appears, in so far as figures are available, that the percentage of return cases is practically the same in those communities where disinfection is compulsory as in those where it is not required." This view is probably correct, though not for the reason which influenced the committee in arriving at it. Room disinfection "as practised by the average Board of Health" generally consists of fumigation with formaldehyde, a method which recent investigations have shown to be absolutely unreliable.

The *British Medical Journal*, as far back as 1894, when referring to the disinfection of rooms by fumigation, said: "On the ground even of economy there is no comparison between this obsolete process and a disinfectant spray; and while cases of renewed house infection are familiar to almost every medical officer in this country, we have Dr. Dujardin-Beaumetz's authority for saying that where the disinfectant spray has been introduced they are practically unknown in France."

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THE PRESENT STATUS OF ESOPHAGOSCOPY IN CANCER OF THE ESOPHAGUS.*

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The visual inspection of the esophagus (esophagoscopy) as a diagnostic method for cancer and other lesions of the esophagus is by no means of recent date. Mikulicz's[1] extensive experimental work, which showed conclusively the feasibility of introducing straight tubes into the esophagus down to the cardia, dates back about thirty years. In spite of the fact that this method is not new, there is even today considerable discussion as to its value. The examination of the bladder with the cystoscope, which scarcely antedates esophagoscopy, is today well established as a diagnostic method. The position, however, of esophagoscopy is still a doubtful one. Some claim that the method is entirely satisfactory and that it is so simple that it can be applied to any esophageal case; others declare that esophagoscopy is too dangerous for general use and that the value of the diagnostic data obtained by the method is in no proportion to the serious discomforts and dangers to which the patient is subjected. It is my intention to give you this evening an impartial review of the entire question, and I hope to show you that the true solution of the situation can as usual be found between these two extremes. To be sure, the method may have its limitations, but its significance as a diagnostic aid has been in general too much underestimated.

Mikulicz was the first to show in a larger number of cases that it is possible by means of more or less marked hyperextension of the head, converting the right angle normally existing between the oral cavity and the esophagus into an approximate straight line, to introduce a straight tube into the esophagus as far as the cardia. This method, for the sake of brevity, we might call straight esophagoscopy. There is no question that in the hands of experienced examiners this method has been a most successful one in a large number of cases. It must be admitted, however, that straight esophagoscopy can not be called a popular method. The introduction of these straight tubes is in many cases associated with great discomfort to the patient. The hyperextension of the head is often an extremely uncomfortable position for the patient, especially if the spine is more or less rigid. When the teeth are all well preserved, the introduction is frequently very difficult. It is well known that the use of these tubes has been followed by a large proportion of perforations of the esophagus with fatal results. One of the reasons for this is that the tube can not be inserted in the longitudinal position of the esophagus even when the head is in extreme extension. There always exists a more or less obtuse angle between the tube and the esophagus and thus it is easily possible, especially when a certain amount of force is used, to crush the esophagus against the vertebral column and perforate the organ.

Because the introduction of these instruments, in spite of the fact that much has been accomplished with them, is not quite satisfactory, many attempts have been made in the last twenty to thirty years to substitute a new principle of construction for these straight tubes. The large number of attempts

*Read at a symposium on cancer of the esophagus at the Harlem Medical Society, March 5, 1913.

in this direction proves that the last word in this question has not yet been spoken. I mention here another plan that has been frequently used to simplify the introduction of the instrument, namely, the principle of jointed tubes. These tubes are constructed on a number of hinged joints, which after their introduction either snap into place automatically or by means of a wire are pulled straight. Notwithstanding the fact that it is not necessary to hyperextend the head, the introduction of this type of instrument is not very much easier than that of the straight tube.

So much for the straight and jointed tubes. A third principle of construction, which I have introduced into this field of work, is the rectangular telescopic one.[1] I shall not take up your time with the description of this new model. The scope of my subject is a much larger one than the mere detailed description of an instrument. I can not refrain, however, from calling attention to its advantages compared with other instruments. Its introduction is possible in the normal position of the head: it is so constructed that it actually passes in the longitudinal axis of the esophagus, and the introduction in the majority of cases is decidedly easier, less annoying, and less dangerous to the patient than that of the straight tube. Compared with the straight tube the disadvantages of the new instrument are that it brings into view only lesions below the cricoid cartilage, and that instrumentation through it is somewhat more difficult than through the straight tube.

To avoid accidents we must be very careful in the selection of our cases. Any instrumentation is contraindicated in cases where symptoms of threatened perforation into the lungs or mediastinum exist. Patients have been frequently brought to me suffering from severe cough and purulent expectoration in addition to their dysphagia. It is better to avoid passing an instrument in such cases. The danger of inspecting the esophagus in such advanced and obvious cases is out of all proportion to the advantage that might be gained by the inspection.

The cases with extensive mucous secretion, which are by no means rare, offer considerable difficulties in the examination. This secretion is frequently so abundant that it is impossible to obtain a clear picture. So much mucus accumulates at the bottom of the tube in the short space of time between the swathing or aspiration of the mucus and the withdrawal of the swab or aspirator that the visual field is obscured. Even the repeated use of atropine helps little in these cases.

It may be the opinion of some that esophagoscopy is a superfluous measure in the diagnosis of the diseases of the esophagus. I have no doubt that many believe that carcinoma of the esophagus can be readily diagnosed from the history of the case without visual inspection. I am willing to concede this when the patient suffers from marked dysphagia, but then the diagnosis is of little benefit to the patient for by that time the lesion is so far advanced that radical surgical intervention is out of the question. Cancer of the esophagus is a most insidious disease and the neoplasm may exist for some time before definite symptoms of stenosis appear. Early symptoms, such as burning pains in the chest, feeling of oppression, anorexia, etc., may exist for several months prior to the difficulty in swallowing. The only hope we have of radically curing esophageal cancer is when the disease is attacked surgically in its very incipiency. If we had no other reason for the use of an esophagoscope this would be sufficient, for we can make an early diagnosis of cancer of the esophagus only by direct inspection with perhaps the additional help of a subsequent probatory excision. Radiography, though of great value, frequently fails in these early cases.

From the standpoint of differential diagnosis esophagoscopy is frequently of greatest value. It is most important for instance in differentiating intrinsic growth of the esophagus from tumors of the mediastinum compressing that organ. I also believe that esophageal disease is sufficiently common to warrant an extension and popularization of esophagoscopy. The more expert we become in the technique of this method and the more extensively we apply it, the more frequently will we find and diagnose lesions of the esophagus.

I have avoided tiring you with either technical description of different models, their mode of introduction, or the pictures obtained by the inspection of the esophagus. All I wished to do this evening was to impress upon you the importance of esophagoscopy as a diagnostic aid. The direct inspection of the lesions of the esophagus is the most certain method for exact diagnosis. I believe that the possibility of early diagnosis in cancer of the esophagus is possible only if we continue working along these lines, and it is only by means of early diagnosis that we can hope for any successful operative results. Until a few years ago cancer of the thoracic esophagus was regarded as a hopeless malady. Only since Saubruch's inspired discovery has the picture changed. On all sides, in every land, attempts are being made to find a method for the radical cure of these unfortunates. To be sure the results up to date have not been very encouraging. It is to be hoped that further work in this field will eventually make it possible for the surgeon to resect a cancer of the lower esophagus as successfully as he can today excise a carcinoma of the cervical portion.

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1 West Eighty-fifth Street.

NEGATIVE ROENTGENOLOGICAL DIAGNOSIS IN CLINICALLY DIAGNOSED GASTRIC CARCINOMA.

By G. H. STOVER, M.D.,

DENVER, COLO.

So definite are the röntgenological evidences in gastroenterology, that at the present time no surgeon is justified in operating upon the stomach, except in emergency, unless he has availed himself of the information given by röntgenological examination, provided, of course, that the services of one skilled in this method are obtainable. Neither is the internist justified in giving medical treatment in chronic digestive disease unless he has completed his examination and either fortified or corrected his diagnosis by means of röntgenology.

To many this may seem to be an overstrong statement; by those, however, who are reasonably familiar with the diagnostic results of these examinations, the statement must be recognized as one that before long will be generally accepted.

There have been brought forth many remarkably ingenious aids to gastroenterological diagnosis; the diagnostic acumen of many practitioners of the specialty compels admiration; the röntgenological examination is but one of many means to be used

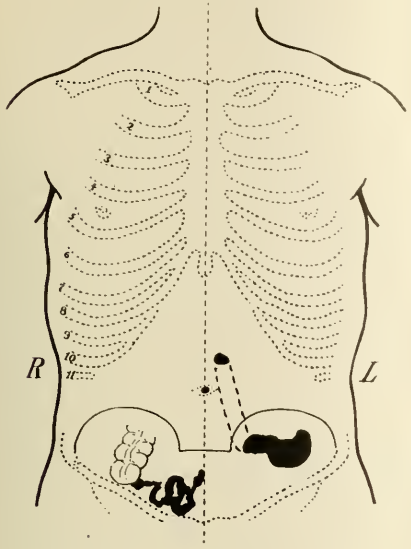

Fig. 1.—Six-hour residue; obstruction at the cecum.

in the search of these cases, but it is one of the most important of all. Like most of the special diagnostic methods, special equipment is required and

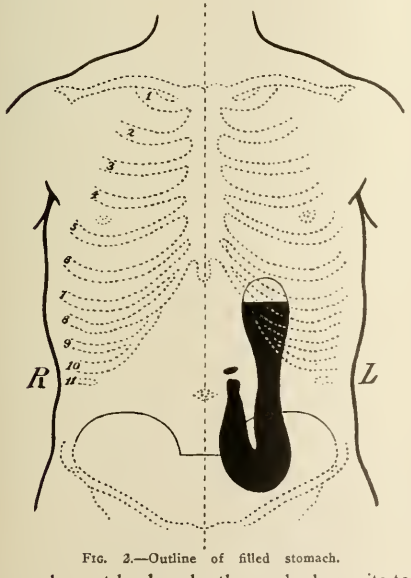

Fig. 2.—Outline of filled stomach.

the work must be done by those who know its technique. It is a method devoid of unpleasantness or danger to the patient. The case here cited is a striking illustration of my attitude on this subject:

Sister Mary S.—Aged 49. Stomach trouble for a long time. She presents emaciation, anorexia, constant pain, cachectic color of skin; very frequent vomiting; blood has been vomited; absence of HCl in stomach contents; an apparent tumor palpable. She was about to be operated upon, on account of the very plain clinical diagnosis of carcinoma of the stomach; the operation was looked upon as being a last-resort measure and the prognosis was gloomy. She was sent to me, not for diagnosis, but simply as an interesting case for study.

Röntgen examination April 30, 1912, Holtzknecht and Haudek method, five plates being made. There was a considerable six-hour residue, very low-sitting, to left of median line, full rounded outline, with a neck directed toward the right. (Fig. 1.) Further serial plates gave the following: Fig. 2. High-sitting pylorus; body of stomach greatly ptosed, the greater curvature being far below the crest of the ileum; peristaltic waves very shallow and infrequent; first meal arrested at ileocecal junction. The following written diagnosis was made: "No carcinoma; adhesions probably to (spleen and) gall bladder causing pyloric stenosis; there may possibly be a secondary (pressure) ulcer. Obstruction at ileocecal junction."

Operation: gastroenterostomy (Finney), appendectomy, and enteroenterostomy, was made by Dr. Leonard Freeman shortly thereafter, the findings completely confirming the röntgenological diagnosis. There was no sign of carcinoma; there were old, dense adhesions to an elongated gall-bladder, causing pyloric obstruction; there was a failure of rotation of the gut, the ileum and cecum having a common mesentenry, thus accounting for the stenosis at the ileocecal junction.

It is now almost a year since the operation, and the patient remains well.

216 Metropolitan Building.

The Clinical History and Morbid Anatomy of a Case of Generalized Scleroderma with Severe Muscular Atrophy.—J. Collier and S. A. Kinnier Wilson report a case of this condition. They state that generalized scleroderma with affection of the muscles is a rare disease and there have not been many pathological investigations of this interesting condition. The case they report is peculiar in that it differs from the group described as "dermatomyositis" in the absence of an acute onset, the absence of acute pain, muscular tenderness, and swelling of the muscles, and the absence of subsequent hardening and contracture in the affected muscles. It is further peculiar in that the distribution of the muscular affection was much more extensive than was the skin affection. In most of the reported cases of scleroderma with myosclerosis the muscular affection has been coextensive with the skin affection and this has given rise to the opinion that the myosclerosis resulted by an extension of the sclerotic process from the skin to the underlying muscles. Brocq, however, has shown that the muscle affection is apart from the skin affection and that the former may be much more extensive than the latter. He considers that an "infiltration" of the muscle comparable with the edema of the skin occurs at first and that this is followed by sclerosis, and his views are echoed by Dinkler, Rosbach, and Unna. The authors have been able to find one case only in the literature of the subject which is comparable to the case that they report and this was recorded by J. A. Nixon, but in Nixon's case the skin was adherent to the underlying tissues, and contractures were present though the muscles were intensely wasted. This case was not investigated pathologically.—*Proceedings of the Royal Society of Medicine.*

Medical Record.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., Editor.

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New York, July 12, 1913.

THE RELATIONSHIP OF THE THYROID GLAND TO ALIMENTARY TOXEMIA.

During the discussion on alimentary toxemia which, after going on for several weeks at special meetings of the Royal Society of Medicine, London, ended on May 7, several illuminative papers were read. It must be freely acknowledged, however, that much ignorance prevails among the medical profession as to the cause or causes of that condition, which is known, for lack of a more suitable name, as alimentary toxemia or intestinal autointoxication. At this meeting a brief but suggestive paper was read by Frederick Langmead on the relationship of the thyroid gland to alimentary toxemia. Langmead confesses that such relationship is as intangible as any, but says that at the same time it is as likely as any. Arguing that tetany is, in part, brought about by alimentary toxemia, the author thinks it a reasonable inference that the thyroid gland, among its antitoxic functions, includes that of combating poisons absorbed from the intestinal tract. In support of this view the experiences of Arbuthnot Lane, George Rowell, and H. W. Carson are quoted, all having stated that they have seen ileosigmoidostomy followed by shrinking of a goiter.

Again, rheumatoid arthritis is referred to as probably in many cases due to alimentary intoxication. In this condition overgrowth of the thyroid is apt to occur, and also tetany, a symptom of ineffective functioning of the thyroid gland, is found. Moreover, rheumatoid arthritis is occasionally distinctly benefited by the administration of thyroid extract. Perhaps the most conclusive inferences, however, are to be drawn from the researches of Major R. McCarrison, I. M. S., who has studied goiter as it occurs endemically in the valleys of Chitral and Gilgit in northern India. A summary of these researches was embodied in the Milroy Lectures, referred to editorially in the Medical Record, March 8, 1913. Among other things McCarrison demonstrated that thyroid enlargement can be produced experimentally in man within a few weeks by the administration of suspended matter separated by filtration from goiter-producing waters, and can be cured by taking thymol, one of the most powerful of gastrointestinal antiseptics. He showed that if the source of the toxin he avoided the gland will return to normal size, unless secondary changes have occurred. When no such changes have occurred McCarrison has caused goiters to dwindle or disappear by using vaccines prepared from different forms of organisms, a staphylococcus, a coliform bacillus, and a spore-bearing bacillus. Langmead has tried a similar mode of treatment with considerable success.

In summing up Langmead says that the thyroid is a gland, a useful function of which is to counteract intoxication. One of the sources of the intoxication is probably the bowel. If the intoxication be proportionately great for the gland, it undergoes hyperplasia and visible enlargement. If the amount of intoxication can be lessened the extra burden is removed and the gland diminishes. This has been done by the use of thymol and vaccines, especially those prepared from cultures of the coliform organisms obtained from the patient's own intestinal flora. The vaccines generally employed by Langmead were autogenous vaccines of colon bacilli.

It would seem that Langmead has gone some way in the direction of proving that goiter is partly due to intestinal toxemia. At any rate, the facts mentioned in his paper are so remarkably suggestive that they indicate the desirability of further research on the lines pointed out.

THE PSYCHOLOGY OF THE SUFFRAGETTE.

Many persons reading that the British suffragettes have burned, thrown bombs, broken windows, destroyed mail, and committed a hundred and one other seemingly wild acts, have concluded that they are insane or hysterical or, at any rate, not altogether responsible for their actions. However, if the matter be studied more closely it will be observed that judging from results there has been much method in their madness. The suffragette up to a certain point, went far towards gaining her ends, although she has now probably gone too far and has thereby created a strong prejudice against her cause.

In the *Lancet*, May 17, 1913, Claye Shaw endeavors to explain the psychology of the militant suffragist. He draws attention to the fact that few people know the importance of feeling in volitional acts, although it is really one of the essential elements of the mind. Both feeling and emotion are especially well-developed elements of the female mind. So is mono-ideism, or the concentration of consciousness on some subject carrying with it a strong emotional tone. Such in its extreme development, is ecstasy, which, although rare is not an insane condition. In an elaborate argument Wundt shows that personal character is the ultimate cause of volition, and that the connection between motive and volition is uncertain because of the existence of this personal factor, the manner of whose cooperation with external factors is unknown.

Shaw is, therefore, of the opinion that there are no symptoms of insanity or hysteria in the actions of the militant suffragists, but seems disposed to

think that egoism has had much to do with their dangerous and absurd antics. The extreme suffragette is probably as much governed by the love of notoriety as by any other influence. The leaders, or some of the leaders, appear as fond of notoriety as certain eminent politicians, and possibly the psychology of the prominent militant suffragists is near akin to that of several leading lights of the political world. Notoriety is the breath of their nostrils and not to be in the limelight is hard—almost impossible—to bear. Self-advertisement in these days is a habit that, once contracted, is as hard to break as opium taking. This motive impels the acts of perhaps most of the leaders of the suffragettes and of many of the rank and file, although with some personal character is the guiding force. Women, too, are more imitative than men and some of the actions of the militant suffragists are in imitation or in emulation of previous actions by sister militants. In any event, Shaw is undoubtedly right in stating that the explanation of the psychology of the militant suffragist is not to be found in insanity or hysteria.

The Destructiveness of Man.

Every day one sees in a lay journal and once a week in a medical journal, boasting as to the beneficial and wonderful results of advanced civilization. References are made, sometimes rightly and not infrequently wrongly, to the startling results which have come about from some scientific discovery, the reputed cure of some disease, or the wonderful effects of a new surgical procedure. In order, therefore, to keep us becomingly modest, it is as well to point out now and then that all the marvels of modern civilization are not altogether unmixed blessings and that in bygone times the inhabitants of the earth seemed to exist comfortably and healthily enough. Sir Ray Lankester in a second volume of "Science from an Easy Chair" brings home to us the fact that man in attempting to order the ways of the world so as best to suit his own convenience and pleasure, has not been entirely successful in accomplishing this object. He shows that man ever since his appearance on the earth has been an instrument of destruction. He has burned up forests, produced deserts, and polluted rivers. Indeed, according to Lankester, the most repulsive of the destructive results of human expansion is the poisoning of rivers and the consequent extinction in them of fish and of well-nigh every living thing save mould and bacteria. The sight of one of these death-stricken black filth gutters makes one shudder as the picture rises in one's mind of a world in which all the rivers and the waters of the seashore will be thus dedicated to acrid sterility and the meadows and hillsides will be drenched with nauseating chemical manures. Such a state of things is possibly in store for future generations of men. These words of the British scientist should awake an echo on this side of the Atlantic, for in no country of the world have the beauties of nature been so wantonly defaced as here and in no land have the rivers and lakes been so polluted to satisfy the greed of the individual. Of course, it is a mistaken policy, for such flagrant disregard for the health of the masses will result in disaster. However, this point of view is receiving tardy recognition, and in future typhoid fever, for instance, will not be spread far and wide by neglect to prevent the pollution of waters. There is a long road yet to travel ere the prevention of disease and the public health are regarded in their proper light. *Salus populi, suprema lex* is a saying that may be commended to the attention of politicians and others throughout the country.

Date of the Discovery of Alcohol.

The word alcohol originally bore no relationship to "aqua ardens" or "burning water," and to this confusion of terms is responsible all the uncertainty attendant on the date of the introduction of "spirit of wine" into history. The ancients knew of this inferentially and sought to extract it, but there has as yet been no evidence to show that these attempts met with success. We have, however, assurance that some of the ancient wines could ignite. Such wines must have been the native and unfortified—hence the mystery that some of them could respond to the flame test. We have heretofore been taught that wine was first distilled somewhere about the tenth century by Arabians, but know now that the latter must have obtained the process from Italians, and that no one knows how long the custom of distillation had been secretly pursued by the latter. In a recent number of the *Berliner klinische Wochenschrift* Paul Richter shows that a knowledge of "aqua ardens" may be traced as far back as the second century A.D. to one Hippolytus, a Christian Father, who possessed a recipe for the preparation of "burning water" entirely analogous to those handed about during the Middle Ages.

News of the Week.

Bender Laboratory.—The eighteenth anniversary of the founding of the Bender Hygienic Laboratory of Albany, N. Y., was celebrated on June 27 at a dinner given by the trustees of the institution. Among the speakers were Dr. Abraham Jacobi of New York and Drs. George Blumer of Yale University and Richard M. Pearce of the University of Pennsylvania, formerly directors of the laboratory. Dr. Harry S. Bernstein, the present director, also spoke on the activities of the institution.

Medical Class Gift.—The class of 1913 of the Tufts College Medical School has presented to Dean Charles F. Painter the nucleus of an endowment fund, each member of the class pledging himself to add a certain sum to the fund each year for as long as he shall live.

The New Laureate.—The post of poet laureate of England, left vacant by the death of Alfred Austin, is said to have been offered to Dr. Robert Bridges, who was for some years a practising physician in London. Dr. Bridges studied medicine at St. Bartholomew's, London, and was at one time a member of the staffs of the Children's and Great Northern Hospitals, but retired in 1882, when only forty years of age, to devote himself to literature.

Association for Cancer Research.—At the annual meeting of the American Association for Cancer Research on May 5, 1913, the following resolution, embodying the report of the Committee on Statistics and Public Education, was unanimously adopted: "It is the sentiment of the Association that: (1) The present instruction of medical students in the symptoms and early diagnosis of cancer is seriously deficient. (2) The medical curriculum

should include special lectures in the clinical departments dealing specifically with this subject. (3) The universities should provide competent lecturers in this subject to address the local medical societies. (4) The associate members of the Association should be urged to take up the question of the proper methods of approaching the public on the subject of cancer. (5) The activities of the Association should at present be confined chiefly to the education of the medical profession. (6) This resolution shall be sent to the deans of the medical schools and the secretaries of the State medical societies in the United States and published in the medical press."

Civil Service Examinations.—The New York State Civil Service Commission announces that examinations will be held on July 26, 1913, for the purpose of filling vacancies in the following positions in the State service:

Trained nurse in State institutions, open to men and women; salary, $420 to $600 and maintenance. Candidates must be graduates of a school registered by the State Education Department. This examination is intended to provide a list of eligibles for the positions of trained nurse, chief nurse, and hospital matron in State institutions, excepting the State hospitals for the insane.

Medical superintendent, Montgomery County Tuberculosis Hospital at Amsterdam, N. Y.; salary, $1,000 to $1,200 and maintenance. Candidates must be graduates of a reputable medical school, with at least six years' experience in actual practice of medicine, including one year of hospital work.

Dentist, resident in State institutions, open to men and women. Candidates must be graduates of a recognized dental school and eligible to enter the State licensing examination. A vacancy exists at the State Institution for Feeble Minded Children, Syracuse, at a salary of $50 per month and maintenance.

Applications for these examinations must be received in the office of the Commission on or before July 18, 1913, and blanks will be furnished before July 16 upon request to the State Civil Service Commission, Albany, N. Y.

School for Health Officers.—On November 1, 1913, a school for the training of health officers will be opened in Boston under the combined direction of Harvard University and the Massachusetts Institute of Technology. The administrative board will be composed of Prof. William T. Sedgwick of the Institute and Prof. M. J. Rosenau and Prof. George C. Whipple of the University. The new school is designed to meet the constantly increasing demand for properly trained health officers by supplying men who have a knowledge of both medicine and sanitary engineering and are fitted to occupy executive positions in this line.

Dr. Chao Choy, a Chinese doctor of the old school, who claimed to be 149 years of age, died on June 30 at Ellis Island, where he was being detained following his arrival from Cuba.

Ambulance Surgeon Injured.—In a collision between an automobile ambulance from the Lincoln Hospital, New York, and a heavy motor truck on July 3, the ambulance surgeon, Dr. Enrico Salvini, was thrown from his seat and sustained a fractured skull and internal injuries and both the driver and his assistant were severely hurt. The patient alone was not injured.

City Death Rate.—For the week ending June 28 there were reported in New York City 1,182 deaths, giving a death rate of 11.48 per thousand. The corresponding week of last year showed 1,233 deaths and a rate of 12.43 per thousand. For the first twenty-six weeks of the year the death rate was 15.04, while for the same period of 1912 it was 15.06. The infant mortality has shown a decrease also. During the week ending June 28, 1913, there occurred in the entire city 193 deaths of babies under one year of age, which was 29 less than in the same week of last year. In the Borough of Manhattan alone the number of infant deaths during the week fell from 124 in 1912 to 98 in 1913. For the first half of 1913 the infant death rate was 99.8 per thousand births, while for the same period last year it was 103.1, the difference representing a decrease of 75 deaths.

During the month of May, 1913, the infant deaths throughout the State numbered 1,826, which is a decrease of 183 as compared with the same month of 1912.

Hospital Cornerstone Laid.—On June 30 the cornerstone of the new Volunteer Hospital at Beekman and Water streets, New York, was laid with appropriate ceremonies conducted by the Volunteers of America. It was stated that since June, 1905, when the present building was opened, the total number of treatments has reached 382,283, and that the new building will largely increase the facilities.

The Friedmann Vaccine Again.—At a meeting held on July 1, the Board of Health of New York City adopted a resolution, of which the following is the substance, for the purpose of controlling the administration of the Friedmann vaccine for tuberculosis in this city: The injection or treatment of human beings within the City of New York with the F. F. Friedmann "vaccine" (which contains living bacterial organisms) is prohibited except under the following regulations and restrictions: No persons may be treated, according to the foregoing, who did not receive one or more treatments with the same kind of living bacterial organisms in New York City previous to May 30, 1913. These treatments may be administered only in the following-named hospitals: Bellevue Hospital, Mount Sinai Hospital, Montefiore Home, and Seton Hospital and any other that the Board of Health may approve. No person may be so treated until he or his parent or guardian, in case of a minor, has signed a declaration in duplicate stating that he desires these treatments continued. One copy of each of the above declarations must be filed with the Department of Health on or before the day such treatment is administered and the other copy retained by the physician who administers the treatment. This physician must also file in the Department of Health a statement of the dose given and the method of its administration and the hospital in which it was given in each case within forty-eight hours after treatment. The Berlin Medical Society has dismissed the subject of the vaccine as unworthy of discussion at its meetings. A committee of Pittsburgh physicians has studied the effects of the turtle bacillus in the human subject and declares that the treatment is not of sufficient value to warrant an abandonment of the approved methods now in use. A committee appointed by the Canadian Association for the Promotion of Tuberculosis has reported that nothing has been found in their investigation to justify any confidence in the alleged remedy. Finally Drs. Wolff-Eisner, Joachimsthal, and Kraus appointed by the New York *World* to

study the vaccine and report upon its value, have cabled from Berlin that they can obtain no material whereon to base an opinion.

Dr. G. G. Rambaud in a letter to the MEDICAL RECORD, after referring to Friedmann's policy of secrecy, says that he (Dr. Rambaud) has now concluded that "the medical profession is entitled to know that the vaccine is simply a homogeneous emulsion of live avirulent tubercle bacilli in plain sterile distilled water. The germ was isolated several years ago from a turtle and the culture has been maintained since that time by transplantation on artificial culture media, according to the usual procedure." What the vaccine is has been known from the beginning, although Friedmann to the last endeavored to make a mystery of it; but the claim that the bacilli are non-virulent and harmless has not been sustained either in Berlin or New York.

Knickerbocker Hospital.—The J. Hood Wright Memorial Hospital of New York recently obtained from the Supreme Court permission to change its name to the Knickerbocker Hospital. It is believed that the present name has led to the false impression that the hospital is an endowed institution, and that therefore the necessary public financial support has not been forthcoming. Since the death of Mr. Wright the population of the district served by the hospital has increased enormously and the need of funds for the work has become proportionately greater.

Rockefeller Institute.—The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following changes in the staff: Promoted from assistant to associate, Frederick B. La Forge, Ph.D. (chemistry), James B. Murphy, M.D. (pathology and bacteriology); Gustave M. Meyer, Sc.D. (chemistry), and Martha Woollstein, M.D. (pathology and bacteriology). Promoted from fellow to assistant, Michael Heidelberger, Ph.D. (chemistry). New appointments: Wade Hampton Brown, M.D., associate in pathology and bacteriology; Carroll G. Bull, M.D., assistant in pathology and bacteriology; Frederick Lamont Gates, M.D., fellow in physiology and pharmacology. The following appointments in other institutions of former members of the staff have also been announced: Dr. G. Canby Robinson, formerly associate in medicine, has been appointed associate professor of medicine at Washington University, St. Louis; Dr. Jacques J. Bronfenbrenner, formerly assistant in pathology and bacteriology, has been appointed director of the pathological laboratory of the Western Pennsylvania Hospital, Pittsburgh, and Dr. Richard Vanderhorst Lamar, formerly associate in pathology and bacteriology, has been appointed professor of pathology at the University of Georgia. Dr. Wilfred Hamilton Manwaring, formerly assistant in pathology and bacteriology in the Rockefeller Institute, has been appointed professor of bacteriology and immunity at Leland Stanford Junior University, San Francisco, Cal.

Gifts to Charities.—By the will of the late Margaret E. Mitchell of New York, the Roosevelt Hospital receives a bequest of $1,500 and the Presbyterian Hospital one of $1,000.

By the will of the late Miss Ellen Collins of New York $5,000 is bequeathed to Lebanon Hospital, Syria, and $1,000 to the Lincoln Hospital of this city.

By the will of the late Jane McKee Norris of Philadelphia the sum of $50,000 is bequeathed to the Presbyterian Hospital and $5,000 each to the Benevolent Fund of the Ladies' Aid Society of the Presbyterian Hospital and the Home of the Merciful Saviour for Crippled Children.

St. John's Guild receives $5,000 and the Association for the Aid of Crippled Children $10,000 by the will of the late Mr. Charles Kohler of New York.

Dr. Fenton B. Turck has removed from Chicago to New York, at 14 East 53d street. The research laboratory conducted by him, which has been endowed by two of his former patients, has also been transferred to this city, at 428 Lafayette street.

New York State Board of Medical Examiners.—Dr. Earl H. King of Saratoga Springs, and a graduate of the New York Eclectic Medical College of the year 1898, has been appointed Examiner in Pathology in place of Dr. Lee H. Smith who declined reappointment.

Medical Society Elections.—At the annual meeting and banquet of the BELKNAP COUNTY, N. H., Medical Society, held on June 16, the following officers were elected: *President,* Dr. Benjamin W. Baker, Laconia; *Vice-President,* Dr. L. B. Morrill, Centre Harbor; *Secretary-Treasurer,* Dr. Clifton S. Abbott, Laconia.

The TRI-COUNTY MEDICAL ASSOCIATION OF OHIO, comprising the counties of Seneca, Wood, and Hancock, at its annual meeting in Findlay on June 26, elected the following officers: *President,* Dr. Robert Lee, Republic; *Secretary,* Dr. E. H. Porter, Tiffin; *Treasurer,* Dr. George L. Hoege, Fostoria.

The LAKE COUNTY, ILL., MEDICAL SOCIETY held its annual meeting June 26 at Libertyville, when the following officers were elected: *President,* Dr. W. S. Bellows, Waukegan; *Vice-President,* Dr. E. V. Smith, Libertyville; *Secretary,* Dr. W. C. Bouton, Waukegan.

Obituary Notes.—Dr. FRANCIS LORING BANFIELD of Worcester, Mass., a graduate of the Medical School of Maine, Portland, in 1881, and a member of the American Medical Association and of the Massachusetts State and Worcester District Medical Societies, died at his home from angina pectoris, after a long illness on June 25, aged 69 years.

Dr. J. HOWARD LEVER of Flushing, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1869, and for fifteen years health officer of the town of Flushing, died suddenly at his home on June 25, aged 66 years.

Dr. GEORGE W. ROBINSON of Newark, N. J., a graduate of the New York University Medical College in 1863, a surgeon in the United States Army during the Civil War, and for many years a practising physician in New York City, died at his home on June 22, aged 70 years.

Dr. HERMAN L. ESSEX of Hope, Ind., a graduate of the Kentucky School of Medicine, Louisville, in 1902, died at his home from pulmonary tuberculosis, after a long illness, on June 19, aged 38 years.

Dr. J. E. JONES of De Soto, Mo., a graduate of Rush Medical College, Chicago, in 1871, and formerly coroner of Jefferson County, Mo., died at Williamburg, Ia., on June 19, aged 67 years.

Dr. C. GEORGE BULL of Alameda, Cal., a graduate of the Bellevue Hospital Medical College, New York in 1881, and a member of the American Medical Association and the California State and Alameda County Medical Societies, died suddenly while

on a fishing trip at Big Meadows, on June 20, aged 54 years.

Dr. H. E. Morrison of Medford, Ore., a graduate of the Vanderbilt University Medical Department, Nashville, in 1900, and a member of the Oregon State Medical Society, died in the Sacred Heart Hospital, Medford, following an operation for appendicitis on June 20, aged 37 years.

Dr. Herbert Skelton Carter, formerly of New York, a graduate of the College of Physicians and Surgeons, New York, in 1872, died suddenly at his home in Tarrytown, N. Y., from angina pectoris, on July 2, aged 64 years.

Dr. John G. Weber of New York, a graduate of the University of Jena, Germany in 1865, died at his home on July 2, aged 70 years.

Dr. Frank H. Boynton of New York, a graduate of the New York Homeopathic College in 1874, a member of the American Institute of Homeopathy and of the New York State Homeopathic Medical Society, and senior surgeon at the New York Ophthalmic Hospital, died suddenly at his summer home in Mount Washingon, Mass., aged 62 years.

Dr. Gustavus P. Head of Chicago, Ill., a graduate of Rush Medical College, Chicago, in 1884, a member of the American Medical Association, the Illinois State and Cook County Medical Societies, the American Academy of Ophthalmology and Oto-Laryngology and the Chicago Laryngological and Otological Society, professor of otology, laryngology, and rhinology in the Post-Graduate Medical School of Chicago, and general editor of *Practical Medicine,* died at his home on June 11, aged 51 years.

Dr. Ambrose H. Weeks of Portland, Me., a graduate of the Medical School of Maine, Portland, in 1893, a member of the Maine State and Cumberland County Medical Societies, and but recently appointed assistant professor of gastro-enterology in the Medical School, died at his home from typhoid fever, aged 43 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RESEARCH ON PATHOLOGY OF POLIOMYELITIS AND ALLIED AFFECTIONS—DISTRICT NURSING IN LONDON—THE LATE DR. DABBS—RESEARCH DEFENCE—INSURANCE—OBITUARY.

London, June 20, 1913.

Dr. R. G. Rows and Dr. David Orr have made careful researches respecting the mode of development of acute myelitis, and some of their experiments tend to explain the pathology of poliomyelitis and similar conditions. It was known that toxins could pass by the lymph streams of peripheral nerves into the central nervous system, and that degeneration of the myelin sheaths in their course might follow. But the experiments described at the late quarterly meeting of the Medico-Psychological Association by Drs. Row and Orr carry this a step further. Capsules containing organisms were sutured against the dura at the level of the lumbosacral enlargement, in some close to an intervertebral foramen. Positive results were obtained in all experiments, the irritation to the nervous and meningeal tissues being less marked from without inwards, the minimum being near the central canal of the cord. Plasma cells were found in quantity all along, cellular infiltration in veins only. The dura mater seemed to prevent the passage of organisms. Yet pathological changes were found in both the white and gray matter of the cord, its vessels being dilated, infiltrated with round cells, or thrombosed with acute degeneration in the nerve cells of the gray matter. The phenomena were so like those of acute poliomyelitis as to suggest this must be a lymphogenous infection. In all the experiments the authors found a collection of plasma cells and polyplasts at the proximal end of the posterior root ganglion, suggesting special reaction at that spot which might be a defence against further upward extension of toxins or organisms.

The president (Dr. Soutar) extolled the painstaking work of the authors which proved the view he had always maintained that this country was second to none in original research.

In reply to some questions, Dr. Rows said the pneumococcus could certainly pass through the placenta, for it had been found in the fetus. Their paper was meant to show that toxins reached the lymph stream from nerves adjacent to the affected nerves. In tabes there was no infiltrative reaction but a degenerative change. In acute specific febrile conditions, or, at any rate, in some of them, the toxins spread from the mucous membranes.

There was an informal conference at the Local Government Board on Saturday of ladies and gentlemen interested in district nursing in London. Most of the institutions connected with this work were represented, as may be said, also, of the medical profession, for Sir Wm. Church, Sir Pearce Gould, and Sir T. Barlow were among those who had accepted the invitation.

Mr. John Burns, as president of the Local Government Board, thanked them for their attendance, and explained that this conference was only one of a series of efforts of the Board to link up the different agencies, both public and private, which were working for the benefit of the poor. The best results in nursing, he thought, had not been obtained, and that partly owing to the want of cooperation. Recent legislation had greatly altered the problem. There had been a great extension of medical service in the way of inspection of school children and visiting them in their homes. The feeding of them was to some extent connected with district nursing. Dispensaries and sanatoria bore more or less on the matter. It was certain that some districts were well provided with nurses, while in others the poor were often obliged to do without the help they sadly needed. He feared that much philanthropy and devoted service were at present running to waste. As chief of the central public health authority he welcomed the conference of those who had done much already for the poorest citizens, and were now willing to consider what improvements were practicable. There were 400 women engaged in this nursing, at a cost, he was told, of only £30,000, and no money was giving better returns. Guardians had power to subscribe to nursing associations. Old age pensioners formed a new class who would be greatly benefited by the occasional visit of a district nurse.

It was only right that these old people should remain in their homes as long as they could, instead of going into infirmaries. Mr. Burns said there was no desire to interfere with the management of any society, but he thought there should be unification and coordination of aim in order to prevent waste of money, time, energy and devotion. He desired, if possible, a permanent committee as a

center for different agencies to coordinate their work. As an instance of good results of such procedure, he instanced the Notification of Births act, which brought the working class mother into touch with all kinds of philanthropic agencies, and had diminished infant mortality from 145 to 90 per 1,000 births. The quality of the nurses had greatly improved; it was not necessarily medical or surgical. Their great value was their sisterly or neighborly visits to the homes of the poor. They talked to them, not at them, and by kindly advice and persuasion brought about changes in their homes for the better.

After some discussion it was resolved that a committee of ten be formed to promote a scheme of closer cooperation between the bodies concerned in district nursing in London and to report to a later conference. A provisional committee of ten was thereupon appointed with power to add to their number.

The coroner's inquest on Dr. Dabbs, whose death I mentioned last week, revealed a touching story of his sufferings which drove him on many occasions to inhale chloroform, of which he evidently took an overdose. He left a sort of diary, written on the back of a number of envelopes. This points to a long series of attacks of angina. An early entry was that "this experience will perhaps explain what must happen some day—no one is to blame." Later, "pain down left arm agonizing; chloroform might relieve." Succeeding notes tell that pain was "quenched two half hours," "coming back," "spite of promise, shall take more chloroform, but am bound to stop it or it will stop me." Some days later he wrote, "avoided morphia hitherto, but the pain is too much, and chloroform like milk to me, but I do so want to live." Other notes refer confusedly to passing views and kind words to his friends. They seem to grow more confused and indistinct. What seems to be the last reads, "Can I keep awake till they find me—find me—find me—I must." The inquest terminated in a verdict of misadventure. The medical evidence had ascribed it to syncope, accelerated by chloroform.

The owner of premises let to one of the antivivisection societies for a month has presented the rent received (£30) to the Research Defence Society.

There is much talk about the promised bill for amending the insurance act, but scarcely any one seems to expect anything to be done to favor the profession. The work of those on the panel is described to me as impossible to do satisfactorily.

Dr. Julius Lawrence Hamilton, who died suddenly of cardiac failure in his sixty-ninth year, deserves the name of the fisherfolk's friend. He wrote much about fish and fisheries, including reports on the fish markets and fish supply of the metropolis to the London County Council. He was the originator of Fisherfolk's Naval and Cadet Reserves and of free technical schools for them. He seems to have had some engineering tastes too, for he invented automatic appliances for bread making and cooking, improved pyrometers and dry-air refrigerating cars.

Fleet-Surgeon F. R. M. Loftie died on June 14. He qualified L.R.C.P. 1871 and entered the Naval Medical Service the following year, from which he retired in 1896. He has since been a justice of the peace for Armagh and Down counties.

The death is reported of Dr. Wm. Hy. Langley, C.M.G., P.M.O. of Southern Nigeria, F.R.C.S.I. He was at one time assistant surgeon of the Richmond Hospital, Dublin, and in charge of the Ordnance Survey. He served in Borger and the Kontagoro expedition, being mentioned in dispatches and awarded medals and clasps, and later in the Kano and Sokoto operations. Subsequently he was deputy P.M.O. in Northern Nigeria, P.M.O. of the Gold Coast Colony, and in 1911 of Southern Nigeria.

News has arrived of the death of the professor of physiology (Dr. Nathaniel Hy. Alcock) at Montreal. He was a highly distinguished graduate of Trinity College, Dublin, M.D. 1896, and was assistant professor there 1898 to 1902. In 1904 he became lecturer on physiology at St. Mary's Hospital, London, and in 1911 went to McGill University, remaining there until his death at the age of 42. He wrote a number of papers on his subject and was co-joint author with Dr. Ellison of a manual of experimental physiology.

OUR CANADIAN LETTER.

(From Our Regular Correspondent.)

MEETING OF THE CANADIAN MEDICAL ASSOCIATION AT LONDON, ONTARIO.

The forty-sixth annual meeting of the Canadian Medical Association was held in the Masonic Temple, London, Ont., from June 24 to 27, 1913. London, although not so well provided with facilities for holding a medical meeting as the city of the same name on the other side of the Atlantic, yet in some respects is a more pleasant place for such a gathering than the smoky British metropolis. In the first instance the weather was sultry in the extreme and the Canadian London is beautifully shady and quiet and restful. This is not to say that it is not a busy center of industry, for it is, but it is not noisy and dusty like the old London and the road in which the Masonic Temple is situated is lined with fresh green lawns and protected from the rays of the sun by trees heavy with foliage.

The inhabitants of London, too, did their utmost to make the stay of the visitors enjoyable, and in this attempt succeeded excellently well. A repast was given by the Hydro-Electric Company at their lovely park, Springbank, and the hospital authorities provided a lunch at the fine Victoria Hospital. There were smokers, garden parties, and so on, and from the social standpoint everything passed off without a hitch.

From the medico-scientific standpoint the meeting was also a success. The papers were good in quality, and except, perhaps, that the program was somewhat too lengthy, the meeting from every point of view fulfilled expectations. In making this statement, however, certain reservations, or, at any rate, one reservation must be made, the attendance of members was disappointing. The registration was not up to the desired standard and, considering the attractions of London and that it is well served by railroads, this is to be wondered at.

Taking the proceedings in order, not exactly the order of the program, the address of the President, Dr. H. A. McCallum, may first be considered. The president delivered an aggressive critical address. He deplored the apparent lack of interest in the association exhibited by the mass of the Canadian medical profession and called attention to the necessity for funds to rescue its members from the

exploitation by and the commercial enterprise of certain drug houses. It was pointed out that the chemical industry of Germany was carefully organized and it was difficult to know what to accept and what to reject. Trained and scientific censors were needed to give advice and to assist in shaping legislation to prevent the sale of nostrums. Qualified praise was accorded to the work of the Carnegie Foundation, for while it was allowed that its report had been instrumental in the removal of many abuses, at the same time criticisms were leveled at its conclusions that the German methods of medical education and training were the best. Dr. McCallum is one of those who believes that the British methods are those best adapted to turn out good practical medical practitioners, which after all is the object to be aimed at. The annual examination by competent physicians of every adult was urged. Insurance companies had adopted a plan of examining their clients annually, and in the opinion of the speaker it would be of benefit to all concerned if this example were followed generally. Attention was drawn to the overburdened curriculum of the medical student, who was now asked to digest and assimilate an unconscionable variety of indigestible material. Dr. Lewellys Barker, Professor of Medicine at Johns Hopkins University, and himself a Canadian, delivered the address in medicine. It dealt with the nerve supply of the internal secretory organs and the smooth muscles, and was, of course, illuminative in a high degree. It was not a real address, but given in the manner of a lecture, the lecturer illustrating his points by means of pictures thrown on a screen. As the lights were turned out it was impossible to take notes. Later on the address will be published in the *Journal of the Canadian Medical Association*, so that medical readers will have the opportunity to peruse the presentation of an original subject sketched by a master hand.

The address in surgery was given by Dr. J. Alexander Hutchison of Montreal, and the subject discussed was the treatment of fracture. Dr. Hutchison reviewed exhaustively and ably the history of the treatment of fracture and referred in laudatory terms to the work of the commission appointed by the British Medical Association to investigate into and report on the matter. He also gave high praise to the part of a report published recently by American surgeons on the treatment of fracture. Perhaps the portion of the address which aroused the greatest amount of interest and certainly struck a sympathetic chord in the breasts of his listeners was that which dealt with the need of the status of medical men to be defined by law, with regard to suits for malpractice. He pointed out that since the introduction of radiography into medicine and surgery skiagraphs of fractures were made use of frequently in courts of law to the detriment of the profession. "No layman nor lawyer is competent to say whether or not the photograph is a true picture of conditions. They do not know the pathological aspect of the case. Experts alone should decide. We should be protected from such practice. The question of medical ethics is also involved, for I do not see how it is that any physician can sell radiographs to injure a brother physician." With all this, it is needless to state, those present were in hearty agreement.

Dr. T. S. Cullen of Johns Hopkins University, who, like Dr. Barker, is a Canadian, gave an address in gynecology. While the address was termed an address in gynecology, it was rather an earnest and eloquent plea for the adoption in Canada of the methods used in the United States for the purpose of familiarizing the general public and especially women with the early symptoms of cancer so that they may be able to take steps in time to eradicate the disease, or at least to stay its spread. Dr. Cullen gave a most instructive description of the means employed in America to reach the desirable end. He said in part that it was decided by those responsible for the inception and prosecution of the campaign to use the lay press and magazines as the medium for the dissemination of knowledge regarding the detection of the early symptoms of malignant disease. It was further decided that a medical writer would not be called upon to do the main part of this work, but a lay writer who had demonstrated the possession of peculiar gifts for presenting a subject medical or otherwise with clearness to the general public. It was Mr. Samuel Hopkins Adams who had been hired to do this work.

The speaker was insistent upon the point that women in particular should be influenced in this direction not only because women are more prone to malignant disease but because if women can be induced to recognize the necessity for having a diagnosis of cancer made early the men will readily follow suit. "The woman is the health guardian of the home."

It was pointed out that cancer of the stomach was a prevalent disease, but very difficult to diagnose in the early stages. An exploratory operation was the best method of arriving at a definite conclusion and in many cases already recorded this mode of procedure had been attended by satisfactory results.

The speaker emphasized the importance of the pathologist in making diagnoses and said that in the future every hospital would have a surgical pathologist on its staff. The necessity for having such a man was becoming more apparent every day. The great surgeon of the future would also be a great pathologist. The adoption of business methods in the operation of hospitals was discussed and highly commended, and in concluding his paper Dr. Cullen strongly urged the medical association of Canada to seriously consider the advisability of inaugurating a campaign against cancer on similar lines to that now being waged in the United States. It will probably be remembered by readers of the MEDICAL RECORD that it was stated in the Canadian letter some six weeks or so ago that a committee had been appointed in Canada to investigate the so-called Friedmann cure. After a long and patient investigation the committee handed in its report at the meeting of the Canadian Medical Association. Dr. J. George Adami, one of the committee, made some preliminary remarks, sketching the history of the events leading to the report, and then Dr. George Porter of Toronto read the following: "In order to allay public excitement and to afford to the medical profession and the people of Canada an authoritative statement regarding the value of Dr. Friedmann's treatment the Canadian Association for the Prevention of Tuberculosis nominated a committee of five members to study and report upon cases inoculated by Dr. Friedmann at Montreal, Ottawa, Toronto, and London. That committee has added to itself those physicians who have had under their observation the cases treated in these cities. The committee thus constituted begs to report that it has carefully studied the case histories of the patients inoculated by Dr. Friedmann. These num-

ber in all 116, namely: For Montreal, 10; for Ottawa, 10; for Toronto, 81; for London, 15. As a result of our observations from March 11 to the present time the following conclusions seem justifiable: 1. The inoculations have neither constantly nor frequently been followed by marked change in the clinical course of the disease. 2. The cure or progress towards recovery claimed by Dr. Friedmann for the treatment has neither constantly nor even frequently taken place in the time during which these cases have been under observation. 3. Thus, upon investigation, the committee finds that the results have been disappointing and that the claims made for his remedy by Dr. Friedmann have not been proved, and that nothing has been found to justify any confidence in the remedy. (Signed) Professor J. George Adami, Professor J. J. Mackenzie, Dr. A. H. Caulfield, Dr. G. S. Harding, Dr. John W. S. McCullough, Dr. W. Ross, Dr. J. H. Elliott, and Dr. George Porter.

Dr. Charles H. Hodgette, a member of the committee, being averse to making any report, did not sign. According to a London paper Dr. Hodgette held that Dr. Friedmann had so thoroughly discredited himself by failing to keep the promise he made that he would reveal the composition of the remedy to the members of the committee, that he thought it was useless to make public a report.

Thus Dr. Friedmann seems now to have failed as egregiously to prove his assertions in Canada as he has failed in the United States. At any rate, no one can say now, with any truth, that he has not had a fair field and honest treatment.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE INTERNATIONAL CONGRESS OF PHYSIOTHERAPY—NATURAL IMMUNITY AND NUTRITION—EXCESS OF CARBOHYDRATES DIMINISH RESISTANCE TO TUBERCULOSIS—ALCOHOL IN RELATION TO INFECTIOUS DISEASES—DIET IN SEVERE CASES OF DIABETES—DANGERS OF PROTEIN DISINTEGRATION AND OF ACIDOSIS—CARBOHYDRATE DIET IN SEVERE DIABETES—THE DIETETICS OF GOUT—COFFEE AND URIC ACID—DIET AND NEPHRITIS.

BERLIN, May 15, 1913.

THE Fourth International Congress of Physiotherapy was opened with great enthusiasm in the Reichstag March 26. The following day there were presented an extraordinary number of interesting papers of which only a few can be mentioned in this letter.

Czerny, of Berlin, spoke of the dependence of natural immunity upon nutrition. Being the successor of Heubner in the pediatric chair of the University of Berlin Czerny discussed this subject chiefly with reference to childhood. The well-fed infant at the breast has considerable resistance to disease; for example, it is not subject to thrush. The slightest disturbance of nutrition impairs immunity. Mother's milk rich in fat imparts to the infant a high degree of immunity, while a preponderating carbohydrate diet diminishes immunity. It is necessary to add to such diet fat in the form of cod-liver oil. Even in animal experiments it has been noted that an overwhelming carbohydrate diet diminishes the resistance to tuberculosis. The excess of water in the diet diminishes natural immunity. Children made puffy by excessive drinking of water have slight resistance to infection, chiefly tuberculosis, which in these children has a tendency to spread rapidly. A deficiency of lime in the diet causes an excess in the potassium and sodium salts, which favors edemas. The fat of cow's milk by the formation of calcium soaps can hinder the absorption of calcium. This may result in a deficiency in alkalies and the onset of acidosis which may seriously affect the organism. Such variations in the alkalinity favor the incidence of infectious processes.

The relation of alcohol to infectious diseases was discussed by Ewald, of Berlin. He came to the conclusion that in no infectious disease has the value of alcohol been proved. This substance lowers the natural resisting power of the organism and influences unfavorably the blood pressure and respiration. In most hospitals the consumption of alcohol has very properly been considerably diminished. In the hospital supervised by the speaker alcohol is given only on the physician's orders. During the past nine years the consumption of wine has diminished one-half. Alcohol is ordered only for two conditions: in severe cardiac collapse of toxic or mechanical origin or in diabetes mellitus, and as a means of producing euphoria in hopeless cases of disease.

The diet in severe cases of diabetes with special reference to acidosis was a subject presented by three speakers: von Noorden, of Vienna, Labbé of Paris, and Blum of Strassburg. Von Noorden differentiates among the severe cases of diabetes the benign from the malignant form. In the latter there is little of therapeutic value, but the patients do best on 75 to 120 grams of bread daily with the intercalation for short periods of "vegetable" days, "oatmeal" days, and fasting days. The benign cases are characterized by the fact that with careful treatment the course may be a favorable one. In these cases the estimation of carbohydrate tolerance may be more exactly made. It is possible to determine not only the quantity of carbohydrate that may be assimilated, but also whether this can be taken at once or in different portions, whether this tolerance varies on different days, and whether it is affected by rest or work. A rigid diet carried out for months is indicated even in those cases in which the patients at times lose flesh, but in these cases the exercise of good judgment and culinary skill may be helpful. Nephritis resulting from a strict diet is not to be feared. Of importance in these cases are occasional oatmeal days following days of a vegetable and egg diet. One vegetable day at least should follow the oatmeal days. In other cases it is not possible with an ample diet to make the patient permanently free of glycosuria. Such patients are to be kept on a rigid diet provided that a high degree of acetonuria does not result. In this instance there is often necessary a variation in the diet, in which a strict regimen of 50 to 80 grams of carbohydrate is interrupted by periods of carbohydrate-free days, and days of a fatty and vegetable diet. In the severe types of disease alcohol is of extraordinary value. In threatening coma the administration for a few days of from 150 to 200 grams of diluted cognac is of eminent value. Mineral-water cures have no influence on the diabetic process, and are of distinct danger in causing subsequent carelessness in carrying out the recognized measures with treatment.

Labbé went more deeply into the subject of the dangers of protein disintegration and of acidosis. The most active is a mixed diet of meat with lim-

itation of carbohydrates. This regimen counteracts the hyperglycemia and the protein decomposition but leads to acidosis. A milk diet, cereal cures, and legumes counteract the acidosis and increase the hyperglycemia. Bearing these principles in mind it is necessary to formulate for each case a definite diet chart.

Bing discussed more particularly the subject of carbohydrate diet in severe diabetes. The glycosuria need not be appreciably increased, but should rather be diminished with this diet. The same is true of the acidosis. In the oatmeal cure there should be given of this cereal to patients without any great tolerance from 100 to 150 grams. Wheat, oatmeal, and barley flour have the same effect in the diet; they may be given in the form of a gruel or of a soup. If the cereal diet is unsuccessful it should be repeated several times at intervals. If there is accompanying disease of the heart, kidneys, or liver, a short milk cure is of advantage.

The dietetics of gout was a subject presented by Minkowski of Breslau and Garrod of England. Minkowski pointed out that with the exclusion of foods that lead to the formation of uric acid the therapeutic problem was not entirely solved. The diet must be adapted to the needs of each case. In practice the following articles of food are to be regarded as purin-free: eggs, caviar, bread, potatoes, and rice. Legumes contain as much purin as meats. A liter of beer because of its content in yeast yields as much uric acid as 100 grams of meat. Tea and coffee do not produce uric acid.

Garrod prefers a diet poor in purin bodies to one absolutely devoid of these. A one-sided diet cannot be kept up long without harm to the organism. The practical results of the dietetic treatment of gout have been generally overestimated.

In the discussion of the dietetic management of nephritis, Jancvski of Kiev stated that his investigations have not shown any harm resulting from the use of dill, parsley, and pumpkin, but the effect of vegetables in general requires further study.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 26, 1913.

1. Popular Medical Education. M. W. Pearson.
2. Cerebral Complications in Pneumonia. C. F. Withington.
3. Do Results Justify the Use of Phylacogens? A Report of Forty Cases. C. R. Metcalf.
4. Bulbar Paralysis in Typhoid Fever. R. Fitz, F. G. Brigham and J. J. Minot.

2. Cerebral Complications of Pneumonia.—C. F. Withington points out that it is important to recognize clinically that in a few cases pneumonia may be complicated by cerebral symptoms, which may be, on the one hand, either those of grave organic lesion, of which the commonest is meningitis, or, on the other hand, of apparently toxic origin with little or no destruction of brain tissue. The enormous prognostic importance of this distinction is evident, but the difficulty in diagnosis is sometimes insuperable. Lumbar puncture is of importance in excluding meningitis, though it is not an unfailing criterion. Examination of the fundus may be useful. Cases of encephalitis are not always to be distinguished from the functional cases, and it is possible that many cases of hemorrhagic encephalitis may recover. The prognosis, if one be assured of the inorganic toxic character of the disease, would be on the whole favorable, though it is not as roseate as is indicated by some of the authorities. The occurrence of the cerebral symptoms in a young healthy person is more suggestive of a toxic functional character than would be the case in aged people. The toxemia is productive of diverse symptoms according as its incidence is upon the central or the peripheral nervous system.

4. Bulbar Paralysis in Typhoid Fever.—R. Fitz, F. G. Brigham, and J. J. Minot conclude that, on the whole, acute bulbar paralysis must be recognized as being a rare complication of typhoid fever. The symptoms usually suggest at the onset an acute ascending paralysis, developing either at the height of the disease or after convalescence has begun, and ending with evidence of bulbar involvement. Recovery may take place after a prolonged illness, or death may occur within a few hours. The varying pathological findings show that such a clinical picture may exist without evident tissue change in the nervous system or may be due to peripheral nerve lesions, or to a hemorrhagic encephalitis analogous to that found in other forms of infection, or finally to the presence of organisms in the brain, whether typhoid bacilli or secondary invaders, in sufficient numbers to cause the symptoms encountered.

New York Medical Journal.

June 28, 1913.

1. General Principles of the Surgical Treatment of Cancer. J. A. Hartwell.
2. The Treatment of Infected and Ununited Fracture of the Shaft of the Femur. R. C. Turck.
3. Surgical Luck. J. D. Whitall.
4. Preventive Medicine in Relation to Psychiatry. J. G. Fitzgerald.
5. Hallucinations in Paresis. F. M. Barnes, Jr.
6. Management and Treatment of Functional Nervous Conditions. L. G. Smart.
7. What Is Sleep? A. Barlow.
8. Eczema Decedens. W. P. Cunningham.
9. Myomas of the Stomach with Report of a Case Terminating finally by Hemorrhage. C. B. Farr and R. A. Glenn.
10. Teething in Children. J. S. Heller.

1. Surgical Treatment of Cancer.—By J. A. Hartwell. (See MEDICAL RECORD, April 26, 1913, page 773.)

2. Treatment of Infected and Ununited Fracture of the Shaft of the Femur.—R. C. Turck alludes to Royal Whitman's emphasis on the necessity of fixation in abduction in the treatment of fracture of the neck of the femur. In fracture of the upper third of the femur the necessity for fixation or traction in abduction is practically as great as in fracture of the neck, since the powerful fibers of the gluteus medius and gluteus minimis readily overcome the upper fibers of the abductors; the result being that the upper fragment is always in abduction and cannot be drawn down to a straight line by an amount of direct traction upon the lower limb that can be borne by the patient for a long period of time. Indeed, a moment's consideration of the musculature of the thigh should convince one that a direct pull downward on the lower limb scarcely affects the position of the upper fragment, since the bulk of the resistance to the direct pull is borne by the hamstring muscles, the abductor longus, and the rectus femoris, all having their origin from the pelvis, not from the upper fragment. That portion of the quadriceps attached to both upper and lower fragments is entirely insufficient to neutralize the powerful outward pull of the abductors. If the principle of fixation or traction in abduction were more generally followed one would have less of shortening and outward deformity following the treatment of femoral fracture by the closed method, and there would be fewer cases demanding operative correction with the possibility of adding infection to deformity.

3. Surgical Luck.—J. D. Whitall states that surgical luck, *per se*, does not exist. It may, however, be acquired by returning to the fundamentals, the simplest things being often the best. One should acquire the small details of asepsis, exercise common "horse sense," work with the same assistants, eliminate needless risk, prevent shock, and rule out unnecessary postoperative meddling, thereby giving the patient a *chance* to get well.

4. Preventive Medicine in Relation to Psychiatry.—

J. G. Fitzgerald believes that each hospital should concern itself with the mental health of its local community. Public lectures on methods to prevent the development of mental disease should be given. The factors underlying the development of insanity should be explained, if possible, to the friends and relatives of patients, in the hope that further cases may not arise from the same source. Explanation of the importance of syphilis, alcohol, and heredity taint in the production of insanity should be offered. The tide should be turned back as far as possible, in just the same manner as in the infectious diseases. Preventive medicine in psychiatry is as necessary as in any other field. The requisite effort can be made only by an intelligent utilization of the machinery already at our disposal.

9. **Myomas of the Stomach.**—C. B. Farr and R. A. Glenn note that benign neoplasms of the stomach, though rare, show a great variety of forms. Epithelial growths, adenomas, etc., are scantily represented, but connective tissue tumors of almost every type occur—lipomas, fibromas, myomas, and even chondromas and osteomas. Angiomas and cysts are found occasionally, but the latter in particular usually result from degenerative changes in myomas. Lymphomas occur in leucemia; lymphadenomas and endotheliomas are classed with malignant growths. Many of these benign tumors show a tendency to take the form of polyps—in some forms of chronic gastritis a general polypoid hypertrophy of the mucous membrane takes place, but the minute formations that result can hardly be classed as tumors from a practical standpoint. Myomas are the most important of the benign tumors with reference both to their frequency and to the symptoms to which they give rise. They are also important on account of their tendency to undergo sarcomatous degeneration.

Journal of the American Medical Association.

June 28, 1913.

1. The Auscultatory Determination of Early Pathological Changes in the Lungs. H. Sewall.
2. Osteomyelitis with Bone Transplantation. F. A. Hamilton.
3. New Operation for the Cure of Indirect Inguinal Hernia. U. C. Bates.
4. An Anaërobic Organism Associated with Acute Rhinitis. Ruth Tunnicliff.
5. An Analysis of 700 Cases of Labor. H. R. Coston.
6. Unusual Sensitiveness to Resorcin. D. W. Montgomery.
7. Diabetic Foods Offered for Sale in the United States. A Preliminary Report. J. P. Street.
8. The Absurdities and the Commercialism of the Proposed Ninth Decennial Revision of the United States Pharmacopeia. O. T. Osborne.
9. Bubonic Plague in Manila. A. P. Goff.
10. A New Tonsil-Snare. L. D. Green and A. S. Green.
11. New Tonsil Clamps. M. D. Stevenson.
12. Collection of Urine from Female Babies. W. A. Lurie.
13. New Scleral Trephine. H. S. Gradle.

1. **Auscultation of Early Pathological Changes in the Lungs.**—H. Sewall concludes that auscultation is capable of giving the earliest objective information of physical changes in the lungs. Such study demands analysis of the sound into those vibrations due to resonance of the viscera and those of the chest wall, and that the latter vibrations can be damped by pressure of an appropriate form of stethoscope. Vibrations transmitting the whisper are confined almost wholly to the viscera. The modifications of the voice sounds by which their quality becomes more amphoric and their duration prolonged into an echo are the striking characters which when accentuated by stethoscopic pressure indicate pathological changes in the viscera. The character and distribution of vocal signs over the normal chest are sufficiently constant so that a topographical study of the chest by auscultation may definitely suggest, through recognition of departures from the normal, the intensity and distribution of morbid changes within the lungs, even when these changes are too slight to appeal to the senses through any other method.

3. **New Operation for Indirect Inguinal Hernia.**—U. C. Bates describes a new method of operating for indirect inguinal hernia. An incision about two inches long is made parallel with Poupart's ligament, its end about an inch above the usual location of the internal ring. The fascia of the external oblique is divided in the line with its fibers. The arching fibers of the internal oblique are separated and retracted, and the fascia of the transversalis together with the peritoneum is opened. Any adhesions can be broken up by traction and blunt dissection with the finger. The internal ring, including the neck of the sac, is caught up with an Allison tissue-forceps or a hemostat and pulled up to the incision, where a purse-string suture of No. 3 plain catgut, on a needle, is passed around the circumference of the ring, engaging the fascia of the transversalis except at the junction of the inner and lower quadrant, where the vas deferens or round ligament is encountered; this is excluded externally from the ligature. Pulling up the internal ring and transversalis fascia restores them to the original position held before a hernia was produced. The purse string is drawn taut, tied, and the same suture is passed from within through the parietal peritoneum and through some of the fibers of the internal oblique muscle. It is then passed from without inward through the muscle and peritoneum of the opposite side of the incision, where it is tied to the free end of the purse string. The next stitch is then passed through the peritoneum, then through what is now the superior portion of the ring. When this is drawn tight it faces and holds the ring firmly against the parietal peritoneum. The remainder of the peritoneal incision is closed by a continuous stitch with the same suture. The remainder of the wound is then closed in the usual manner. The operation has been performed in six cases and in no case has there been a recurrence. The advantages claimed are its simplicity, the smaller incision required, the restoring the inguinal canal in an oblique direction by drawing the internal ring to its normal position and so directing the intraabdominal pressure as to render the recurrence of rupture impossible. There is also a better chance for making resection, if necessary, in case of strangulation, with little or no shock or pain following the operation.

4. **An Anaërobic Organism in Acute Rhinitis.**—Ruth Tunnicliff has isolated an organism found by anaërobic methods in all of the cases of acute rhinitis she has studied. It occurs in the early stages in the mucoid discharge, often in large numbers and generally unassociated with other germs. It gradually disappears as the discharge becomes purulent. It is also found sometimes in large numbers in the sputum and mucus of the throat of an accompanying pharyngitis, bronchitis, or tonsilitis. It was not found in thirteen normal persons and was found in small numbers in only one normal person. Carbol-gentian-violet and carbol-fuchsin are the best stains. It is Gram-negative and unstained by methylene blue, thionin, or the Giemsa stain. It can be seen by dark-field illumination. The organisms seemed generally immobile, perhaps on account of the mucus. They vary from 5 to 8 microns in length and from ⅛ to ½ a micron in width, the pointed or slightly rounded ends are usually slightly curved; sometimes a ball-shaped enlargement is seen at one end, or a ring. The organism is a strict anaërobe and grows slowly, at least at first. The author has isolated it in pure culture on alkaline goat-blood agar four times, and it grows also on the dextrose agar and ascites agar; in dextrose broth there is a flocculent growth. Some cultures have a slight odor. The organism looks like a spirochete but culturally it acts more like a bacillus, and which it is further investigations will have to show. The author is not prepared at this time to make any statement in regard to its pathogenic effects or its immunity reactions. Whether or not it is the cause of acute coryza will have to be determined by further investigation, but the author's observations showed it present constantly during the early stages in the eighteen cases examined.

6. **Sensitiveness to Resorcin.**—D. W. Montgomery states that resorcin when applied in full strength on the skin acts as a highly irritant caustic. It is a powerful antiseptic, and when applied as a strong lotion or ointment, causes an active desquamation of the upper epithelial layers. It therefore is an efficient cutaneous antiseptic, both because it kills the bacteria, and because it produces an exfoliation of the bed in which they lie. Besides being a caustic, an irritant, and an antiseptic it has an action on epithelium common to it and the tars and coal tars, so that when properly diluted it lessens cutaneous irritation, and favors the return of epithelial cells to normal physiologic function. When applied in strong dosage over large surfaces, especially if these surfaces are denuded, it may be absorbed and cause dangerous symptoms of internal poisoning, or even coma and death.

The Lancet.

June 21, 1913.

1. The Place of Climatology in Medicine. W. Gordon.
2. Tetragenus Septicemia. Sir John Byers and T. Houston.
3. The Intraabdominal Pressure in Pregnancy. R. H. Paramore.
4. A New Spirocheta Found in Human Blood. Preliminary Communication. Helen Chambers.
5. A Case of Spinal Tumor with Scoliosis; Operation. W. Harris and A. S. Blundell Bankart.
6. Some Results of Further Experience with Solid Carbon Dioxide. R. Morton.
7. The Ingestion of Bacteria by the Subepithelial Lymphatic Glands in Health. K. H. Digby.
8. A Criticism of the Report of the Departmental Committee on Sight Tests. F. W. Edridge-Green.

2. **Tetragenus Septicemia.**—Sir John Byers and T. Houston report the case of a boy aged 11 years who had been suffering for years from a condition that is described as a general infection or septicemia due to the *Micrococcus tetragenus,* producing symptoms in the main referable to the respiratory tract, such as catarrh, bronchitis, bronchopneumonia, throat, nasal, and ear trouble, but also producing at various times abscesses, diarrhea, and acute elevations of temperature. It was interesting to note that after the first four or five doses of an autogenous vaccine the reaction was accompanied by increased cough, slight diarrhea, and transient earache. After his temperature had become normal the boy remained very deaf, especially in one ear, and as the discharge contained large numbers of a diphtheroid bacillus it was thought wise to combine with the *Micrococcus tetragenus* vaccine small doses of a vaccine made from this diphtheroid bacillus. This appeared to have a good effect, as his deafness and the discharge from his ears quite disappeared.

4. **A New Spirocheta Found in Human Blood.**—Helen Chambers describes what she regards as a new microorganism which she has detected in normal human blood. This is collected in a small Wright's tube and is allowed to clot at 37° C. for 20 minutes. The serum which has separated is then pipetted off. If a drop of this serum is placed on a slide and covered with a cover glass ⅞ in. square and examined by dark-ground illumination, in most cases one or two organisms can be found on the slide. The remainder of the clot is returned to the incubator, and after 1½ hours the serum which has separated owing to further shrinkage of the clot is examined by dark-ground illumination. The organisms escape into the serum chiefly during the last stage of contraction of the clot, and by adopting the above procedure they are concentrated in a small volume of the serum. As a rule they are easily seen. The number found varies considerably. In the majority of specimens prepared in this way four or eight can be found on each slide; in other cases the organisms are very numerous, ten and more being found in each field of the microscope. Some of the specimens of blood containing the largest numbers have been obtained from apparently healthy people. The number of organisms found fluctuates at different times. In three cases examined six weeks ago the blood contained the organism in large numbers; on many subsequent examinations comparatively few were found. They have now, however, increased and are almost as numerous as when the blood was first examined. The organism is actively motile and is very variable both in length and thickness. The majority measure from 4μ to 30μ in length; very long forms are, however, met with. Some are extremely thin, like the *Treponema pallidum,* others are almost as thick as typhoid bacilli."

5. **Spinal Tumor with Scoliosis.**—W. Harris and A. S. Blundell Bankart report a case of psammoma of the middorsal region of the spinal cord in a woman aged 57 years. This case is interesting, first, on account of the scoliosis which is a well-recognized accompaniment of some spinal cord diseases, but which, so far as the authors can discover, has never before been described in association with a spinal tumor. The presence of spinal deformity in this case had led to a diagnosis of arthritic disease of the spine, which was supposed to be causing pressure on the cord, and when seen by the authors the patient had already been refused operation on that account. But even if spondylitis deformans ever produces compression paraplegia, this case was quite unlike an instance of that disease, for the spinal curve was a typical scoliotic curve, as stiff as such cases often are, but without any of the rigidity of spondylitis. On the other hand, the neurological course and symptoms pointed clearly to pressure of some kind upon the spinal cord, so the patient was sent into the hospital for operation. Secondly, the situation of the tumor corresponded exactly to the upper limit of demonstrable anesthesia, which is unusual. The rule is to locate the tumor in the dorsal region one or two segments higher, so as to allow for the overlapping of the sensory areas immediately above. This led to exposure of the cord above the tumor. A much more common mistake is (or used to be) to go too low. Lastly, the very slow rate of growth is worth notice. The first symptoms appeared more than seven years ago, and the legs became affected about a year after the spinal deformity was noticed. But six more years elapsed before the patient was completely disabled. This should indicate a good prognosis.

7. **Ingestion of Bacteria by the Subepithelial Lymphatic Glands.**—K. H. Digby demonstrated in healthy rabbits the constant presence of immense numbers of bacilli in the lymph structures of the appendix and Peyer's patches, and smaller numbers of cocci in the tonsils. Most of the bacteria are intracellular. Solitary bacteria and cells loaded with bacteria can also be seen in their passage through the epithelium, so that, contrary to common belief, the lymph cells are both motile and phagocytic. The universal presence of bacteria in these healthy tissues necessitates caution in examining pathological material. Bacilli found in Peyer's patches in typhoid fever are probably typhoid bacilli, but the presence of bacilli in Peyer's patches does not prove typhoid or other intestinal infection as has sometimes been assumed. Notwithstanding this difficulty a careful pathological search of the tonsils and other subepithelial lmyphatic glands might cast some light on the virus in scarlet fever and acute anterior poliomyelitis. The author advances the view that the subepithelial lymphatic glands protect the body against bacterial infection by processes of autovaccination. They also would seem to cast some light on the problem of the healthy human carrier in infectious diseases. Ledingham and Arkwright in their recent valuable publication have shown the frequent occurrence of healthy human carriers in various epidemics. In epidemic cerebrospinal meningitis the carriers may be ten times as numerous as the cases of disease. The carriers in most infectious diseases are more or less immune. Sometimes they have had a slight inflammation of the circumpharyngeal ring of the lymphoid tissue, and they usually show hyperplasia of the tonsils and adenoids. Generally the specific organism is most easily cultivated

from the tonsils of the carrier, and removal of tonsils and adenoids may occasionally be followed by its disappearance. At other times the operation is followed sooner or later by an acute attack of the disease for the first time (diphtheria, rheumatic fever, and acute anterior poliomyelitis).

British Medical Journal.

June 21, 1913.

1. Spinal Anesthesia by Tropacocaine. With a Review of 1,295 Cases. J. T. J. Morrison.
2. The Lacrymal Gland in Surgical Anesthesia. L. T. Rutherford.
3. Sleeping Sickness and Big Game: A Proposed Experiment. W. Yorke.
4. Preliminary Report on an Outbreak of Febrile Disease in an Industrial School. K. M. Duncan.
5. Notes of a Case of "Nodular Leucemia." R. Reid, W. Calwell and W. W. D. Thomson.
6. A Case Illustrating Great Tenacity of Life. A. Turnbull.
7. The Influence of Marienbad Sulpbate Water on Albuminuria. M. Porges.

1. Spinal Anesthesia by Tropacocaine.—J. T. J. Morrison sums up the position of spinal anesthesia as follows: It is a procedure of proved value and simple technique. Its province is subdiaphragmatic operations. There is no prohibitive age limit. By blocking afferent paths it prevents surgical shock. It induces muscular relaxation, quiet breathing, and abdominal stillness, and thus conduces to rapidity and safety in abdominal surgery. Used with discretion in conditions of extreme asthenia and instability of the medullary centers due to toxemia, exhausting disease, traumatic shock, and old age, it is superior to ether and chloroform. It promotes the patient's comfort and nutrition in the post-operative stage. Its scope is amplified with the aid of scopolamine and morphine. By lowering blood pressure it tends to faintness and respiratory depression. The patient should therefore be carefully watched after injection, and treated as required by means of diffusible stimulants, pituitrin, saline infusion, and artificial respiration. In a small percentage of cases it is inadequate, and must be supplemented by general anesthesia. It increases the possibilities of surgery by facilitating the work of a surgeon in the absence of a competent anesthetist or assistant. The procedure should be taught in medical schools.

2. The Lacrymal Gland in Surgical Anesthesia.—L. T. Rutherford finds that in the first stage of anesthesia the internal canthi may be wet or dry, that in the second stage the lacrymal glands are always active, that in the third stage the lacrymal secretion ceases at the same time as the earliest reflexes disappear, and that this cessation usually precedes the abolition of the corneal reflex by a very short interval. The slight variability in the time of cessation of the lacrymal secretion is of no practical importance, for in no case do the glands continue to secrete *after* the abolition of the normal corneal reflex (the term "normal corneal reflex" is used here purposely to distinguish it from the "diminished corneal reflex" observed after a time in an eye which has been continuously or carelessly tested). The moment at which the lacrymal secretion is first observed, after its cessation under the influence of chloroform or ether, is of the utmost importance, and provides a reliable indication of the exact moment at which to continue the administration, if a satisfactory surgical anesthesia is to be prolonged. The time of the cessation of the lacrymal secretion during the induction period corresponds almost exactly with the time of its reappearance during the recovery period, and it is on this account that the "canthal" tear is so valuable, for it indicates when present that the corneal reflex is (or should be) obtainable, and that the amount of the anesthetic is as much as is compatible with successful anesthesia. If, then, one administers the anesthetic in quantities just calculated to abolish the lacrymal secretion and then wait, if at any time in doubt, until the secretion again appears, one may feel confident that one is well on the safe side of the border line between deep surgical anesthesia and an overdose.

3. Sleeping Sickness and Big Game.—W. Yorke states that in view of the impossibility of exterminating the tsetse fly and of the equal impossibility of removing the population from the fly belts, one must consider the only way that remains of combating sleeping sickness, namely, the advisability of attempting to destroy the reservoir of the virus. It is obvious that the mere isolation of infected human beings is futile in view of the fact that the main reservoir of the virus is the blood of the big game. Since the beginning of last year, when Kinghorn and the author announced the fact that a large proportion of the wild fauna of Africa harbored the trypanosomes of man and domestic stock, a considerable polemic has arisen over the question of the advisability of attempting to exterminate the big game in the vicinity of human habitations in fly areas. The author believes that a decisive scientific experiment should be undertaken with a view to ascertaining the effects of completely eradicating the game in a limited area. As some years must elapse before the results of such an experiment would be known, he suggests that in the meantime the restrictions relating to the killing of game by Europeans and natives should be removed in those portions of the fly areas which are in the vicinity of human habitations.

6. A Case Illustrating Great Tenacity of Life.—A. Turnbull notes that the case of the French Zouave who lived for some time after practically the whole of the head except the brain had been removed by a cannon ball is one of the classical instances of tenacity to life. Weinlechner in 1881 reported that a man had lived and been conscious for twelve hours after a fall and injuries which included fracture of the cervical spine, with laceration of the cord, paralysis (motor and sensory) of all the limbs, rupture of the sternum, bleeding into pericardial and abdominal cavities, and laceration of the spleen. Erichsen reported the case of a man who, after leaping a distance of 60 ft. down a hoist, lived for ten days, although suffering from fracture of seven ribs, perforation of the apex of the right lung, tearing of the pericardium, complete fracture of the first lumbar vertebra, and pulverization of the right os calcis. D'Arcy Power read a paper in 1890, indicating that considerable laceration can take place in the spleen and in the kidney with very slight symptoms, unless a large blood vessel is implicated. If urgent hemorrhage does not immediately follow injury, the most extreme internal injuries can often be undergone with a minimum manifestation of shock. The following case that came under the author's observation is cited to bear this statement out, and emphatically illustrates the powers of tenacity of life in the human frame: The case was that of a dock laborer aged 45 years who was admitted to the hospital nine hours after he had fallen down the hold of a ship. This man walked half a mile after receiving a fractured skull, extensive fractures of the ribs, pulping of the spleen, pulping of the kidney, and lesions in the vicinity of the solar plexus. A bowlful of blood had probably been passed by the urethra from the ruptured kidney. The patient died one hour after admission to the hospital.

Berliner klinische Wochenschrift.

June 16, 1913.

Digestion of Lecithin in Diseases of the Gastroenteric Tract.—Ehrmann and Kruspe state that while the lecithins of our aliment are present in abundance in both the animal and vegetable kingdoms, notably in egg yolk, milk and butter, cereals, meat, etc., almost nothing is known of their disintegration within the body. As lecithins barely reach the colon it is evident that they are split up and absorbed in the small intestine. According to those who have

studied the subject the pancreatic enzymes split up lecithins into its components, especially glycerophosphoric acid, cholin, and fatty acids, which are then absorbed. When the pancreatic duct is ligated large amounts of unchanged lecithin appear in the feces. Hence this fact may be utilized clinically—lecithin in the feces may mean obstruction of the pancreatic duct. The authors however, have recently found that an obstructed bile duct may likewise be associated with lecithin in the feces, the degree being even greater than in obstructed pancreatic duct. Lecithin is therefore poorly utilized in obstructive jaundice. A study of the fate of lecithin in health shows that most of it passes unchanged through the gastroenteric wall. Only when diseased conditions like those narrated cause the lecithin along with the fats to lie unabsorbed in the intestine do we see the secondary splitting up of this substance or the appearance of it unchanged in the feces.

How to Determine Whether Children Are Normal.—Cimbal states that conscious inhibition of impulses, etc., occur earlier in the healthy subject in comparison with psychopaths and mild debiles, for the self-evident reason that this inhibition represents the acme of cerebral development. This want of the quality under consideration is common alike to the imbecile and to certain intellectually normal children. Intellectual tests are regarded by the author as no longer a sufficient test for a normal mind, and in any case they are scientific in character, rather than practical. The author prefers to test the imagination of the child. Apparent obstinacy is thereby found at times to be due to intellectual torpor. A purely intellectual test for imbeciles, like the memory, may show that the latter is suspiciously good. Some of the newer psychological tests for the workings of the mind—for the rapidity of impressions and degree of attentiveness—work out as well in psychopaths and debiles (and sometimes in out-and-out imbeciles), as in children of normal minds. In regard to motor tests a normal child under three years cannot control his muscular activities. After that period the normal subject begins to acquire this control, but for the psychopath years may be necessitated, and indeed a lifetime may be insufficient. Sweating and tremor on undressing, redness of the skin after slight irritation. Notably increased sensitiveness of the genitals suggest masturbation. Spasmophilia is regarded by some as indicating a psychopathic constitution. We never expect to see any coherent disease picture in these children, save in dementia precox and epilepsy. A general word like "debility" must be employed to designate the kaleidoscopic pictures which we encounter. Having decided whether a child is a "debile" the next and more difficult question to answer concerns the amount of restraint indicated. Cases must be individualized; some do best at home. Ties and bad habits may disappear under isolation.

Deutsche medizinische Wochenschrift.

June 12, 1913.

Tubercle Bacilli in the Circulating Blood.—This number of the Wochenschrift contains an entire series of articles bordering on this subject. Bacmeister asks if pulmonary phthisis be of aerogenous or hematogenous origin, and answers that to the best of his belief it occurs in both ways, and that it is simply a question of whether bacilli reach the bronchioles and peribronchial tissues from the air or the blood. The initial lesion is the same in character and rapidly proceeds to infect the rest of the system. He has reached his conclusion through animal as well as clinical investigation. The author is one of those who have studied extensively the presence of tubercle bacilli in the circulating blood. Göbel has repeated the processes used by others and shows that what was found, whatever it was, could not have been tubercle bacilli. Not only did all inoculation tests fail, but certain other tests were negative. Gobel believes that the bacillus requires far more study, for it certainly represents something unknown. Brandes and Man writing at length on the occurrence of bacilli in the blood in surgical tuberculosis, conclude that in 45 per cent. of the cases this find is positive, but that it has neither diagnostic nor prognostic significance. The presence of these bacilli in the blood of tuberculous subjects is in harmony with our theoretic requirements. All tuberculous subjects of whatever type should receive years of sanitarium treatment. Further, Casper writing on the diagnosis of bilateral tuberculous kidney, mentions his opinion that circulating bacilli may pass through a kidney without infecting it.

Aneurysm of Abdominal Aorta Ruptures Through a Gastric Ulcer.—Zypkin describes a curiosity of medicine. An aneurysm of the aorta is not itself of common incidence and this case is probably unique. It is not entirely, perhaps, a very rare coincidence, because both the aneurysm and ulcer may have had some common causal factor —syphilis for example. It might be suggested that the aneurysm by its compression wore down the wall of the stomach, but the evidence of an old gastric ulcer was very decided. At the very spot at which the aorta was to impinge on the stomach an ulcerous process had been for some time at work, and the wall was thin and non-resistent. The aneurysm therefore forced its way through the ulcer. Naturally the pressure on the gastric wall had disturbed the circulatory conditions about the ulcer. The black blood passed *per rectum* had upon his admission suggested the presence of a gastric or duodenal ulcer; while a pulsation under the hypochondrium further pointed to an abdominal aneurysm. Death occurred before a diagnosis was made. It was seen that the aneurysm, in forcing its way into the stomach had itself undergone rupture and filled the former with clots. The aneurysmal wall was itself degenerated.

Abderhalden's Reaction in Pregnancy.—Hirschfeld obtained positive results with the dialysis reaction and by means of it could determine the existence of a two weeks' gestation. In two cases he obtained a weak, positive reaction in the non-pregnant. In five cases of carcinoma the reaction was negative.—*Schweiz. Rundschau f. Medizin.*

Myasthenia Gravis.—E. Farquhar Buzzard reports the case of a girl, aged 17, who had never been ill previously. Last Easter she had "influenza," during which she had pains all over, especially in the arms. Subsequently a feeling of general bodily stiffness persisted. It was only slight and in no way incapacitated her. During the last week in September she suddenly noticed that she was very weak. She became unable to do up her hair or to raise her arms, and rising from a chair became a great effort; walking was very little affected. This condition has remained stationary since, and there have been no other symptoms whatever. She generally feels stronger toward evening. Sometimes after reading for any length of time her eyes get heavy and droop; this soon passes off if she stops reading. Her voice is always good. She has never had diplopia. The feeling of general stiffness remains. She is a well-nourished girl, and presents no abnormality apart from her muscular system. She shows considerable weakness of the trunk and neck muscles and of the muscles of the shoulder and pelvic girdles. She cannot raise her head from the bed, nor make any attempt to sit up. She is unable to raise the arm above the horizontal position, nor can she rise from a chair. She is, however, able to walk. There is no wasting of muscles, and there are no sensory or reflex changes. The electrical reactions are normal.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

The Habit of Smoking in Its Relation to the Insurance Examiner.—Even the insurance examiner is alive to the fact that some of the pleasurable habits, so-called innocuous, may produce effects sufficiently harmful to contribute to, if not cause, untimely deaths. Alcohol is a known factor, and now tobacco seems to be in danger of receiving its death-warrant. At the January meeting of the Life Assurance Medical Officers' Association, in London, the subject was discussed in a paper by Horace G. Turney, M.A., M.D., Oxon., F.R.C.P. The speaker regarded the subject from the standpoint of a smoker and said that when one looks back upon the array of causes of untimely death reviewed by insurance examiners, the name of tobacco as a morbific agent does not strike one as awe-inspiring, but while it may never receive a separate heading in the mortality tables, its contributing influences should be understood. In discussing the possible harmfulness of smoking, attention is given mainly to the direct toxic effects. The increased liability to cancer of the lips and tongue due to the mechanical irritation of pipe or cigar is already understood and it is taken for granted that nicotine is the active toxic ingredient in tobacco. For the purpose of discussion, Turney divides the symptoms and morbid changes produced by the prolonged use of tobacco into two headings, the nervous and circulatory. Under nervous: (a) the psychoses; (b) the family of degenerative diseases, *e.g.* tabes; (c) affections of peripheral nerves Under the psychoses, Turney says that excessive smoking is as much an effect of what is known as the neuropathic temperament as the cause of any psychical ailment, in this respect standing in the same category as other narcotic tendencies. While cigarettes have the reputation of being the most harmful of all forms of tobacco consumption, he considers that, taken singly, they are the most harmless, and he believes it is the form of smoking likely to be adopted by men who have the lowest degree of natural tolerance, and, broadly speaking, these tend to be of the neuropathic type. Again it is the form of smoking most favorable to the development of the habit as a form of tic. A man may poison himself with the nicotine, but he practises the habit more as a tic than for the sake of the narcotic effect, then puts most of his troubles down to his nefarious habit of cigarette smoking. The greater the state of nervous irritability, the more constant the habit of tic becomes, thus confirming the suspicions of nicotine poisoning. Turney therefore concludes that tobacco smoking is only a subsidiary cause of the psychoses, but grants its power of attacking nerve cells, as in the cases of tobacco amblyopia. In the family of spinal degenerations, syphilis has so monopolized the field that it is doubtful if tobacco plays any part. Tobacco may at times cause neuritis, and does aggravate neuralgia, as well as migraine, but seems to be only a contributory cause in the diseases of the nervous system. The effects produced on the circulatory system, however, are much more positive and profound. Of these, cardiac symptoms form the earliest and most prominent feature. They occur even more in the young than in the old, and the symptoms are altogether out of proportion to the physical signs and are alarming. The patient experiences a feeling of oppression, the heart seeming as if it were too big for the chest. These symptoms often come on at night and wake the patient with a start. Often the heart rate is increased, the tension low, and occasionally there is irregularity, either of the rhythmic type or due to dropped beats. Tobacco excess accounts for many cases where the examiner is disquieted by the history of palpitation, irregularity, and increased frequency of pulse in a young subject. The action of nicotine on the heart may be shown in the form of general debility. Clear signs of cardiac insufficiency after very moderate exercise, and fainting attacks may occur. Only abstinence from tobacco will clear up the diagnosis. The chief point to be considered in the effects of tobacco on the circulation is its power to produce arteriosclerosis. There is no doubt whatever that it can cause disorder of the function of the vessels, but can it set up organic disease? Of late years, through experimental work, it has been shown that nicotine is one of the substances that can set up in the arteries of rabbits and other animals changes almost identical with those of arteriosclerosis. Clinical observation in this as in other cases fills up the gap left by the laboratory. Since Erb's first description in 1898 of that highly characteristic form of vascular disease to which he gave the name of intermittirendes Hinken—or intermittent limping—every increase in our knowledge has confirmed the fact of its close dependence upon the excessive use of tobacco. The clinical aspect is more varied than was at first apparent. Besides the form which Erb described, it may appear as claudicatio intermittens, as intermittent tingling, or as pain in the feet on walking. Schlesinger, after a series of experiments, says, "In view of these observations, I should agree with Erb in giving first place to abuse of tobacco. The more cases that came under my observation, the more convincing became the significance of this as an etiological factor." The influence of nicotine upon the blood pressure is at first, in the early stage to raise it, as shown in the man who gets a sense of oppression in his chest towards the end of his cigar. This is only temporary, as it is ultimately lowered in the subject of chronic excess who has an uneasy feeling of lack of energy, without a definite cause. In the long run, the effect of tobacco excess is to raise the pressure rather than to lower it. The influence of tobacco on the digestive system may cause gastrospasm and enterospasm. Another example of the power of nicotine is to cause contraction of the unstriped muscle fiber, whether in the arterial wall or in the bowel. So far as Turney's observations and some study of the literature go, he does not consider there is much evidence that the habit of smoking can be convicted of any serious effect on the mortality tables. He says one must confess rather to a feeling of surprise that the life-long absorption of so potent a drug as nicotine by a large proportion of the male population should not be accompanied by more obvious results in the way of serious injury to the cardiac muscle than appears to be the case.

Selection of Medical Examiners.—The consensus of opinion among medical directors regarding the selection of medical examiners is that the men must be honest. H. N. Mayo says that when a man has an "M.D." attached to his name is denotes education and ability, and if he will be honest with himself he cannot otherwise than be honest with his company.—Report of the Medical Section, American Life Convention, February, 1913.

Book Reviews.

THE EVIL EYE, THANATOLOGY, AND OTHER ESSAYS. By ROSWELL PARK, M.D., LL.D. (Yale). Price $1.50. Boston: Richard G. Badger, The Gorham Press.

IT is a curious fact that one takes up a book of essays, a novel, or any other non-professional work, written by a medical man, with some feeling of apprehension, inspired perhaps by the *ne sutor* tradition, lest it may be a disappointment and lest the great physician may prove himself to be but a mediocre literary man. It is true that there are many examples in the literature of all countries which lead one not to rely too much upon this tradition, yet there are, on the other hand, numerous illustrations of the weakening of a reputation by this ambitious incursion into untried fields. In the present case there is no disappointment in store for the reader, for the work demonstrates once more that the really able man is a many-sided man, and that the fact that he can think and write acceptably on medical subjects affords a presumption that he can do the same on other subjects that interest him and to which he has devoted the needed study.

This volume contains essays on a variety of subjects, some more or less related to medicine, others dealing more with anthropology, superstition, and the history of religious thought. Among the medical essays are "A Study of Medical Words, Deeds, and Men." "The Career of the Army Surgeon," "The Evolution of the Surgeon from the Barber," "The Story of the Discovery of the Circulation," and "History of Anesthesia and the Introduction of Anesthetics in Surgery." These are all good, but they are what one might expect from a surgeon who has read and thought along lines bordering on his every day work. The more interesting are those outside of pure medicine, of which are deserving of special mention, "The Evil Eye," "Iatro-Theurgic Symbolism," and "Giordano Bruno." The second of these is one of several dealing with the religious beliefs of antiquity and the present. The author is evidently a student of comparative religion, though in some of his references, especially in his erroneous allusions to phallic worship he would seem to be rather a comparative mythologist. He is indeed somewhat inconsistent in his treatment of these subjects, sometimes implying that religion is a purification of mythological superstition and again regarding the evil practices associated with ancient religious rites as a degeneration from the celebration of deeper and purer mysteries. However, the man who ventures to write essays on religious subjects seldom pleases all of his readers, and perhaps Dr. Park will find as many who accept his phallic notions as who take a higher view of the origin of the religious instinct in man.

DIAGNOSIS UND THERAPIE DER SYPHILIDE. Part II. Therapy by San. rat. Dr. S. JESSNER. Third edition. Price 1.25 M. Würzburg: Curt Kabitzsch, 1913.

SYPHILIS of the skin and mucous membranes is briefly discussed, followed by chapters on therapeutic aids. Mercury is still called the brilliant aid; salvarsan is next taken up and lastly iodine. Local treatment is given only two pages. There seems little new in the book.

HANDBUCH DER SPEZIELLEN CHIRURGIE DES OHRES UND DER OBEREN LUFTWEGE. Herausgegeben von Dr. L. KATZ, Spezialarzt für Ohren-, Nasen-, und Halskrankheiten in Ludwigshafen a. Rh.; Dr. H. PRYSING, Prof. der Ohren-, Nasen-, Kehlkopf-, Heilkunde, Ord. Mitglied der Skad. für prakt. Medizin zu Cöln a. Rh.; und Dr. F. BLUMENFELD, Spezialarzt für Nasen-, Hals-, und Lungen-Krankheiten in Wiesbaden. III. Band, Lieferung 5, price 7 marks. IV. Band, Lieferung 5 und 6, price 8.50 marks. IV. Band, Lieferung 7, price 7 marks. IV. Band, Lieferung 8, price 4 marks. Würzburg: Verlag von Curt Kabitzsch, 1913.

WITH the appearance of the four instalments which it is now our privilege to review, this monumental work is nearing completion. In its fulness of text and in its profusion of illustration it surpasses anything that has ever been attempted in this line. The fifth instalment of the third volume continues the subject of the obital complications of disease of the nasal accessory sinuses, which is dealt with exhaustively by R. Hoffmann. In addition to the many halftone cuts and colored plates there are a number of stereoscopic photographs. This part also contains the beginning of the article on tumors of the hypophysis and its operative treatment by Prof. S. Kuttner. The fifth and ninth instalments of the fourth volume contain the continuation and completion of the article on endolaryngeal operations by F. Blumenfeld. The pathology, symptomatology, diagnosis and treatment of endolaryngeal growth are all included in this article, which, like the rest of the work is superbly illustrated. The article on tracheotomy begins in this section. The next, or seventh instalment of the fourth volume, contains the greater part of the article on tracheotomy, which is from the pen of P. Bockenheimer. A series of four colored plates show the different steps in the operation. The article on tracheobronchoscopy, by M. Mann, is begun in this section and is continued in the succeeding instalment, the eighth, which concludes Volume IV. This contains in addition the article on esophagoscopy, by H. Starck. It is difficult to put out any one part of this work for special commendation, so admirably do all the parts fulfill the needs of an ideal medical text book, with fullness of detail and accuracy and ample illustrations.

ZUR KLINIK DER EITERUNGEN DES OHRLABYRINTHS. Von Professor Dr. W. UFFENORDE in Göttingen. Mit 9 Tafeln. Price 5 marks. Würzburg: Verlag von Curt Kabitzsch, 1913.

THIS monograph deals with the clinical aspects of labyrinthine suppuration, a subject that has undergone considerable development within recent years. In detail the author discusses the pathology, symptomatology, diagnosis, treatment and prognosis, and presents in full 27 case histories. He describes his own method of operating in case of labyrinthitis, particularly in those in which endocranial complications are present. This method he regards as the safest and as the one affording the most effective exposure of the labyrinth. A series of nine excellent full-page plates are found at the end of the volume. The case histories are an aid in enabling the reader to focus concretely the facts in this interesting chapter of otology.

VERÖFFENTLICHUNG DER ROBERT KOCH-STIFTUNG ZUR BEKÄMPFUNG DER TUBERKULOSE. Herausgegeben von der Stiftung. Heft 5/7. Price, 9 M. Leipzig: Georg Thieme, 1913.

THIS book consists of two portions, the first dealing with the differentiation of the human and bovine type of the tubercle bacillus by producing experimental corneal and iris tuberculosis in the eye of the rabbit, besides experiments concerning the formation and the significance of the complement binding tuberculous antibodies, by Prof. Dr. F. Schiek, director of the Königl. Universitäts eye clinic in Königsberg i. Pr., with three colored photographs and two plates. The author concludes that it is possible to differentiate the two types of bacilli. Infection with the bovine type in the eye of the rabbit leads to rapid cheesy degeneration of it, while infection with the human type is capable of healing. The second part of the work is devoted to an article on experimental tuberculosis studies by Prof. Dr. Franz Fl. Krusius of Berlin, with 16 colored photographs and one curve. The following are some of the author's conclusions: Quantitative tuberculous vaccinations show that the incubation period of the infection quantitatives are inversely proportional; susceptibility for tuberculous infection in the different parts of the eye is, in descending order, as follows: vitreous humor, anterior chamber, cornea, conjunctiva, and lens; the radiant energy of radium, mesothorium, and the sun is not without influence upon the bacilli as well as upon the infected organism.

MECHANICAL VIBRATION, ITS PHYSIOLOGICAL APPLICATION IN THERAPEUTICS. By M. L. H. ARNOLD SNOW, M.D., author of "Mechanical Vibrations and Its Therapeutic Application"; Professor of Mechanical Vibration Therapy in the New York School of Physical Therapeutics; Associate Editor of the *Journal of Advanced Therapeutics;* late Assistant in Electro-Therapeutics and Diseases of the Nervous System in the New York Post Graduate Medical School, etc. Price $3.50. New York: Scientific Authors' Publishing Co., 1913.

DR. ARNOLD SNOW'S latest work on Mechanical Vibration with the indications and methods of employing it, takes up the subject in a thoroughly scientific manner with a consideration of all that pertains to its therapeutic uses. It will be noted by a review of the table of contents that the volume has included many recently discovered features referable to spinal stimulation in the treatment of cardiovascular, respiratory, and other affections. This work is printed in a larger volume than the author's previous work, comprising about 500 pages and 50 plates and illustrations. The work also contains many valuable tables and practical suggestions to assist the operator in the scientific employment of mechanical vibration.

Die Therapie des Ekzems. Geh. Hofrat Dr. Theodor Veiel und Dr. Fritz Veiel in Cannstatt. Price 1.20 M. Halle a. S.: Carl Marhold, 1912.

In this short concise résumé are taken up the etiology of eczema, the specificity of arsenic, predisposing and contributing factors, and the difference in the treatment of acute and chronic eczema. Special divisions are devoted to eczema of the scalp, face, external auditory meatus, mammæ, genitals, hands, feet and crural regions.

La Grossesse extrautérine précoce. By Dr. Lucien Hénault, Chief Gynecologist Hospital de St. Gilles (Brussels); Doctor of Gynecology, University of Liége; Honorary Member Belgian Society of Surgery. Brussels: Hayes, 1912.

This book is a good clear discussion based on a study of the literature and personal observations. A good classification of the different forms of ectopic with symptoms and diagnosis is given and as a diagnostic aid the opening of Douglas's sac seems worthy of consideration.

Uber die Behandlung der Hauttuberkulose. Vol. I. No. 6. Von Dr. Doutrelepont in Bonn. Price 1.20 M. Halle a. S.: Carl Marhold, 1912.

This monograph contains a fuller description of the topic treated in Vol. 100 of the *Archiv. für Dermatologic und Syphilis*. The three general forms are tumors, ulcers, and tuberculides. Of the complications elephantiasis and carcinoma are mentioned. Symptomatology and prognosis receive passing attention. The author does not claim to place before the reader all the therapeutic measures that have been employed in this condition. He mentions general treatment, tuberculin, old and new, Liebreich's cantharides, and Hebra's injection of thiosinamins; local treatment with 1 per cent. sublimate, pyrogallol salve, surgical method of total extirpation, curettage, scarification, Hollander's hot air treatment, Röntgen and Finsen rays. Tuberculosis of the mucous membrane also receives attention.

Lehrbuch der Spezifischen Diagnostik and Therapie der Tuberkulose; D. von Dr. Brandelier, Chefarzt des Sanatoriums Schwarzwaldheim in Schönberg bei Wildbad, und Dr. Roepke, Chefarzt der Eisenbahnheilstätte Stadtwald in Melsungen bei Cassel. Seventh revised edition. Price 8.30 M. Würzburg: Curt Kabitzsch, 1913.

This work has gone through seven editions in the past four years and been extensively revised and enlarged in the last one. All of the theoretical portions which were scattered throughout the work have been summarized and placed in the first chapter with a number of subdivisions (theories of tuberculin reaction; curative factors in tuberculin action). To the specific diagnosis of tuberculosis, general part, has been added a long discussion and colored plate illustrating the cutaneous tuberculin test. The special part is increased by a chapter on specific diagnosis of tuberculosis of the digestive organs. In both parts the literature on tuberculin diagnosis receives detailed and careful attention. In the chapters on specific therapy of tuberculosis, that of the pulmonary type has received a broader and more convincing consideration. In the special division on specific therapy a subdivision on tuberculosis of the digestive organs has been added. The authors are convinced that their work serves to demonstrate the efficacy of the tuberculin treatment to all.

Die Krankheiten der Mundhöle, des Rachens, und der Nase. By Dr. Grunwald in München. Third revised edition enlarged. 756 pages. Price 12 M. München: J. F. Lehman, 1912.

This detailed work is introduced by a chapter on anatomy, embryology and physiology of the parts treated and then divided into general pathology and special pathology and therapy. In the latter chapters all the measures that are advised have been personally tested by the author. A detailed account is given of the rapid procedures necessary in acute diseases of the parts. Of the larger operations which belong to the specialist and surgeon only the newer ones are discussed. Technical details are given in the form of practical hints because the author is of the opinion that they should be taught in the province of actual practise and clinical instruction. The anatomy of the nose and tonsillar region is taken up in detail and is illustrated by a series of beautifully colored plates. The embryology from ovum stage to the complete development of the inner structure of the nose is explained in a manner which permits of the explanation of all varieties of the accessory sinuses of the nose. To accomplish this it was necessary to take apart and compare 200 skulls of adults and children and those of 50 fetuses. The topographical relations of the tissues for the correct understanding of the course of phlegmons in the mouth and palate is well brought out. There is great clearness in the explanation of deformities. The bibliography is extensive, but of course not complete.

Principles and Practice of Obstetrics. By Joseph B. De Lee, A.M., M.D. Professor of Obstetrics at the Northwestern University Medical School. Large octavo of 1060 pages, with 913 illustrations, 150 of them in colors. Cloth, $8.00 net. Philadelphia and London: W. B. Saunders Company, 1913.

The multiplicity of textbooks on obstetrics leads one to credit with a great deal of courage every new author in this field. Dr. De Lee has had such an extended clinical experience in obstetrics that any book written by him and intended as a manual for students and practitioners must necessarily be favored with strict attention. Brief mention may be made of some of the special features of this work, of which the subject matter is divided into four parts dealing with the physiology, the conduct and the pathology of pregnancy, labor, and the puerperium, and a final section on operative obstetrics. This arrangement will permit an easy division of the subject to fit the usual college curriculum. The writer claims that although he has consulted other authorities, the opinions expressed are mainly the result of his own experiences in hospital and private practice. He makes diagnosis a particular feature and likewise the relations of obstetric conditions and accidents to general medicine, surgery, and the various specialties. The illustrations are largely original and based on material from the Chicago Lying-In Hospital. Their reproduction and the makeup of the entire book are worthy of special mention. Dr. Lee is firmly impressed with the idea that obstetrics as a science and art should be elevated to a higher plane and believes that the subject will be divested of most of its objectionable features in the near future, so that the field may be made more inviting to physicians and the public will be led to appreciate such special services more than in the past. As the majority of labor cases at the present time are abnormal it seems opportune to recognize the pathological dignity of the subject and when this is done we can hope for a considerable reduction of the mortality and morbidity of childbirth. The book is too extensive to permit of detailed mention of its various features and it is therefore sufficient to state that its favorable aspects are so much in the preponderance that the few faults may be passed by. The discussion of puerperal infection is very satisfactory, especially the chapter on treatment, in which the author takes a firm stand against all forms of local treatment, relying largely on general measures, including fresh air, together with special attention to diet, the bowels, and placing the patient under the best mental and physical conditions. Any specific treatment thus far advocated seems to have failed, including the use of the various sera and vaccines. Extensive surgical procedures are likewise contraindicated in the author's experience. The chapter on operative obstetrics is very satisfactory and the descriptions of the different operations sufficiently complete for all purposes. In a concluding chipter the author presents a description of his methods for sterilizing gloves, etc., and also includes reproductions of the history charts used at the Chicago Lying-In Hospital.

Über die Serodiagnose der Syphilis. Ihr Wesen, ihre Technik und ihre Practische Bedeutung. Dr. A. Bauer in Danzig, bisher Assistengarzt der kgl. dermatologischen Universitätsklinik in Kiel. Price 1.20 M. Halle a. S.: Carl Marhold, 1912.

The author explains with drawings, charts, tables, etc., the theoretical foundations necessary for the understanding of serodiagnosis. The technique of the preparation of the five components used in the production of the syphilis reaction is taken up. Three short chapters complete the booklet: 1. the specificity of the syphilis reaction; 2. the serological diagnosis of the different forms of syphilis; 3, the limits of the value of the reaction.

Über Laparo- und Thorakoskopie. Dr. H. C. Jacobæus, Privatdozent in Stockholm. With an introduction by Prof. Dr. L. Brauer. Price 6 marks. Würzburg: Curt Kabitzsch 1913.

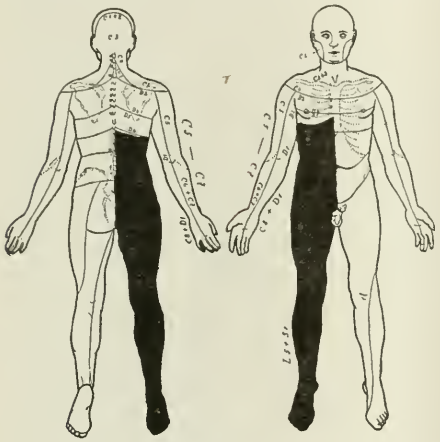
This excellent method is safely applied with no unpleasant side effects. The patients experience no inconvenience. Post mortems which have followed the examinations revealed no injury which may have been inflicted by an examination. The pleura and peritoneum usually showed a small and at times an almost invisible healed scar. In many cases the author has been able to demonstrate changes in the pleura and peritoneum which otherwise would have gone unrecognized, as primary tumors of the pleura, syphilis of the liver or tuberculous peritonitis.

Society Reports.

REPORT FROM THE TUESDAY CONFERENCES OF THE NEUROLOGICAL INSTITUTE OF NEW YORK.

First Division—Dr. Joseph Collins.

A Case of Spinal Syphilis with Disturbances of Sensibility Similar to Those Found in Syringomyelia.—Dr. C. Burns Craig said that at one time it was widely taught that multiple, disconnected, disparate symptoms were highly suggestive of syphilitic lesion of the central nervous system, indeed almost a hall mark. Larger experience with the disease, and especially more accurate aids to its diagnosis, has shown that such disconnected symptoms are not so pathognomonic as was formerly believed. When the disease is of the spinal cord and its coverings the resultant symptoms depend upon whether it is the meninges, the spinal roots, the entire substance of the cord, or definite tracts which are involved. The most common form of spinal syphilis is, of course, tabes dorsalis. We shall not discuss here the propriety of calling tabes a form of spinal syphilis, believing that the development of serology fully justifies such a classification. The next



Area of Thermal Anesthesia; Over the Same Area a Pin Prick is Not Painful.

most common form of spinal syphilis is that which produces, to a greater or less degree, at some time during the course of the disease, a transverse lesion of the cord, and which may be properly spoken of as a myelitis. A variety of this form is the spastic spinal paralysis with which the name of Erb is usually associated, although Leyden seemed to have described such cases as far back as 1874. The next most common form is the meningeal or meningoarterial, while the variety involving the roots alone is the rarest. We have recently presented from our division cases illustrative of all these varieties, and it occurs to us that a patient whose symptoms do not fit in closely with any variety (although he must be classified as amongst the second form mentioned) might be of interest.

The patient, a boiler-maker helper, thirty-four years old, had a specific infection when he was twenty-one. He took mercury and iodide of potassium under the direction of a physician for about three years. Aside from the occasional disastrous effects of drink he remained fairly well until Thanksgiving, 1911. He then fell ill, complained of a queer creepy feeling all over, a sense of numbness and of heaviness in his legs and of inability to control the sphincters. Within a week he became almost wholly paraplegic. There was never a time, however, when he could not stand if aided by a person holding him on either side. At the end of about a month, during which time he had incontinence of feces, dysuria, and incontinence of urine, he began to improve, and within three months he was able to walk about. In May, 1912, he relates that he went to Bellevue Hospital, where a Wassermann examination was made of the blood serum. It was found to be positive, and he received an intravenous injection of salvarsan. After this he made much further improvement and went to work, although his legs felt both weak and queer.

He presented himself here on March 4, 1913; his complaints than were: (1) A numb heavy feeling in the right lower extremity, with a sensation as if something were running through it. He relates that when anything is brought in contact with the leg he does not have "the right feeling." (2) A jumping sensation in both legs from the hips down which is different from the sensation just enumerated. (3) Occasional difficulty in controlling the bowels and bladder and especially difficulty in starting the urinary stream. (4) Impotency which has existed since the onset of the illness. Physical examination shows that the tendon jerks are diminished on the right lower extremity and active on the left. The abdominal and epigastric reflexes are extremely sluggish on both sides. The plantar response on the left side is extensor and on the right side is flexor. There is a thermal anesthesia of the entire right side from the sixth rib downward anteriorly, and the seventh dorsal spine posteriorly. Tactile stimuli are felt over this area, but they are interpreted as being disagreeable. When touched with the point of a pin over this area he says it feels as if he had an electric shock, which is probably to be interpreted as an increased tactile sensibility. The sensation is not that of a painful prick. There is practically no other physical sign of disease. The serum Wassermann was plus, but the cerebrospinal fluid showed no cells nor pathological reaction. This case may, therefore, be interpreted as a case of exudative syphilis, meaning thereby that the lesion was a vascular and circumvascular one, that the extent of the original lesion was comparatively limited (probably to the sixth or seventh dorsal segment, left side); that it was in the transverse direction of the cord, and that the process is tending to terminate in recovery.

Dissociation of sensibility, such as that which has been so often said to be pathognomonic of syringomyelia, but which in reality occurs in many other conditions, is a comparatively rare symptom of spinal syphilis. At least such well marked and profound dissociation as exists in this case is uncommon. In the Brown-Séquard type of paralysis, which is a well-known syphilitic lesion, we see the most common variety of sensibility-dissociation. Indeed, the present case may come within this category. But in presenting this case, it was our purpose, to direct attention to the similarity of disturbance to syringomyelia, which we may occasionally find in spinal syphilis.

Second Division—Dr. Frederick Peterson.

Subacute Combined Degeneration of the Spinal Cord Associated with Anemia.—Dr. Foster Kennedy presented the following case: Mrs. A. McI., age thirty-nine, was brought to the outpatient department of this hospital on January 22, 1913, with the history that the diagnosis of tabes dorsalis had been made upon her at another institution. Her story is briefly as follows: In November, 1912, she began to experience cramps and sensations of cold in the calves of both legs. A week later similar vague pains were experienced in the forearms and hands, and in yet another week to these morbid sensations were added tingling paresthesiæ in the toes and the terminal phalanges of the fingers, with occasional pricking sensation around the waist, which at times extended downwards

as far as the knees. In the beginning of December she began to have a difficulty in walking which she thought at first was due to general weakness, but which later was found to be due to definite ataxia of the lower extremities. Her difficulty in walking steadily progressed so that when seen in the latter third of January, 1913, she was quite unable to walk unassisted. Paresthesiæ have increased, but are most definitely felt in the hands and in the feet, and as a constricting band around the abdomen. Her complexion is said to be definitely paler than it was some weeks ago, and she appears frail and ill. Her previous health had always been good. On examination, special senses were normal, no defect was present in any of the cranial nerves. Marked general weakness of the arms and legs with considerable general emaciation. A sensory ataxia was present in the arms and legs. This was of severe degree, making it impossible for the patient to carry out any finely coordinated movements with the hands and impossible for her to walk without assistance on each side. The muscles were hypnotonic and, as before-mentioned, generally wasted. The knee jerks were absent; the ankle jerks absent; plantar reflexes were both of normal flexor type; the abdominal reflexes were, however, markedly depressed. The arm jerks were very difficult to elicit on either side. There was some diminution of pain and tactile sensation of irregular distribution in the legs. Deep muscle pain, however, was acute, but there was marked loss of sense of position in the feet and hands. Temperature sense was not affected. She had no incontinence in the sphincters, but had difficulty and slowness in initiating micturition. Heart sounds were feeble, but no valvular disease was present. Blood examination on January 25 showed hemoglobin, 67 per cent.; 4,268,000 R. B. C.; 16,000 W. B. C.; neutrophiles, 75 per cent.; eosinophiles, 1 per cent.; basophiles, 1 per cent.; large lymphocytes, 9 per cent.; small lymphocytes, 12 per cent.; transitional, 3 per cent. A certain amount of macrocytosis and polychromatophilia was demonstrable. Urine normal. Examination of the feces failed to show any precise abnormality, no evidence of intestinal parasites were obtained. The Wassermann test in the blood serum and cerebrospinal fluid was negative. The cerebrospinal fluid showed a normal globulin content, no cells, and a positive Fehling's reaction.

Some days after admission the knee jerks were obtained on each side, and for some weeks the patient improved, so that she became less ataxic and able to leave her bed for a short period each day. This improvement, however, was only temporary, and in March she began to suffer from attacks of abdominal distention which lasted a variable number of hours and were accompanied by feeling of profound nausea and occasional vomiting. The paresthesiæ in the hands, feet, and calves increased. The weakness in the arms and legs became accentuated; the arms still remained of defective muscular tone, but the legs became gradually slightly spastic. The knee jerks on March 14 were present; the ankle jerks were absent, and the plantar reflexes were both of extensor type. The loss of sense of position in the toes and in the hands was as before. The manner in which the disease has mainly progressed is in the direction of pyramidal degeneration, superimposed on a degeneration of the posterior columns. The spleen is enlarged, palpable, and tender. The hemoglobin percentage was then 56 and a mild form of poikilocytosis appeared. Number of R. B. C. 4,120,000, and of W. B. C. 4,600. Patient has been treated with cacodylate of soda and red bone marrow, massage, and forced nourishment. But progress has been downhill with the exception of the mild remission following her admission to the hospital. Owing to her being confined to bed it has not been possible to weigh her, but much flesh has been lost. Blood count on March 29 showed 44 per cent. of hemoglobin; 3,082,000 R. B. C.; 11,200 W. B. C. Poikilocytosis is marked.

Patient has been urged to allow an intravenous injection of salvarsan to be given to her as an intensive method of administering arsenic, but this permission she has refused. We have here a remarkable example of the posterolateral degeneration which occurs in association with various types of blood change. This disease was first described by Dana and Putnam, in this country, and later by Russell, Baton and Collier, in London, as subacute combined degeneration of the spinal cord. It is not necessarily associated with anemia of the pernicious type, but is frequently found as a sequela of a so-called secondary anemia of severe degree. In almost all cases the disease is progressive and the termination is fatal within three years.

THIRD DIVISION—DR. PEARCE BAILEY.

Laminectomy and Posterior Root Section.—DR. ELSBERG presented a patient upon whom he had performed a laminectomy on account of symptoms referable to the fourth lumbar posterior root on the left side.

M. C., twenty-two years of age, had been thrown out of a wagon in a runaway accident about eighteen months before. He did not feel any pain at that time. Six months later, he had began to have intermittent cramps in the left leg, and the left thigh became stiff and painful. The pain became gradually worse, and was increased upon movement. He was treated by a number of physicians for sciatica without benefit. Physical examination showed that there were a number of tender spots on the back of the left thigh, some increase of the knee and ankle jerks on the left side, slight hypesthesia over the distribution of the third and fourth left posterior spinal roots. The *x*-ray showed that there had been some injury to the fourth and fifth lumbar vertebræ. By laminectomy, the second, third and fourth spines and laminæ were removed. The spine and laminæ of the fourth lumbar vertebra were much thickened, the spinal canal markedly narrowed at this level, and the cauda markedly angulated. The dura was reddened at the spot of greatest narrowing of the canal. After removal of much bone, the left fourth posterior root was divided, and the wound then closed. Convalescence was uneventful, the wound healing by primary union, the patient was relieved of all of his symptoms. Dr. Elsberg remarked that this was the second case of this kind that he had operated upon.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held April 21, 1913.

THE PRESIDENT, DR. BROOKS H. WELLS, IN THE CHAIR.

Presentation of Instruments.—DR. MAX EINHORN presented one instrument intended to clear up the question of whether the duodenum or other parts of the intestine were affected. *X*-ray pictures of the duodenum filled with bismuth were shown. Another instrument which could be passed some distance into the intestine was shown; it had within it a wire which enabled him to show the exact position of the intestinal coils as found in the *x*-ray pictures. Just how far he could get this instrument into the intestine he could not tell. Dr. Einhorn presented another instrument for obtaining the secretions from the duodenum or other parts of the intestine without admixture of one secretion with another.

X-Ray Treatment of Uterine Fibroids, Menorrhagia and Metrorrhagia.—DR. SAMUEL STERN read this paper. He said that the Röntgen ray treatment of uterine fibroids, menorrhagia and metrorrhagia, although still more or less in the experimental stage, had already shown sufficiently satisfactory results to justify their giving it serious consideration in the treatment of these cases. Since 1905 thousands of cases had been treated and with a large percentage of very gratifying results. In the latter part

of 1911, at Dr. Brettauer and Dr. Frank's request, they began the treatment of these cases in the radiotherapy department of the Mt. Sinai Hospital, and the object of the paper was to report the results they had obtained. Altogether they had treated fifty-two cases, thirty-three of which were treated at the hospital, and nineteen in private practice. Among these were twenty-nine cases of uterine fibroids and twenty-three cases of menorrhagia and metrorrhagia. The class of cases chosen were chiefly of the more severe type, cases that had been under treatment for a number of years, most of them curetted once, or more often, without lasting relief. Several of them were suffering from various forms of heart lesions, which made radical surgical interference a practical impossibility. To illustrate the class of cases treated, and some of the results obtained, he described a few of them briefly. Their results in menorrhagia and metrorrhagia were very similar to those in the fibroid cases. In cases that did not yield to this treatment, they should keep in mind the possibility of submucous fibroids being present. Such was a case referred to by Dr. Frank, a young woman whom they had treated for a supposed menorrhagia for some months without relief. On referring her back to Dr. Frank, he discovered that she had a small submucous fibroid in the fundus; after the removal of this all her irregularities disappeared. After describing the *Modus operandi* Dr. Stern made the following summary of the present standing of radiotherapy in the treatment of uterine fibroids, menorrhagia and metrorrhagia. *X*-ray therapy was gradually assuming an important place in the treatment of uterine fibroids, menorrhagia, and metrorrhagia. It was by no means a "cure-all." A fair percentage of the cases could be cured, some benefited by the treatment, but there were cases where it would fail despite careful and energetic persistence. Improvement under treatment did not begin until the fourth or even the fifth month, and no case should be discarded as unyielding until it had been under treatment for that length of time. The percentage of curves would depend upon the proper technique of administration; it was perhaps of least value in cases of submucous fibroids, although occasionally here they also got good results. The treatment interfered in no way with any other treatment that might be subsequently resorted to in case of a failure. With proper technique there was no danger whatever of producing an *x*-ray dermatitis in these cases. There was practically no danger of producing a permanent menopause in women who were not near the climacteric period. Temporary menopause occasionally occurred in younger women, lasting in some of their cases more than eight months, and followed by a re-establishment of menstruation generally in a normal way. The sterility produced by the treatment was not permanent, and probably rarely persisted more than six months after the treatment was discontinued.

Dr. Joseph Brettauer said that he was interested in the results reported by Dr. Stern in the treatment of uterine fibroids with the *x*-ray. These results were only considered temporary, but as such were extremely satisfactory. It was now possible to make a differentiation between the constituents of the rays and to prevent the burns which were formerly so frequent, so that their application was without danger. As was the case with all new remedies, the *x*-ray would naturally be used indiscriminately by many and against this he wished to sound a serious warning. It should never be employed when the adnexa were diseased or when there was the slightest suspicion of malignancy. In women who bled irregularly about the time of climacteric a curettage, followed by microscopical examination of the scrapings, should precede any application of the *x*-ray. In the presence of submucous fibroids the *x*-ray was apparently of no avail. One such case was operated upon which showed upon microscopical examination a most interesting condition. As a rule ovaries removed with fibroid uteri showed a greatly increased number of follicles in all stages of development, while in this instance only one solitary follicle in the state of development was found. There was no decrease in the number of primordial follicles found.

Dr. Robert Tilden Frank said he thought the reader of the paper had taken a most conservative stand in contradistinction to a certain German author who reported 1,000 cases and claimed that he had not a single failure to record. Dr. Frank said he had examined microscopically but one case in which the ovaries had been treated with the *x*-rays but Dr. Robert Meyer had examined six and they had found that the follicular apparatus, especially the Graafian follicles, were destroyed. The primordial follicles were least affected. There was a certain effect upon the fibroid itself in these cases. This showed itself in the marked and peculiar hyaline and fibrous degeneration of the stroma, although the muscle cells seemed little affected. So-called *x*-ray castration in young people was rather evanescent. As to the possible effect upon future pregnancies, this remained to be determined. The *x*-ray caused cellular hyperactivity when the treatment was begun and therefore might cause increased bleeding for the first few treatments. In many cases where operation was contraindicated the *x*-ray proved a valuable addition to their armamentarium, and this applied especially to patients with severe heart, kidney, or other organic lesions. Again, in some patients who refused an operation through fear of the knife, the *x*-ray helped one out of an embarrassing dilemma. The *x*-ray often worked admirably where curettage had failed in menorrhagia and metrorrhagia. The *x*-ray was contraindicated in cases of diseased adnexa with repeated attacks of pelvic peritonitis, ovarian tumors, etc. Malignancy was quite common in connection with uterine fibroids, and therefore it was important that the gynecologist examine every case carefully and submit the scrapings to microscopical examination. This applied especially to women around the forties. The *x*-ray could never supplant operation where the fibroid caused pressure symptoms nor could it be employed when the fibroids were of rapid growth because there might be present some malignant change that called for more radical interference. The chief value of the treatment lay in its hemostatic action which in selected cases served to tide matters over for a number of years or produced complete cessation of the bleeding.

Dr. Florian Krug said that he regretted that he could not share the roseate views of those who spoke in regard to the merits of the *x*-ray cure for uterine fibroids. Many years ago he said he had stood almost alone, and called out a warning against the then prevailing enthusiasm for the much-heralded claims of the Apostoli treatment of fibroid tumors. It was then claimed that the largest fibroids would disappear under the magic melting power of the constant electric current. The busy abdominal surgeons had long records of hysterectomies that had to be performed on cases that had become aggravated by the vain attempts at fibroid electrocution. He predicted that the *x*-ray treatment of fibroids was doomed to go down in the same way that the Apostoli treatment had gone. There was a much higher percentage of malignant degeneration in fibroid tumors than had formerly been believed. Malignancy was often found in a removed specimen where no positive clinical sign existed before the operation. In many such instances the surgeon congratulated himself that he had saved the life of the patient. What was to become of these cases if valuable time was lost in dallying with *x*-ray treatment? They were told that burns were now obviated by not using strong dosage, and by prolonged treatment. Financially this was in favor of the *x*-ray specialist, who had learned to protect himself against the injuries of the Röntgen rays. Still many men had injured themselves irretrievably with this powerful but yet imperfectly understood agent. Again, how about the danger that prolonged *x*-ray treatment might of itself produce malignancy?

The Elastic Area in the Isthmus of the Uterus a Positive Early Sign of Pregnancy.—Dr. Louis Ladinski presented this paper. He stated that notwithstanding the importance in many instances of making an early diagnosis of pregnancy, there were no positive diagnostic signs of early uterine pregnancy generally accepted as reliable. The multiplicity and indefiniteness of the objective signs and subjective symptoms that were generally depended upon for the diagnosis of early pregnancy had not served to elucidate the subject. Aside from the cessation of menstruation and Hegar's sign, the other signs were only presumptive or negative. Dr. Ladinski declared that he was in accord with Winter and Ruge that the change in the consistency of the uterus was the most positive sign of pregnancy. He added the change in the consistency of the isthmus. Other signs should be given due consideration, but only in the nature of corroborative signs. In a paper read before the Section on Obstetrics and Gynecology of the New York Academy of Medicine, in February, 1907, and published in the Medical Record in April of that year, he had called attention to the elastic area at the isthmus of the uterus as a positive sign of early pregnancy. In view of the advocacy of so many indefinite and uncertain signs, it was not strange that this pathognomonic sign should have been overlooked. In early uterine pregnancy there was a circular area situated in the median line of the anterior surface of the body of the uterus, just above the junction of the body and cervix; that was to say, at the isthmus of the uterus, which varied in size according to the duration of the pregnancy. This area offered to the palpating finger the distinct sensation of elas-

tic fluctuation. It could frequently be made out as early as the fifth week, when the area was only the size of the finger tip, but it could always be felt in the sixth week when it was somewhat larger. As pregnancy advanced it increased in size in a crescentic manner and extended upward toward the fundus until the third month of pregnancy, when nearly the entire anterior body of the uterus presented a fluctuating, cystic feel to the examining finger. In eliciting this sign bimanual palpation was essential; while the uterus was fixed by counterpressure with the external hand, the anterior wall of the uterus was palpated from the tip of the cervix to the fundus. The proper interpretation of this change would invariably establish a correct diagnosis. This change could be detected by the general practitioner as readily as by the specialist. It possessed an advantage over Hegar's sign in that it could be detected as early as the fifth week, while Hegar's sign did not appear until a later period of pregnancy, not until the pregnancy was two or three months advanced. Again, it required special skill to elicit Hegar's sign. This sign of elasticity must not be confused with the softening, thinning, and compressibility of the lower uterine segment. The only conditions which showed a change in the consistency of the isthmus in addition to pregnancy were subinvolution, the result of pregnancy, and cystic tumors in the anterior wall of the uterus. In subinvolution, following delivery at term, or abortion, there was a change in the same area, but the feel was very soft and doughy, in contradistinction to the tense, elastic, and cystic feel of pregnancy. In the presence of a soft myoma or cystic fibroid in the anterior wall of the uterus, the elastic feel elicited in the uterine wall was almost identical with that of pregnancy, and this was the only condition that could not be differentiated from early pregnancy at the first examination. This was especially true when a soft myoma was associated with amenorrhea, as was frequently the case. Under these circumstances further observation and repeated examinations would be necessary in order to establish a diagnosis. In suspected ectopic gestation it was most important to decide whether or not the case was one of uterine pregnancy. Confirming the diagnosis of uterine pregnancy would at once preclude the possibility of an erroneous diagnosis of ectopic gestation, unless in a case of combined intra- and extrauterine pregnancy, and *vice versa*, with uterine pregnancy eliminated a possible ectopic gestation would be less likely to be overlooked. In tubal pregnancy, the uterus, though unenlarged, presented no change in consistency at the isthmus and hence this sign was of paramount importance in the diagnosis of tubal pregnancy. Dr. Ladinski said that in a number of his cases of extrauterine pregnancy the absence of uterine pregnancy was the principal indication for operation. In cases of early pregnancy with symptoms of threatened abortion, the area in the isthmus usually remained cystic and elastic as long as the ovum was viable. In subinvolution following abortion, a change in the consistency of a similar area was also manifest; here again the feel was distinctly soft, instead of the elastic cystic feel of pregnancy. Thus it was evident that a correct interpretation of the consistency of this area might serve to differentiate between threatened, inevitable, and incomplete abortion. This was not in accord with the generally accepted view that a diagnosis of the death of the ovum in the early months of pregnancy offered considerable doubt and could only be made after repeated examinations proved that the uterus remained stationary in size. The writer stated that he was not as yet prepared to offer an explanation as to the cause of this change in the wall of the pregnant uterus, but he expected to study the subject and report later on the results of his investigations. Dr. Ladinski said that his experience with this sign had been so extensive and so uniformly satisfactory that he did not hesitate to offer it with every confidence and assurance that it would prove equally satisfactory to all who chose to employ it.

The Municipal Disposal of Garbage; a Menace to Public Health; Shown in Moving Pictures.—Mrs. W. SPIEGELBERG read this paper and gave a lantern slide demonstration. She compared the method of collecting and disposing of garbage and refuse in American cities with that employed on the Continent and showed that the methods employed here were crude, wasteful, and unsanitary. In most European cities the method adopted was a mixed collection of ashes and garbage, which had proven to be sanitary and dustless. The refuse was removed during the day at certain hours in covered dustproof, noiseless wagons, drawn by two horses, accompanied by two men. In many of the Continental cities the street cleaning was conducted by the municipalities while in others the privilege was granted to sanitary utilization companies. In both cases the Street Cleaning Department was directly under the control of the Police Department. The scientific, economic means employed in the management of the refuse and the utilization of every particle of waste material enabled the municipalities and sanitary utilization companies to make it a profitable undertaking. If the garbage were scientifically collected and disposed of by sanitary methods, it would be worth to the city not less than $4,000,000, while under the methods now obtaining the Sanitary Utilization Company had paid but $200,000 per year for many years and in addition the people suffered from the unsanitary methods in use. In order to provide the city with a sanitary and dustless method of disposing of refuse, the following reforms were necessary, namely, a mixed collection, which required that the ashes and garbage be placed in the same receptacle, because the moisture in the garbage would completely absorb the dry ashes. This would not only do away with leaking garbage cans, but would also prevent the ash dust from being scattered when the receptacle were emptied into the carts. Whenever there was a greater quantity of ashes than garbage, the ashes should be sufficiently moistened to make the removal as dustless as steam ashes. This should be made a city ordinance or added to the sanitary code. Under the present system the ashes were scattered five times before they were finally disposed of. The men suffered very much from the fine ash dust which got into their eyes, nose, and throat. Children, men, and women in the streets were constantly exposed to this fine ash, which besides soiling their clothes, irritated the mucous membranes, causing endless trouble and suffering. There was still another advantage to be gained from mixing ashes and garbage in the same receptacle. The refuse became to a certain extent sanitary, because the lye and potash already contained in the ashes acted like a disinfectant for a reasonable length of time and preserved the garbage from decaying. Consequently being almost odorless, the garbage would not attract flies and thus the pollution of water, milk, and food would be prevented. The ashes also acted as a cleanser for the receptacles. In winter they would prevent the garbage from freezing into solid masses which required much time and labor to dislodge. There was a sanitary code requiring garbage cans to be covered and this should be enforced and if necessary with the cooperation of the Health Department and the Police Department. The dustless and sanitary collection in the way described would necessitate but two removals, instead of three as at present, and thus the work would be simplified and the cost of collection lessened. By a scientific and economic management of the waste materials the Department of Street Cleaning of any city could be put on a self-maintaining basis. This nation was more wasteful than any European country and for that reason the revenues would be greater here from the waste materials. Millions were spent yearly in combatting tuberculosis and other contagious diseases, but they could never be stamped out until the tenements were thoroughly cleaned up by providing a sanitary, dustless collection and disposal of garbage. Likewise incineration for large cities had proven to be the most sanitary and profitable, and with a perfected system of covered motor trucks, the stables, dumps, scows, and manure heaps would be eliminated and this would prove a permanent means of eradicating flies, all kinds of bugs, and small vermin. This incineration method would include the disposal of dead animals and would eliminate unsanitary conditions besides yielding the municipality a large revenue. It was estimated by conservative sanitary engineers that in the City of New York, if the 3,000,000 and more tons of garbage collected every year were converted into electrical energy, the electricity generated would be worth at a minimum at least $3,000,000 a year and would furnish power to run the subways, elevated, and surface lines of the city. In addition to this the slag would yield to the city a profit of $250,000. In order to have a really clean city the following sanitary regulations should be enforced before the advent of the fly season: 1. All wagons now uncovered bearing Health Department permits, such as those for steam ashes, manure, sand, lime, and mortar from demolished buildings, sewer refuse, etc., should be covered; the private ash and garbage wagons having numerous bags and barrels dangling in the rear should not be tolerated. Such a sight would not be permitted in a Western town. 2. The men who collected offal from the butchers should not be allowed to sit on the curb to assort it; they and the soapfat men should be obliged to have covered receptacles within their wagons. 3. Another great menace to health were the uncovered street sweepers' cans filled with manure. They afforded another feeding and breeding place for flies and mosquitoes, especially near the fruit peddlers; these receptacles whether full or empty should be kept in an iron covered box on the curb or sidewalk. German cities had already adopted this innovation. 4. The Tenement House Commission and the Building Department

should make a thorough investigation and have a properly appointed and ventilated place provided in every flat house for the waste paper, ash, and garbage receptacles. It would be found that a great number of tenements, both old and new, were without this most needed sanitary precaution, and therefore the barrels were either on the sidewalks or in the basement halls or in the cellars. The Tenement House Commission should make it obligatory that the garbage receptacles were emptied twice in twenty-four hours. This would greatly relieve the unsanitary conditions in old and dark three to five room tenement house apartments. 5. Persons caught in the act of littering the streets and public places with paper, and householders or storekeepers allowing them to accumulate on the sidewalks, should be fined. 6. The filthy, disease-breeding old leather car straps should be replaced by sanitary glazed iron ones, in use in some of the subway cars. 7. The equally dirty, disease breeding old carpet seats in most of the surface cars, should be removed and replaced by bamboo or perforated wood. 8. Health officers should be detailed regularly to inspect the exceedingly unsanitary conditions caused by dirt and expectoration in the subway and elevated railroad platforms and stairways, but in particular the dreadful condition at the Brooklyn Bridge. 9. At least three times yearly all large water tanks on public or private buildings should be inspected and the owners compelled to cleanse them thoroughly to avoid typhoid and many other diseases. These sanitary lessons would teach the masses of the people a much-needed object lesson in cleanliness and orderliness and arouse civic pride to assist the Department of Street Cleaning, the Health Board, and the Police Department in keeping the streets, sidewalks, parks, and public buildings as clean as was the case in all European cities. There was no reason why an American city should continue to tolerate the antiquated, insanitary methods with which all were familiar. There was no reason why every city in this country should not be just as dustless, odorless, flyless, and wholesome as Fuerth or Berlin.

The Physiological Treatment of Flat Foot.—Dr. Jacob Teschner read this paper (see page 63).

Pathological Society of Philadelphia.

At a stated meeting held May 22 Drs. K. M. Lynch and J. N. Henry presented specimens of "Metastatic Melanotic Sarcomatosis." The organs came from a man who had lost an eye, according to his statement, as a result of traumatism, and who presented nodular enlargement of the liver and brownish discoloration of exposed parts of the body. After death melanotic sarcoma was found in the back of the orbit whence, it was discovered on further inquiry, the eye had been removed by a surgeon some time previously, and secondary deposits were present in almost every organ of the body including the adrenals.

Dr. E. Burvill-Holmes presented a specimen of "Blood from the Peripheral Circulation of a Case of Puerperal Septicemia." The woman had been delivered of twins and presented a classical picture of puerperal septicemia. The number of leukocytes varied from about 43,000 on the 6th day to 13,000 along about the 15th day. When a stained smear of the blood was examined, with a view of excluding the existence of malarial fever, a leukocyte was found containing a string of six cocci and the remains of others.

Dr. George B. Wood demonstrated sections of "A Chronic Inflammatory Tumor of the Nasolacrymal Duct showing Cyst and Giant-cell Formation." The tissue came from a woman on whom forcible dilatation of the nasolacrymal duct had been practised, with the subsequent development of a chronic swelling at the site of manipulation. The tumefaction varied in size from time to time, apparently increasing at times when inflation of the nares was practised. Fearing that the growth might be malignant it was removed surgically, and histologic study showed that it contained numerous large and small cyst-like cavities, as well as foreign-body giant-cells.

Dr. Michael Wohl presented a paper entitled "Myiasis with Report of a Case." He pointed out that deposition of fly-larvæ in wounds or openings on the surface of the body is not at all uncommon, infestation with certain varieties being naturally less common than with others. The ordinary house-fly is the usual offender. The eye, the ear, the nose, and the digestive tract suffer the most frequently, and the symptoms vary accordingly. The case reported was characterized by abdominal pain and diarrhea. On developing the larvæ found in the stools, the flash-fly was known to be the cause.

Dr. Alexander Randall presented a communication entitled "The Pathology of Benign Polyps of the Male Urethra," with lantern demonstration. He discussed the various forms of neoplasm involving the male urethra, illustrating the several types by appropriate photographic reproductions on the screen.

Dr. G. E. Pfahler presented a communication entitled "The Healing Process of Osteosarcoma under the Influence of the *X*-rays; Report of Ten Cases"; with lantern-slide demonstration and exhibition of patients. He showed how under the influence of *x*-ray applications destruction of the cells of osteosarcomata took place, with replacement of line salts and ossification, continuing even for a long time after *x*-ray applications have been discontinued. The tumors are not entirely removed, although at times considerably reduced in size, but they no longer exhibit activity, and the patients continue to live for periods up to twelve years and more.

Drs. John A. Kolmer, Whitridge Williams, and Ernest Laubaugh presented a communication entitled: "Complement fixation in Syphilis with Spirochete Antigens."

Drs. John A. Kolmer and Arthur J. Casselman presented a communication entitled "Concerning the Wassermann Reaction with Normal Rabbit Serum."

Drs. R. C. Rosenberger and U. Scanlon read a paper entitled "The Occurrence of Bacillus Aerogenes Capsulatus in Various Organs." They made a study of liver, spleen and kidneys from the bodies of a number of patients dead of different diseases, and succeeded in finding the encapsulated gas generating bacillus in a moderate proportion of cases; sometimes with and at other times without definite gas-production.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Medical Examining Board of Virginia.

June, 1912.

(*Concluded from Vol.* 83, *p.* 1152.)

OBSTETRICS AND PEDIATRICS.

1. Diagnosis of pregnancy at third month.
2. Diagnosis of extrauterine pregnancy.
3. (a) Dangers of the use of chloroform during pregnancy and labor. (b) Indications for use of an anesthetic during labor.
4. What constitutes morbidity during the puerperium and mention most important means of preventing same.
5. Management of the third stage of labor.
6. Mention the indications for the induction of labor.
7. Management of a case of pharyngeal diphtheria.
8. Causes and diagnosis of a case of empyema.
9. Differentiate between subacute cervical adenitis, tuberculous adenitis of bovine type, and tuberculous adenitis of human type.
10. Give the number of calories and the percentage of fat, sugar, proteid, and lime water in the following milk mixture:

Milk, 4 per cent.	15	ounces
Sugar of milk	1⅛	"
Lime water	1½	"
Plain water	13½	"
	30	"

SURGERY AND GYNECOLOGY.

1. Describe operation for removal of the glands of the neck; what vessels and nerves would likely be injured, and how avoided?
2. Give diagnosis and treatment of synovitis of knee-joint (non-tubercular).
3. Diagnosis and treatment of fracture of neck of the femur.
4. Give the operation for radical cure of umbilical hernia; name tissues that are brought together.
5. Differential diagnosis between congenital and acquired talipes.
6. Etiology and treatment of osteomyelitis; what part of the bone does it usually attack?
7. Give diagnosis between hematocele and hydrocele of tunica vaginalis, with treatment of each.
8. Etiology, diagnosis, and treatment of pyelonephritis.
9. What relative position to each other do the ends of the bone occupy in a Colles fracture? Give method of reductional treatment.
10. Diagnosis and treatment of acute anterior; acute posterior urethritis.
11. Describe in detail operation for complete rupture of perineum.

12. Give treatment of retroversio uteri.

HYGIENE AND PREVENTIVE MEDICINE.

1. What is the safest disposal of public sewage? Describe the process.

2. Briefly outline the precautions to be taken in a community where typhoid fever has developed.

3. (a) For the purification of large quantities of water, such as is needed for large cities, what is the most available, satisfactory, and efficient method? (b) Construct a rough outline of the general arrangement of a filter plant.

4. (a) What is the difference in antitoxins and bacterial vaccines? (b) Give example of each. (c) How should they be used?

5. Give prophylaxis of hook worm disease.

MEDICAL JURISPRUDENCE.

1. Give proper manner of making post-mortem examinations.

2. What would be the appearance of a body that had been drowned, and not to have been in the water more than two or three hours?

3. What constitutes a "Live Birth?"

4. What is the appearance of an infant born alive at full term?

5. What do civil and criminal responsibility imply?

ANSWERS.

OBSTETRICS AND PEDIATRICS.

1. *Pregnancy at the third month* should show: Absence of menstruation, changes in the mammary glands, morning vomiting, purplish hue of the vagina, the os is soft and is low in the vagina, and the abdomen is flat.

2. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Textbook of Obstetrics.*)

3. ANESTHETICS are used in labor to lessen suffering produced by labor pains; to lessen the pain attending obstetric operations; to relax the uterus when its rigid contraction interferes with version; to promote dilatation of the os uteri; to reduce excessive nervous excitement which may interfere with progress of early stage of labor; to relieve eclamptic convulsions and mania; in cases of uterine inversion to relax the constricting cervix and so facilitate replacement; in bipolar version to lessen pain of introducing the hand into vagina; in precipitate labor to suspend action of voluntary muscles and retard delivery; in all cutting operations upon the abdomen; and sometimes in sewing up a lacerated perineum when many sutures are required. (From King's *Obstetrics.*)

Dangers: It lessens the efficiency of the uterine contractions; it predisposes to postpartum hemorrhage; and, if given too freely, may be followed by headache, nausea, and vomiting.

4. Morbidity during the puerperium is anything in addition to the normal accompaniments of an average or normal labor. Prolonged labor, shock, hemorrhages, malpresentation, or malposition, the use of instruments, abnormalities of the fetus, and sepsis are the main factors. The patient should be put in the best possible condition before labor, all abnormalities should be corrected where possible, and examinations should only be made when necessary and always with aseptic precautions.

5. During the third stage of labor, one dram of fluid-extract of ergot is administered and irritation of the uterus by friction through the abdominal wall is practised for ten or fifteen minutes. If the placenta is not expelled by this time, the uterus is firmly grasped between the thumb and four fingers and compressed. Firm pressure is then made from above downward and backward in the direction of the pelvic canal. This usually causes delivery of the placenta. A vulvar pad of salicylated cotton and carbolized gauze and an abdominal pad and binder are then applied. (*Pocket Cyclopedia.*)

6. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head.

7. In *pharyngeal diphtheria,* the patient should be isolated and put to bed, and kept on a milk diet. The room should be well ventilated, the air kept warm and moist; mild antiseptic solutions may be used for nose and throat; the bowels should be kept open with small doses of calomel; diphtheria antitoxin should be administered as early as possible, and in a sufficiently large dose; tonics and stimulants should be given as required. The rest of the family must be kept away from the patient, and all infected articles should be soaked in a solution of corrosive sublimate or carbolic acid.

8. *Empyema* is generally secondary to pneumonia, tuberculosis, scarlet fever, or other exanthem, suppurative inflammations, or traumatism. The pneumococcus, streptococcus, and staphylococcus are the bacteria most frequently found. The condition is diagnosed by finding the symptoms of fluid in the pleural cavity; this is withdrawn by a needle and on examination is found to be pus; a leucocytosis is also present.

9. In *subacute cervical adenitis,* the patients are generally under three years of age, there is no suppuration or caseation, the glands do not adhere to skin or deeper tissues, and the condition responds to constitutional treatment.

In the *tuberculous adenitis,* the patients are generally from three to ten years of age, caseation and suppuration generally occur, and the tubercle bacilli can be found in the pus.

To differentiate between tuberculosis of bovine type and that of human type is difficult. "There are certain slight but constant differences between the bacilli isolated from human tissue lesions and those of bovine origin. The bacilli obtained from cattle are shorter, straighter, and thicker than those obtained from man; they are cultivated less readily, as a rule, on artificial media, and they are uniformly much more virulent for rabbits. In glycerin broth 2 per cent. acid to phenolphthalein, and containing at least 3 per cent. of glycerin, the reaction produced by human cultures remains permanently acid to phenolphthalein, while with bovine cultures the originally acid reaction diminishes and when the conditions for the multiplication of the bacilli are favorable a feebly alkaline reaction is eventually reached." (Jordan's *Bacteriology.*)

10. Milk, 4 per cent. contains .04 ounces of fat, .04 ounces of sugar, and .04 ounces of proteids.

As the 15 ounces of milk is diluted to 30 ounces, these quantities will be .02 ounces.

Sugar, 2 per cent. of 30 ounces..... = 0.6 ounces
Add 1⅛ ounces (in the mixture) = 1.125 ounces

Total....1.725 ounces of sugar, which is 5¾ per cent. of 30 ounces.

Lime water, 1½ ounces = 5 per cent. of 30 ounces.

PERCENTAGES are, therefore: Fat..... 2 per cent.
Sugar of milk 5¾ "
Proteids..... 2 "
Lime water... 5 "

In 30 ounces: Fat 2 per cent. = 0.6 ounces = 18 grams
Sugar 5¾ " = 1.725 " = 51.75"
Proteids 2 " = 0.6 " = 18 "

The calorie coefficients (of Atwater) are:
Fats, 8.9; Sugar, 4; and Proteids, 4.

Hence Fat = 18 × 8.9 cal. = 160.2 calories
Sugar = 51.75 × 4 " = 207.0 "
Proteid = 18 × 4 " = 72.0 "

Total..... = 439.2 calories.

SURGERY AND GYNECOLOGY

1. "The *excision of tuberculous glands* is often an extensive and difficult operation because of the number and deep situation of the glands to be removed, and of the adhesions to surrounding structures. The skin incision must be sufficiently extensive to give access to the whole of the affected area, and to avoid disfigurement should, whenever possible, be made in the line of the natural creases of the skin. When glands are to be removed from both anterior and posterior triangles, the best access is obtained

by a Z-shaped incision, the upper limb running parallel with the lower jaw, the vertical limb along the sterno-mastoid, and the lower limb parallel with the clavicle. In exposing the glands the common facial and other venous trunks may require to be clamped and tied. Care must be taken not to injure the important nerves, particularly the spinal accessory, the vagus, and the phrenic. The infra-maxillary branches of the facial, hypoglossal and its descending branches, and the motor branches of the deep cervical plexus are liable to be injured, and should, if possible, be conserved. The dissection is rendered easier and is attended with less risk of injury to the nerves if, instead of a knife, the conical scissors of Mayo are employed. In the removal of matted glands beneath the sterno-mastoid, it may be necessary to cut this muscle across and to reflect the divided ends upwards and downwards; if the muscle itself is infiltrated with tubercle, the affected portion is removed along with the glands. When the glandular mass is closely adherent to the internal jugular vein, the operation is rendered easier by ligating the vein at the root of the neck and removing it from below upwards along with the glands (Watson-Cheyne). When the glands are extensively affected on both sides of the neck, it may be advisable to allow an interval to elapse rather than to operate on both sides at one sitting. In closing the wound, the platysma and cervical fascia should be reunited by means of a fine catgut suture and the skin edges brought together by Michel's clips; if drainage is called for, a very fine glass tube should be introduced through the skin and fascia at a little distance from the main wound." (Thomson and Miles' *Surgery.*)

2. *In non-tubercular synovitis of the knee-joint,* the knee is held in a semiflexed position, the joint is hot and painful, there is a swelling on each side of the patella and also above that bone, fluctuation may be obtained. Treatment consists in immobilization of the joint, bandaging, application of lead and laudanum lotion, ice is of use in the very early stages, later on (if pain is present) hot applications are of service; if the tension is very great leeches or aspiration may be of benefit. Later on, massage and passive movements are serviceable.

3. *Extracapsular fracture of neck of femur.* There are: History of injury; pain, bruising, and swelling; crepitus (in unimpacted fractures); loss of power of walking (as a rule); eversion; shortening of the limb; the great trochanter is raised, everted, and is nearer to the mid line. *Treatment*: Unless there is great deformity, it is not advisable to break up impaction. Bony union always occurs. The patient should be anæsthetized, and traction kept upon the leg during fixation. A stirrup extension is first put on, and then the leg is firmly bandaged to a long Liston splint, with the eversion corrected. The chest is fixed to the splint by a binder; the foot of the bed is raised, and a weight of 8 or 10 pounds is put on to the cord of the stirrup extension. Hodgen's splint may also be used. Union occurs in six weeks. (From *Aids to Surgery.*)

4. *Operation for radical cure of umbilical hernia.* "(1) Incise at first through skin and fascia only: the incision is elliptical, with upper and lower ends in the median line, and widest part opposite the greatest width of the hernia. (2) Carefully deepen the wound on one side until the abdominal aponeurosis (sheath of the recti) is reached, aiming to come down upon it a short distance to the outer side of the hernial neck. (3) Having once reached the rectal aponeurosis, similarly expose this aponeurosis and the neck of the hernial sac all around the outline of the ellipse. All bleeding is controlled by clamp and ligature. (4) The hernial sac is now incised and its contents dealt with as indicated. Adhesions are separated. Excess of omentum is ligated and excised. All remaining contents of the sac are returned to the abdomen—and kept in place by a large, anchored gauze pad—which is removed just before closure of the abdomen. (5) The entire sac, with the umbilicus and the coverings included in the ellipse, is now excised—dividing the peritoneum in an elliptical manner about the neck of the sac. (6) The peritoneum—or the peritoneum and transversalis fascia together—is sutured with interrupted or continuous gut sutures. (7) The borders of the abdominal ring—formed by the sheaths and margins of the recti muscles—are freshened with curved scissors. The edges of the ring are then brought together with interrupted sutures of kangaroo tendon or chromic gut—using either the plain interrupted suture, or the mattress type. (8) The skin and fascia (unless the fascia be thick enough to require separate gut suturing) are sutured with interrupted silkworm-gut sutures. (9) The part is then well supported by an abdominal dressing." (Bickham's *Operative Surgery.*)

5. Points of distinction between Congenital and Acquired Talipes Equino-varus:

	CONGENITAL.	PARALYTIC.
History:	Affection has existed from birth.	Not developed till second or third year.
Feet affected:	Bilateral.	Generally unilateral.
Circulation:	Good.	Limb cold and blue.
Muscles:	Little wasting.	Marked wasting.
Electrical reactions:	Not much impaired	Absent in paralyzed muscles.
Growth of bones	Unimpaired	Impaired.

(*Aids to Surgery.*)

6. Acute infective osteomyelitis. *Causes*: "The general vitality is lowered, and there is some focus of ulceration in the mouth or throat, by which organisms enter and circulate in the blood. All that is now necessary is that some part of a bone should have its vitality depressed by a blow, strain, or exposure to cold, and the organisms then attack it. The bacteria most commonly found are the staphylococci, but streptococci are present occasionally. The disease usually begins in the new growing bone at the end of the diaphysis, rarely in the epiphysis. The lower ends of the femur and radius, the upper ends of the tibia and humerus, are the commonest seats.

"*Treatment* must be very prompt. A free incision must be made through the periosteum and the pus evacuated. In any case, whether pus is found or not, the surface of bone must be gouged away to expose the medulla freely, and any gangrenous tissue scraped out. The cavity must then be washed out and freely drained. The wound in the soft structures is not closed in any part. If symptoms of pyemia occur, it may be necessary to amputate the limb through the joint or bone above, so as to cut off the source of emboli. When a large portion of, or the whole diaphysis is necrosed, there are two courses: either to cut short the disease by removing the dead portion at once, or to leave the sequestrum to stimulate the formation of an involucrum. Where there is a single bone, as in the arm and thigh, the sequestrum is left; where there is a double set of bones, as in the forearm and leg, the sequestrum is removed at once. Celluloid, zinc, and ivory rods have been inserted to stimulate osteogenesis. In most cases it is doubtful how much bone is actually dead, so that it is better to open up the cloacæ in the newly-formed involucrum to remove the sequestrum. The cavity heals by granulation." (*Aids to Surgery.*)

7. In *hematocele*: The tumor is solid, opaque, tense or doughy, globular in outline, the onset is generally sudden with history of an injury; the scrotum may be ecchymosed.

In *hydrocele*: The tumor is elastic or fluctuating, translucent, pyriform in shape, and is chronic.

Treatment of hematocele: Rest in bed, with the parts elevated; application of evaporating lotions; if there is much effusion, paracentesis may be indicated. Radical treatment includes excision of the sac, with turning out of the clot; sometimes castration is necessary, particularly in old people, or where the pain is very severe.

Treatment of hydrocele: Tap the cavity, and remove the fluid; radical treatment includes injecting the cavity (after tapping) with tincture of iodine, or excision (partial or complete) of the tunica vaginalis.

8. *Pyelonephritis* "is usually due to extension of sepsis from the bladder in cases of stricture, enlarged prostate, and spinal injuries. It may be due to calculus in the kidney or ureter, or stricture of the ureter. Organisms spread upwards along the mucous membrane or lymphatics of the ureter or along strings of mucus, and cause pyletitis. The bacteria further invade the lymphatics around the renal tubules and give rise to abscesses. Acute inflammation causes death from uremia, but if the process is chronic pyonephrosis is the result. In acute cases a rigor follows an operation on the urinary passages, associated with fever and vomiting. The patient gets into a typhoid condition, and dies in two or three weeks from uremia. In chronic cases the onset is insidious. There is some pain in the loin and an irregular intermittent temperature. The urine is alkaline and contains pus and casts. The case terminates in death from toxemia. *Treatment.*—The cause must be attended to and the bladder regularly washed out, while a large quantity of fluids should be drunk. Hot fomentations and cuppings over the loins relieve the pain, and urotropin is the best internal antiseptic." (*Aids to Surgery.*)

9. *In Colles' fracture,* the lower fragment forms a prominence on the dorsal aspect; above the lower fragment is a well defined hollow. On the palmar aspect, just above

wrist is a projection formed by the end of the upper fragment. Reduction is effected by extension with the hand supinated and adducted, combined with manipulation of the fragments.

10. *The symptoms of acute anterior urethritis* are: An incubation period of 24 hours, a tickling or an itching sensation of the meatus, which is red, glazed, and often colored with grayish, opaline mucus; the discharge is scanty at first, but gradually increases. At the end of 3 or 4 days the redness and congestion about the meatus increase and may cause edema, phimosis, and paraphimosis. Lymphangitis is present. The discharge becomes thick and purulent. Ardor urinæ, chordee, and frequent urination are now present. At this stage, when the urine is passed into two glasses, in the first glass the urine will be cloudy; in the second, clear. The symptoms just mentioned usually last for about 4 weeks, when they gradually abate.

Symptoms of Acute Posterior Urethritis.—The discharge decreases; the frequency of urination increases; vesical tenesmus may be present; there is considerable pain; hematuria, albuminuria, and retention of urine are also symptoms. When the urine is passed into two glasses, both specimens will be cloudy.

Treatment of acute anterior urethritis consists in rest, light diet, cleanliness, laxatives, irrigation with hot solution or permanganate of potassium (1:2,000); a one per cent. solution of protargol is also used; internally, urinary antiseptics, such as salol or methylene blue, are used. In *acute posterior urethritis,* in addition to the general treatment mentioned above, opium in suppository may be given; copaiba or salol may be administered; irrigations are discontinued; complications may require treatment.

11. *Operation for lacerated perineum*: "The labia are seized with Allis' forceps at the level of the lowest caruncular mytiformes. A guide stitch is placed in the posterior vaginal wall directly under the external urinary meatus. By pulling one Allis forceps and the guide stitch in opposite directions outward and downward, the posterior sulcus is exposed; denudation is required, even in a recent tear, for a part of it is always submucous. The other sulcus is exposed and denuded. Then by holding the guide stitch upward in the middle line and pulling the forceps apart the mucous membrane between the sulci is denuded or freshly torn surfaces covered with granulation-tissue are scraped with the edge of a knife. The ruptured levator ani muscle in the posterior sulci is united with a double tier suture of chromic gut, two half-hitches being taken in the stitch as it turns upward after coming down from the apex of the wound, in its deeper portion to the base. One knot at the apex of the sulcal denudation secures the stitch. The retracted ends of the transversus perinei and bulbocarvernosus muscles are brought together by silkworm sutures. Finally, a single stitch at the top of the perineal wound unites the posterior commissure of the vulva, restoring the fossa navicularis. The perineal stitches are knotted; they are removed on the twelfth day." (Hirst's *Obstetrics.*)

12. *Treatment of retroversio uteri:* Remove the cause, if possible; replace the uterus and keep it in position by pessaries, tampons, and knee-chest position; pelvic massage and vaginal douches; proper hygiene, particular attention being paid to the bowels, clothing, and exercise. *Curative treatment*: The choice lies between ventral suspension of the uterus and shortening of the round ligament.

HYGIENE AND PREVENTIVE MEDICINE

1. The biological (or bacterial) process of sewage disposal is probably the best and safest.

"The actual changes which take place in sewage, as the result of bacterial action, are somewhat complex and obscure, but they have been aptly described by Rideal as consisting mainly of three stages. In the first stage, or that of anaërobic liquefaction and preparation by hydrolysis, the albuminous matters, cellulose, and fats are broken up into soluble nitrogenous compounds, fatty acids, phenol derivatives, gases, and ammonia. In the second stage, or that of semi-anaërobic disintegration of the intermediate dissolved bodies, a further formation of ammonia, nitrites and gases takes place. In the third stage, or that of aeration and nitrification, ammonia and carbon residues are changed into water, carbon dioxide, and nitrates."

A septic tank is a specially constructed tank for the treatment of sewage; in it the sewage as such is destroyed, and new substances are built up in its place. In *Cameron's septic tank* system "the sewage is first led into a tank from which air and light are excluded. Digestive changes take place in the sewage within this tank as the result of anaërobic bacterial action, which is favored by the darkness, the absence of air, and the perfect stillness at which the sewage is maintained. Under these circumstances much of the solid matter is rendered soluble and dissolved." (Notter and Firth's *Hygiene.*)

2. The entrance of typhoid fever into the human organism may be prevented by boiling all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food; flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over.

3. Filtration is an efficient method of water purification. Ordinary filter beds for the purification of water are tanks of varying size, shape, and construction; the walls may be vertical or sloping; upon the paved bottom are pipes to carry off the filtered water. Above these pipes are successive layers of coarse gravel, fine gravel, coarse sand, and at the top fine sand about four feet deep. Through these layers the water passes. *Dibdin's bacteria beds* are based on "the idea that purification in a filter bed is not brought about wholly at the surface, but that the whole bulk of the filter is concerned therein, and experiments were made to determine the results of filling a bed and restraining the outflow for different periods, thus giving the organisms throughout the bed the same opportunity for action." (Harrington's *Hygiene.*)

4. See PATHOLOGY AND BACTERIOLOGY, 9.

5. *Prophylaxis of hoak-worm disease*: Children and adults should be made to wear shoes; proper toilet facilities should be provided, and their use enforced; bathing or wading in shallow water should be forbidden; a proper water supply should be available for drinking purposes; and prompt recognition and treatment of all cases should be encouraged.

MEDICAL JURISPRUDENCE

1. Reference must be made to a large textbook on Pathology or Medical Jurisprudence; the answer is too long for insertion here.

2. "Supposing the immersion not to have been over two or three hours, and the inspection to be made immediately, the face will be found to be pale, the expression placid, the eyes half open, the eyelids livid, and the pupils dilated, the mouth half closed or open, the tongue swollen and congested, often indented by the teeth, and perhaps lacerated; the lips and nostrils covered with a mucous froth, which issues from them. The skin is cold and pale, and generally contracted so as to present the appearance called 'gooseskin.' This, being a vital act, is a pretty sure sign that the body was living when immersed in the water. It is not dependent on cold, as was at one time supposed. Cadaveric rigidity usually comes on early in the drowned, hence the body is often found with the limbs stiffened. (Reese's *Medical Jurisprudence.*)

3. To constitute a "live birth," there must be (1) complete extrusion of the child from its mother's body, and (2) some certain sign of life. The latter would be established by one or more of the following: pulsation of the cord, beating of the child's heart, motions of the limbs, twitchings of the muscles, wrinkling of the brows, puckering of the face, opening of the eyes, even if respiration does not take place. (From Witthaus and Becker's *Medical Jurisprudence,* etc.")

4. "The *general appearance* of a child that has been *born alive* at full term and respired is something like the following: The remains of the vernix caseosa are usually seen under the axilla, and behind the ears. The eyes remain partly open, and cannot be permanently closed. The ears are not so close to the sides of the head as is the case in children born dead. The hair is perfectly dry and clean, and the swelling at the back of the head (caput succedaneum) is more prominent than in the still-born. In the *dead-born* infant who has died immediately before its birth the vernix caseosa will be found, more or less, over its entire body. The eyes are closed and the ears are in close apposition to the head. The eyelids when raised close again. The mouth is closed, and from the nostrils is often observed exudation of watery blood. The hair is glued to the head. The thorax is unexpanded and flattened, and the lungs are situated at the posterior part of the thoracic cavity; they are greater in length than in breadth, and their margins are rounded; upon pressure no crepitation is elicited. Within the trachea, which is flattened, may be found a viscid mucous secretion. The remnant of the umbilical cord appears fresher looking than

that of a child that has survived its birth a few hours." (Herold's *Legal Medicine.*)

5. *Civil responsibility* refers to the responsibility which an individual has in reference to such actions as witnessing or making a will or contract, or marrying. *Criminal responsibility* refers to the responsibility which an individual has to the State for the commission of a criminal act.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	W. H. Sanders, Montgomery	Montgomery	
Arizona*	J. W. Thomas, Phoenix	Phoenix	
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 11
California*	C. B. Pinkham, 929 Butler Building, San Francisco	San Francisco	Aug. 5
Colorado	David A. Strickler, Empire Building, Denver	Denver	
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 11
Delaware	J. H. Wilson, Dover	Dover	
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct. 14
Florida*	I. D. Fernandez, Jacksonville	Jacksonville	Nov. 12
Georgia	C. T. Nolan, Marietta	Atlanta	Oct. 14
Idaho*	O. J. Allen, Bellevue	Boise	Oct. 7
Illinois		Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	
Iowa	G. H. Sumner, Des Moines	Des Moines	Sept. —
Kansas	H. A. Dykes, Lebanon	Topeka	Oct. 14
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec. 11
Louisiana	A. B. Brown, Cusach's Bldg., New Orleans	New Orleans	
Maine	P. W. Searle, Portland	Portland	July 15
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 9
Massachusetts*	W. P. Bowers, State House, Boston	Boston	Sept. 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 14
Minnesota	W. S. Pelleton, St. Paul	Minneapolis	Oct. 7
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 14
Missouri	J. A. B. Adcock, Jefferson City	Kansas City	Sept. 2
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 7
Nebraska	C. P. Fall, Beatrice	Lincoln	Aug. 13
Nevada	S. L. Lee, Carson City	Carson City	Nov. 3
N. Hampshire	Henry C. Morrisen, State Library, Concord	Concord	
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 21
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe	July 14
New York	H. H. Horner, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Sept. 23
N. Carolina	B. K. Hays, Oxford	Raleigh	June 9
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	Dec. 9
Ohio	Geo. H. Matson, Columbus	Columbus	
Oklahoma*	J. W. Duke, Guthrie	Guthrie	
Oregon	B. E. Miller, Portland	Portland	
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Harrisburg Pittsburgh	Dec. —
Rhode Island	G. T. Swarts, Providence	Providence	Oct. 7
S. Carolina	H. E. Boozer, Columbia	Columbia	June 9
S. Dakota	L. G. Hill, Watertown	Pierre	
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville	May —
Texas	W. L. Crosthwaite, Waco	Austin	
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 13
Virginia	Herbert Old, Norfolk		
Washington*	F. P. Witter, Spokane	Tacoma	
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	
Wisconsin	J. M. Beffel, Milwaukee	Madison	
Wyoming	J. B. Tyrrell, Laramie	Cheyenne	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Auscultation of the Venous Pulse.—Josné and Gadlewski state that this procedure gives important clues as to the cardiac mechanism. While the graphic methods are more precise and scientific, nevertheless the physician with a trained ear can with profit perform auscultation of the jugular veins.—*La Quinzoine Therapeutique.*

Hemorrhage into the Right Vocal Cord, the Result of an Accident at Football.—W. M. Mollison, who reports the case of a student at Guy's Hospital who, while playing football a week previously received a kick in the neck on the thyroid cartilage, a little to the right of the middle line. He experienced a feeling of shock and of suffocation; this passed off, and he found his voice was very weak; he had, too, considerable pain on swallowing, and had a constant desire to swallow. Seen within an hour of the accident he could scarcely speak, and an examination of the larynx showed slight swelling of the right vocal cord. On attempted phonation the cords approximated but the arytenoids were not symmetrical, the right getting a little in front of the left (this is no doubt a normal abnormality in this case). Two days after the accident the voice was still weak, but normal in character, and the patient felt well, though on walking he again experienced a feeling of suffocation, but in much less degree than before. The larynx then and now showed hemorrhage into the right cord, while the left was normal.—*Proceedings of the Royal Society of Medicine.*

Miscellany.

Proverbs Relating to Diet.—There is a maxim ascribed to Theognis, according to which "Surfeit has killed many more men than famine," and Hypocrates had an aphorism that "Everything in excess is inimical to Nature." The former maxim finds modern equivalents in "Surfeit slays mae than the sword" (a Scottish proverb from Ray's collection), and a Latin counterpart in "Non plures gladio quam cecidere gula." Two other Latin proverbs put the same idea in different words: "Multo plures satietas quam fames perdidit viros" and "Multos morbos multa fercula fecerunt." A laconic adage says, "Much meat, many maladics"; an outspoken one says, "Quick to the feast, quick to the grave"; and a farseeing one announces that "Feastings are physicians' harvests." The Spanish rhyme "Mas mató la cena che curó Avicena" (The supper has killed more than Avicena cured) is a popular maxim.—*British Medical Journal.*

The Intellectual Standard of Doctors.—There is not the slightest reason to believe that physicians are linguistically inferior to parsons or lawyers. The assertion that English doctors are inferior in general culture to their French and German brethren is entirely unwarranted by facts. It is true that many of the keenest minds of the nation are attracted to fields of activity which offer a better financial return. But fortunately many men of intellect are attracted to the profession by the interest of the work, and it would be strange indeed if medical men whose education is more elaborate and costly than that of any other class of the community should have a lower intellectual standard than that of other professional men. It is recorded by Boswell that Johnson "in general had a peculiar pleasure in the society of physicians." Sir James Paget, as is mentioned in his "Memoirs and Letters," sat one evening at that very select club, Grillion's, between Gladstone and Matthew Arnold. The talk turned on professions, and Gladstone said that medicine, steadily developing and improving, was the profession of the future. Arnold said he had been much impressed in America by the superiority of the doctors over the clergy and the lawyers. As regards classical culture in particular, that is becoming more and more the appanage of a highly specialized class. Members of Parliament no longer quote Latin, and the time is long past when, as Sydney Smith said, a false quantity in early life is a stumbling-block in the career of a politician.—*British Medical Journal.*

THE STEADY SUBSCRIBER.

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How it makes our pulse throb, how it makes our heart dance!
We outwardly thank him, we inwardly bless him—
The steady subscriber who pays in advance.

—*Edinburgh Sentinel.*

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A SHORT STUDY OF THE CAREER OF PARACELSUS.*

BY RICHARD COLE NEWTON, M.D.,

MONTCLAIR, N. J.

PARACELSUS (regarding the exact details of whose birth and early life there is more or less uncertainty) was the son of William Bombast von Hohenheim, who was the natural son of a Grand Master of the Teutonic Order (and, therefore, must have been a nobleman). William Bombast was a practising physician, who is said to have had a hard time to support himself and his family. He married one of the matrons of the hospital connected with the convent at Einsiedeln, near Zurich, in Switzerland, where in 1493 their only son (Phillipus) Theophrastus (Aureolus Paracelsus) Bombast von Hohenheim was born. The boy seems to have been rachitic, and was alleged to have been castrated in his third or fourth year by a hog, or perhaps a drunken soldier, or, according to another account, by his own father. The writer on Paracelsus in Baas's History of Medicine (p. 377) says that this story is most improbable, and yet adds in a note that it may have accounted for Paracelsus's repugnance for women. Hartmann says: "As a person deficient in sexual power cannot attain that high degree of spiritual unfoldment which Paracelsus undoubtedly possessed, we may, therefore, regard the story of his emasculation as one of the many calumnies invented by his enemies. It is, however, certain that no beard grew on his face, and that his skull, which is still in existence, approximates the formation of a female skull rather than that of a male."

The name given him in baptism seems to have been Theophrastus, to which he himself added other names from time to time. Paracelsus, the name by which he is most generally known, was presumably adopted to signify that he surpassed Celsus, the great medical writer of the first century, while some say that it was the result of a rude attempt to transpose his patronymic into Latin.†

Little is known of the early life of Paracelsus. He was taught by his father the rudiments of Latin, as well as more or less alchemy, astrology, and medicine. The lad was presumably precocious, and acquired knowledge quickly. He also studied with certain ecclesiastics. At sixteen he went to the University at Basel, in Switzerland, where he studied under Trithemius, and made use of the laboratory of one Sigmund von Fugger, a wealthy mine owner, where Paracelsus studied chemistry and took an active interest in mining operations. The life at the university seems to have proved irksome to him, and he left it in about two years, without taking a degree, and began wandering about over the face of the earth, even finding his way into Asia and Africa. During part of this time he appears to have acted as a military surgeon, and to have acquired that practical knowledge of the healing of wounds and of general surgery which he undoubtedly possessed. How he maintained himself during these years of wandering is not definitely known. Probably he subsisted by the practice of necromancy, and the application of alleged cures—that is, by loudly proclaiming that he had certain infallible panaceas, and bargaining with sick people and hypochrondiacs for a considerable fee before taking them under treatment.

He undoubtedly embraced every opportunity to enlarge his stock of folklore, and picked up every bit of information possible in days when books were scarce and expensive and knowledge was commonly handed down by tradition and oral instruction. He says himself that he did not read a book in ten years, and adds, "I went in search of my art, often incurring danger of life. I have not been ashamed to learn what seemed useful to me, even from vagabonds, executioners, and barbers. We know that a lover will go a long way to meet the woman that he adores. How much more will the lover of wisdom go in search of his divine mistress?"

His wanderings took him into the Orient, where he was arrested and brought before the Khan of Tartary, who promptly released him. No doubt during these journeys he added largely to his stock of knowledge of the so-called "occult sciences," and the curious beliefs and practices of the magi, sorcerers, and fakirs, scattered about among the people of India, Egypt, and Tartary.

When he was about thirty-two he returned to Germany, where his alleged great skill in the cure of all sorts of complicated and baffling maladies had become somewhat widely known. He was made city physician of Basel, upon the recommendation of Ecolampadius, the reformer, and was also appointed professor of medicine and surgery in the University of Basel at a good salary. This was in the year 1526.

He had many hearers at his lectures, which were delivered in the German tongue, a thing entirely

*Read before the Orange Mountain Medical Society, May 16, 1912.

†"The family name Bombast, probably acquired," says Mr. Browning, in a note to his famous poem, "Paracelsus," "that unlucky signification, which it has since retained, from the characteristic phraseology of his (Paracelsus's) lectures." This statement, however, does not seem to be correct, since "Bombast" in German, cognate with the Latin word *bombyx*, cotton, was the name of the cotton plant growing in Asia, and was applied also to the cotton wadding with which garments were stuffed in Queen Elizabeth's time in England. Hence it came to mean inflated speech, fustian. ("The Browning Cyclopædia," Bendoe, p. 84.)

unheard of in the universities of that day, when German *literati* were ashamed of their plain German names, and in order to appear truly learned translated them into Latin or Greek. This Paracelsus had done, as we have already seen; but either from ignorance of the Latin language or from pure bravado he continued to give his lectures and write his prescriptions in German.

Although he seemed to have been a weakly man, he was a thorough drunkard, in accordance with the custom in that time and that country. Princes, governors, and even the reformer Luther, were said to have all been true knights of the bottle. Paracelsus was unmarried and a Catholic (and was even said to have been a clerical physician under vows), in spite of his professed friendship for Martin Luther.

He was far from popular with the regular profession. In fact, he seems to have delighted in making himself obnoxious to the faculty. One of his acts, after his appointment as city physician, was to demand an investigation of the apothecaries in the town of Basel, to find out (1) whether they were competent to compound prescriptions, (2) whether their drugs were pure and correctly labeled, and (3) whether they were sold at reasonable prices.

This movement, added to the fact that he wrote his prescriptions in German, and wrote far simpler formulæ than they were accustomed to compounding, enraged the drug vendors, who were in the habit of dispensing prescriptions containing from forty to sixty ingredients, the number reaching even a thousand, prepared with all sorts of manipulations and elaborations, so that among other advantages the cost to the patient was kept as high as possible. We must admit that Paracelsus's simplified prescriptions would in these days be considered needlessly elaborated and complex; but they were far simpler than those of other physicians.

As he not infrequently made such remarks as the following about his colleagues, their feelings toward him naturally grew more and more vindictive. He said: "This is the cause of the misery in this world—that your science is founded upon lies. You are yourselves full of lies, and, therefore, all of your philosophy consists of errors and lies. You are not professors of the truth, but professors of falsehood. It is not the opinions which a person holds, but the work which he performs, that constitute a physician.

"This doctorship—this true understanding—is not conferred by emperors or popes, or high schools, but is a gift of God. I am protecting my kingdom, not with empty talk, but with the power of the *arcana* (mysteries); not with such as are bought in apothecary shops, but with the *arcana* of Nature, such as have been revealed to me by Nature herself."

In response to these somewhat uncomplimentary remarks the colleagues of Professor Paracelsus said that he was no true doctor, not having taken a degree (which seems to have been quite true); that he had disgraced the noble art of medicine by lecturing in the vernacular, and thereby letting the laity into many of the secrets of the art; that what cures he compassed he effected by the aid of evil spirits, etc.; that his character was bad, and his associates vile. It is true that his boasting had been phenomenal. He had professed to have cured thirteen princes of the blood that had been given up by other practitioners as incurable. But after coming to Basel he had had the misfortune, after having "cured" a prominent citizen, to have the man rather promptly die, a fact which his detractors did not lose sight of.

More than all these enormities, he had inexpressibly startled and shocked the "standpatters" in medicine by inaugurating his course of lectures at the University of Basel with a public burning of the works of Galen and Avicenna. He supplemented this outrage by such language as the following: "You are to be my followers, and not I yours. Me! Me! I say, you will follow—You, Avicenna, Galen, Rhazes, Montagnana, and Mesues. I shall not be your follower, but you shall be mine. You men of Montpellier, and Cologne, and Vienna, you Germans, men of the Danube and Rhine, and the Maritime Islands, Athenians, Grecks, Arabs, and Israelites—I am not to follow you, but you shall follow me; nor will any one hide even in the darkest corner, where the dogs shall not piss on him. I am to be the monarch, and the monarchy will belong to me . . .

"For I tell you boldly, that the hair from the back of my head knows more than all you writers put together. My shoe-buckles have more wisdom in them than either Galen or Avicenna, and my beard more experience than your whole academy . . . Do not boast yourself and say, 'we have Galen for our father, or Avicenna.' As for them, the stones shall fall upon them, and the sky shall produce other physicians who will understand the four elements, and magic, and the cabalistic art, that for you are only cataracts and a beam in the eye."

It does not seem unreasonable to suppose that such language would arouse animosity, and in those turbulent days might easily have led to violence.

Paracelsus is even said to have burnt a papal bull, before Luther startled the world by a similar performance. Yet in the meager personal history of the man, which I have been able to find, I do not read that he was ever disciplined by the Church, or had ever received any such document as the bull of excommunication which was issued against Luther; so that if he ever publicly burned a papal bull it was probably a mere act of bravado, and was not, as in Luther's case, a defiance of the papal authority by the contemptuous treatment of a bull of excommunication issued against himself.

However this may have been, he certainly did not need to outrage the feelings of the ecclesiastics, in addition to the doctors and apothecaries, to make himself thoroughly hated. Unless we stop to reflect for a moment, we shall scarcely realize what a serious break it was to burn in public the works of Avicenna and Galen, nor how much courage it took to defy in this way the well-crusted and thoroughly embedded mass of tradition and authority which supported those pillars of medical learning, and had done so, in the case of Galen, at least, for more than a thousand years.

To illustrate the hold which the teachings of Galen had upon the medical mind of England, I might mention the fact that in 1559, thirty years after the time of which we are speaking, a Dr. Geynes was called before the College of Physicians and Surgeons of London for impugning the infallibility of Galen, and was forced to make "a humble acknowledgment, and recantation of his errors" before he could enjoy any further privileges from the college. Gould says that for four hundred years the Greek physicians paid no heed

to smallpox, because they could find no description of the disease in the immortal works of Galen.

Hence we can appreciate the fact that Paracelsus's conduct at least required courage, a quality in which neither he nor his alleged friend Luther seemed lacking. Another quality of Paracelsus, which can scarcely fail to attract attention, is the vigor and picturesqueness of his diction. He is even said to have done much to clarify and strengthen the German language by his writing and speaking. Luther, as is well known, did a great deal to purify, strengthen, and establish the German language by his writing and preaching in that tongue, and especially by his translation of the time, as you know, preached and lectured in Latin.

After Paracelsus had been lecturing in the University of Basel for about two years he was called to a prominent ecclesiastic who was suffering from the pangs of gout. Paracelsus agreed to cure the Bible into German. Priests and doctors before his sufferer for 100 florins, and produced immediate relief by the administration of "laudanum pills," probably similar to our laudanum. He then demanded his fee, which was refused by the prudent ecclesiastic, and the matter was finally taken into the courts. The defendant not only declined to pay the bill, but publicly accused Paracelsus of necromancy, sorcery, and drunkenness. After hearing the case the court decided in favor of the priest, whereupon the professor issued a violent and abusive manifesto against the judge. This did not go well in the little republic of Switzerland, and led to the inauguration of steps to visit upon the offender condign punishment for contempt of court. The professor having got wind of this fled with great precipitation, and thus sacrificed his professorship and his position as city physician.

He went to Esslinger, where he had a house, in which some chemical apparatus was found as late as the nineteenth century, and there remained a long time—for him, probably a year or two. At length being obliged, so we are told, to go on the road again because he was in need of money, in the next ten or twelve years he went to Alsace, Nuremberg, St. Gall, Augsburg, Pfaffers, Moravia, Vienna, and Villach, always treating the sick and imparting advice by mouth and letter, always followed by pupils and students. He did not seem to take much interest in the latter, however, as he alleged that they only wanted to learn his precious secrets (arcana).

Finally, his wanderings promised to end in a peaceful existence at Salzburg, whither he went and settled down under the protection of the Prince Palatine, Duke Ernst of Bavaria. Even here his stay did not last long, for he died at the "White Horse," presumably a tavern of more or less repute, September 24, 1541. Some say that he died from disease, and others that he was thrown down a cliff or otherwise maltreated by hired assassins, emissaries of doctors who hated him, and still others that he fell and fatally injured himself while grossly intoxicated.

After his death an inventory of his effects was made. He seems to have left very little behind him, especially very few books. "His whole library consisted of a Bible, a biblical concordance, a commentary to the Bible, and a book of medicine in manuscript."

Thus passed away a remarkable man, whose influence on the history of medicine was very great. If you will bear with me, I will try to give you a few extracts from his teachings, and will quote a few opinions concerning his character and achievements, because I believe that these will not be without value in our endeavor to get a glimpse of the state of medicine at that period of its history.

It must be borne in mind that this peculiar man read very little and wrote very little himself. His alleged writings were mostly the work of his pupils, and seem to have often been carelessly and incompletely done. A great quantity of manuscript was turned over to the printer after his death, which was alleged to be the authentic teaching of Paracelsus. A great deal of it must have been spurious, and of the authenticity of a great deal of the autograph writing there may well be much doubt, especially as direct contradictions appear in his statements upon the most superficial examination; and by reason of his habits and his vagabond way of life, one could hardly expect that he would leave behind him a careful, complete, and methodical collection of manuscripts.

Dalton[2] says, "He even gloried in his ignorance, and considered it as evidence of originality; he was wont to say, 'My own writings are enough to prove this, for in this book I shall bring forward not less than six hundred new inventions. Not one of them is admitted by any philosopher or physician, ancient or modern, unless he is willing to abandon the writings of the ancients altogether. There are plenty who know that my whole library is so small that I could hardly make out of it a dozen written pages; and, besides, my secretaries will testify under oath that they have written everything from my own dictation.'"

Antiprassus Siloranus (Hartmann[1]) says that Paracelsus wrote thirty-five books on medicine, two hundred and thirty-five on philosophy, twelve on politics, seven on mathematics, and sixty-six on necromancy; but as he was engaged in literary labors for only about fifteen years, as Hartmann tells us, it would seem impossible for him to have written so many books.

John Huser made a careful collection of the works of Paracelsus, which was published in 1589-90. This was in eleven quarto volumes, containing one hundred and six titles, many of which were short articles and letters, while there were a number of formal treatises. He coined a great many words to express his meaning, so many indeed, that it is almost, or quite impossible to understand much of his alleged writing. Of course all alchemical writing contains many obscure and curious words and phrases. But Paracelsus had improved on his predecessors in the skill with which he could mystify his readers and hearers. This seems to have been a part of his game of alchemy.

His disciples, Dorn, Thureyssen, and Ruland, composed dictionaries to define these curious terms. Of these the one compiled by Ruland, entitled "Lexicon Alchemicum," Prague, 1612, is the most complete. This was republished in London in 1660, so Hartmann tells us, by Guilhelinus Johnson, under his own name, and has been incorporated into the "Bibliotheca Chymica Curiosa," by J. T. Mangets, Geneva, 1702. Another, "Dictionarium Paracelsicum," was written by a certain Bailiff, and added to the Geneva publication.

Speaking of the alchemists, Professor Dalton says by the sixteenth century this embryonic science (alchemy) "had become largely tinctured with

charlatanism. The writers on alchemy used the strangest terms to describe chemical substances, and employed various signs to designate them, which were not always the same for the same substance."

Thus gold was represented either by the sun, the lion, or the swan; silver by the moon and the owl; copper by Venus; iron by Mars and the wolf; tin by Jupiter, the eagle, and the stag; and lead by Saturn and the mole. Traces of this practice still exist in our own materia medica, as when we use the term "lunar caustic" for nitrate of silver, or "saturnine preparations" for salts of lead.

To quote further from Dalton's excellent paper, "One of their most singular freaks was the general habit of using this studiously obscure language in order to guard their secrets from discovery, even by the reader. It is not easy to comprehend why if an alchemist wrote a book to teach us how to make the philosopher's stone he should not tell the story so that we could understand him; or, on the other hand, if he did not wish his secret to be known, why should he write a book about it at all? But, as a matter of fact, this was a very prominent feature of nearly all the works on alchemy.

"Paracelsus, of course, was an alchemist, and has much to say about the production and virtues of the great elixir. He claimed to be superior to the other alchemists, and to have more efficacious means of success. Here is 'A quick and easy way to make a philosopher's stone.' The old spagyrites (alchemists) would not have needed to go through all this labor and tedious reiteration if they had studied in my school; they would have accomplished their object equally well, but at far less trouble and expense. And now, at this time, when Paracelsus is the monarch of the *arcana*, the period has arrived for that discovery which, before me, was hidden from all the spagyrites. Wherefore, I say, take only rose-colored blood from the lion and glue from the eagle, and after you have mingled them together, coagulate them according to the old process. You will then have the philosopher's tincture which men without number have sought for but very few have found."[3] Dalton continues: "If we try to interpret this lucid prescription, we should remember that 'lion' is one of the cabalistic synonyms for gold, and the 'eagle' one of those for tin. If gold be dissolved in nitromuriatic acid, evaporated and heated, and the product dissolved in water, it forms a solution of the terchloride of gold. This was probably the alchemist's 'rose-colored blood from the lion.' On the other hand, protochloride of tin, which is a gray, resinous looking, and easily fusible substance, was perhaps what they called 'glue from the eagle.' It will precipitate the gold from a solution of its terchloride, in the form of brown powder."

The receipt of Paracelsus, if translated into modern language, would then read as follows: "Take only a solution of terchloride of gold, and a solution of protochloride of tin, and coagulate them—that is, make a precipitate by mixing them together. We should thus have, at the end of the operation, the same gold, in a different form, which had first been dissolved in the nitromuriatic acid." Now that we have the precious article, however, it seems that it is not quite ready for use, according to Paracelsus, and the operation which still remains necessary can hardly be called an inexpensive one.

"If the philosopher's tincture," he says, "is to be used for transmission—a pound of it is first to be projected over a thousand pounds of melted gold; thus, at last, the medicine will have been prepared, which is able to transform the leprous humor of the metals.

"Of all the *arcana*, or occult remedies, which Paracelsus depended on in practice, the most valuable was his 'Quinta Essentia,' or fifth essence, which he extracted from all sorts of substances, animal, vegetable, and mineral. He considered this quintessence as containing, in concentrated form, all the life, power, and occult medical properties of the substance from which it was derived. Some of these were of extraordinary virtue. For example, he said that the quintessence of pearls, extracted by himself, had such power that with it he had restored to life and strength men who were already in the agony of death.[4] Of course, the quintessence of gold was more valuable than any of the others, and his process for extracting it is a fair sample of laborious and fruitless prolixity of the operation of the alchemist."

The formula is as follows: "Take pure gold, reduced to the smallest grains, and rubbed into a powder with plumbago. Add to this of the best white wine that can be procured one hundred parts, and white resin of the pine ten parts, and macerate in a glass vessel forty days. Pour off the wine, add the same quantity over again, and macerate as before. Repeat this a third time. Then take all the wine from the three successive macerations, place it in a glass vessel, well covered, and distil with a strong fire, so that it may come over rapidly. When the distillation is complete, place the liquid in a glass vessel, well covered with a blind alembic, upon a bed of ashes, hot enough to burn the hand.

"Keep it in this condition until nine parts of the liquor are consumed or dried up, and only the tenth part remains. To this remaining liquid add an equal quantity of the white of egg, shake the mixture and distil together. At first, distil slowly, and a white liquid will come over, which should be set aside. Then increase the heat until the vessel is red hot, when there will come over a material of thin, honey-like appearance and strong odor. Keep this; for it is the fifth essence of gold, and a royal medicine."

In reality, this substance would not contain the least particle of gold, or of any of its derivatives.

Paracelsus was also an adept in the cabalistic signs so greatly in evidence in the medical and alleged scientific writing of the day, and was especially strong in the so-called doctrine of signatures. Dalton calls this "the most senseless and futile of the many delusions of the period." It was the alleged science of supposed correspondence and sympathies in Nature; the macrocosm and the microcosm, or the imaginary relations between the planets and terrestrial objects. As, for instance, the seven great organs, the brain, heart, lungs, gall, kidneys, and spleen, were assumed to correspond to Moon, Sun, Mercury, Mars, Jupiter, Venus, and Saturn.

Diseases also, in their quality as integral parts of the microcosm, like microcosm in microcosm, have their models in the macrocosm.

Thus epilepsy resembles the earthquake; apoplexy the lightning; flatulence the wind-storm; dropsy, inundations; the chilliness of fever, the quaking at the origin of a new world; while intermission of the pulse corresponds to the eclipse, etc.

The cabalistic doctrine also applied to external marks of form, color, or consistency, by which their occult sympathies or relations were supposed to be indicated. These signatures were more or less vague and imaginary, when applied to treatment, at least in most cases. For instance, saffron from its color was esteemed a valuable remedy in jaundice, bloodstone for hemorrhage, and red cowes for blood diseases. Ginseng and mandrake roots from their shape were supposed to be tonic and aphrodisiac, and the whole family of the liverworts were so named because they resembled roughly the liver in shape.

It is easy to see how speculation along these lines might suggest the great motto of homeopathy, "like cures like." Butler says in Hudibras,

> "Seek out for plants with signatures,
> To quack of universal cures."

This foolish doctrine exercised an enormous influence upon the medicine of the time.

I quote from Wilder[5] Paraselsus' own definition of the doctrine of signatures. "This signature, or specific indication, is a certain organic vital activity giving to each natural object a certain analogy to a certain condition produced by disease, and through which, in specific diseases, health may be restored in the diseased organisms."

Wilder, after praising the clarity and completeness of the definition, goes on to say: "This hypothesis, it will readily be perceived, underlies the doctrine of homeopathy, and the dogma of direct and specific medication." This may be so, but it is a little difficult for a non-inspired thinker to see the connection, or to be satisfied with the definition.

Our physician was also addicted to the modern device of practising "both ways"; for he held that one should be willing to cure not only with opposing remedies, like the ancients, but also with similar remedies; not only *contraria contrariis*, but *similia similibus*—a motto so strongly emblazoned on the escutcheon of a modern sect of practitioners. Paracelsus held that "wherever there is a new disease, there is also its remedy." He also held peculiar doctrines regarding the composition of the body, assuming that men are made up of three principal ingredients—salt, sulphur, and mercury. External diseases, in his view, are diseases of the elements, salt and mercury, while most fevers and internal diseases are diseases of the sulphur.

He is said to have been the first to make use of the magnet for the treatment of disease. He taught that the so-called *archaeus*, or primordial life-essence, was distributed to all parts of the human body, and that it was of a magnetic nature, attracting or repelling other sympathetic or antipathetic forces, belonging to the same plane. The vital force is not inclosed in a man, but radiates around him like a luminous sphere, and it may be made to act at a distance, etc. Again he says: "The invisible forces, acting in the visible body, are often very powerful, and may be guided by the imagination and propelled by the will. This, he thought, was accomplished by the principle which he denominates *mumia*. This is the vehicle of life," etc.

He was strongly in favor of employing the magnet itself for healing purposes, and gives explicit directions for its use. He pretended to know the powers of mineral, human, and animal magnetism. He is said to have been the originator of the peculiar doctrine, afterward claimed and exploited by Mesmer, in that elaborate system of quackery called mesmerism. He speaks of hydrogen as an element, and is said to have known of the existence of nitrogen and oxygen, to quote Dalton again. His idea was that medicine is a mixture of astrology, alchemy, and mysticism. Anatomy seems hardly capable of being treated in this way, and yet his anatomical notions may be judged by the following description of the eyes, taken from his chapter "De Anatomica Oculorum." He speaks of the substance, the material, and the form, of which the first is from without; the second from within; and the form is in both.

"First, *Substantia*.—The eyes are twins; that is, two fruits, or products, joined in the form of a cross, with reference to a center, in order that they may have, as nearly as may be, the same integral composition. They are united in the middle, and thence look downward with the stem and upward with the root. These trunks give off no branches, but only fruit; that is, they produce a blossom, which has material, and bears fruit, which is the sight.

"The flower is white; the fruit is purple, and each of them has a bark, which forms the tunics and the root. In the pith is situated the sight; that is, the substance of the eye.

"Second, *Materia*.—The material consists of three things; viz., sulphur, salt, and mercury. (As just said, according to Paracelsus, these three substances are the ingredients of everything.)

"Sulphur is the flower and fruit, in all colors, according to the mode of resolution, outside the visual body. The visual body is Mercurius, in which is contained imperfect sight, without any other material.

"Salt is the solidification of both, since it reduces the parts into one form; that is, it completes the essence of the visual body.

"Third, *Forma*.—The form is that of a cross, because the central part bears twins. Afterward, each twin passes into its own form or rotundity; since the eyes in the body fill the place of the Sun, as in a microcosm."

From this romantic description of the eyes we learn that Paracelsus did not understand by "anatomy" a description of the internal structure of an organ, but a fanciful enumeration of vague similitudes and analogies, which are more ingenious than instructive.

The titles to the chapters of his books show a large proportion of similar subjects, as, for instance, "On the Mystery of the Mycrocosm;" "The Philosophy of Theophrastus, of the Generation of the Elements;" "On the Occult Philosophy;" "The Treasury of Treasuries of the Alchemist;" "On the Fifth Essence, or *Quinta Essentia;*" "On Magisteria;" "On Specifics or Elixirs," and "On the Signatures of Natural Things."

He pretended to have a remarkable power of perception and diagnostic skill. According to him, "A man's body ought to be to the physician as transparent as the distilled dewdrop, where not the slightest particle can escape the sight. The eye of the physician ought to penetrate through a man's body as it would through a limpid and sparkling fountain, where he can distinguish every pebble and grain of sand with its natural shape and color; . . . all the members of the body ought to be as transparent within as a polished crystal, where not even a hair could be concealed without his knowing it."

"Opium (which, as Dalton avers, no school of practitioners seems able to dispense with) was one of the few older remedies which he retained in his pharmacopœia. His specifics and essences of various grades were some of them inert, but others were very powerful, and he seems to have used them all indiscriminately, without much caution or intelligence."

I cannot forbear at the risk of making this paper too long, to quote in full a letter from Theophrastus Paracelsus to his good friend, the most learned chief of theologians, Erasmus Roteradamus.

"What the learned Muse and Alstoos (probably referring to Frobenius, a grateful patient of Paracelsus) and some other person have attributed to me in medicine, really belongs to me. I am certainly the author of these opinions The region of the liver (in your case) does not need any medicine, nor do your two other complaints require laxatives. The medicine for you is *Magistrale,* an *arcanum,* extracted from a strengthening specific, and obstersive; that is to say, consolidative syrup. For the troubles of the liver it is a second essence, and in gravel of the kidneys it is esteemed a royal medicine. I know that your system cannot bear colocynth, nor any disturbance, or at any rate very little from purgative drugs. I know that I am more clever and skillful in my art than that, and I know what in your system will secure a long, quiet, and healthy life, and that you do not need evacuations. Your third disease (to speak plainly) depends upon a matter of some kind, either an ulcerated putrefaction or phlegm, perhaps produced on the spot or accidentally collected, or else the excrement of the urine, or the tartar of a vessel, or mucilage from other parts of the sperm, or a vicious or bituminous state of the blood. It is a liquid gravel, coagulated by the potency of salt (in which the coagulating power resides), as it is in flints or beryls. This is the way it is generated, and I have seen it in your case. But whatever I have decided on I have made up my mind that there are calcareous mineral grains in the kidneys under the form of coagulated matter. If my specific practice, O excellent Erasmus, should please your excellency, I will take care that you have both a physician and a physic. Adieu,

"Theophrastus."

Who can wonder that after this lucid exposition of the case, Erasmus, one of the most learned men of his time, was duly impressed, and says in his letter of reply: "I am surprised at your knowing my case so well, after having seen me only once."

Paracelsus exercised a great influence upon the theory and employment of mineral springs (particularly those of Pfeffers, Gastein, etc.), and it is one of his chief services that he subjected the learned medicine of his day (which thought itself safe only in guilds and study-rooms) to the test of living observations and actual life, and employed chemistry in medicine, particularly also as it related to the question of mineral springs. As the science of chemistry itself was improved, the subject of mineral waters likewise enjoyed increasing attention.

In the treatment of wounds Paracelsus had excellent ideas (Walsh[6]). Nature, he said, produces the means of union in a viscous exudation, or natural balm. He also most bitterly denounced the surgeons for allowing wounds to remain dirty and for undertaking needless operations. He, therefore, deserves credit as a reformer of surgical practice. "The high value of his surgical writings," says Hoxer, "has been recognized at all times, even by his opponents. . . . His description of hospital gangrene is perfectly true to nature; his observations on syphilis are also sound and sensible, and he was the first to point out the connection between cretinism of the offspring and the goiter of the parents. . . . He avowed the highest respect for the teachings of Hippocrates, while he discarded the practice founded upon the writings of Galen, Rhazes, and Avicenna."

Speaking of the then prevalent practice of medicine, he said: "All that they (the doctors) can prudently do is to observe the patient, and make their guesses about his condition; and the patient has good cause to rejoice if the medicines administered to him do him no serious harm and do not prevent his recovery. The best of our popular physicians are the ones who do the least harm. But unfortunately some poison their patients with mercury, and others purge or bleed them to death. There are some who have learned so much that their learning has driven out all their common sense, and there are others who care a great deal more for their own profit than for the health of their patients. . . . A physician should be the servant of Nature, not her enemy; he should be able to guide and direct her in her struggle for life, and not throw, by his unreasonable influence, fresh obstacles in the way of recovery."

Paracelsus also said, "The knowledge of Nature is the foundation of the science of medicine," and it is taught by the four great departments of science, philosophy, astronomy, alchemy, and physical science." By "philosophy," he meant the true perception and understanding of cause and effect. For skill in this department of medicine he maintained that the physician "must, above all, be in possession of that faculty which is called intuition, and which cannot be acquired by blindly following the footsteps of another. . . . If you wish to be a true physician you must be able to do your own thinking, and not merely employ the thoughts of others."

By "astronomy" is signified the mental sphere of the being. The influences of the seasons, heat and cold, dryness and moisture, light and darkness, are also included. "Man's diseases do not originate in himself; they originate from the influences which act upon him and enter his constitution. If the air becomes vitiated it may poison man's body; if the astral influences are in a state of corruption they may do likewise." A pleasant blending of climatology and astrology seems evident under the above head.

He continues: "To be an alchemist is to understand the chemistry of life. Medicine is not merely a science, but an art; it does not consist in compounding pills and plasters and drugs of all kinds, but it deals with the processes of life, which must be understood before they can be guided. A powerful will may cure, where a doubt will end in failure. The character of the physician may act more powerfully upon the patient than all the drugs employed. The physical surroundings of the patient may have a great influence upon the cause of his disease. If he is waited on by persons who are in sympathy with him it will be far better for him than if his wife or attendants wish for his death. He (the physician) should know

how to regulate the diet of the patient." After these sensible remarks our great man wanders off into those realms of superstition and pseudoscience where a jargon of words obscures the writer's meaning, if indeed he can be said to have had one.

After this somewhat disjointed and fragmentary exposition of the teachings of Paracelsus, we can draw certain conclusions. One is that he seemed to believe and teach almost anything that was going, if he could thereby discredit and antagonize the regular profession. He contradicted himself, and at times talked what seems to us gibberish; but for all that, he blazed the way for a more rational and sensible medical practice. He insisted on the observation of Nature, and declined to believe or practice anything, just because it was old. He taught manliness and truth whether he practised them himself or not.

His motto was "*Qui suus esse potest, non sit alterius,*" which will bear the translation, "Who is able to be his own man, should not be another's."

He professed to seek help and guidance from every possible quarter; he asserted "If God will not help, so help me the devil." Speaking of devils, he was wont to tell his patients that he carried a small devil imprisoned in the hilt of his sword, and he no doubt derived some inspiration from this, as when deep in his cups he would retire to bed without undressing, and would lie there wildly waving the trusty weapon.

He preached strongly and effectively against the senseless polypharmacy of his day. He demanded a chemical examination of the urine, instead of the senseless gazing at a sample of it in a vial for inspiration in making a diagnosis, which had long been a custom with physicians (seichbesehen, Paracelsus termed it). He turned the thoughts of the profession and the laity to the invaluable aid which chemistry has been able to afford in the preparation of remedies, and foreshadowed the supremely important part which this branch of science is at last playing in solving the problems of physiology and nutrition. It does not detract from this claim to assert that, in his time, scientific chemistry was unknown. He took a great step forward by turning attention to the fact that in the development of this branch of natural science lay the hope of the discovery of many valuable remedies, and much transcendently important knowledge of the body and its functions and development.

He insisted in moderating the then all-prevalent practice of phlebotomy. He used mercury in the treatment of syphilis, and discarded the popular abuse of regimen during the treatment. He insisted on keeping wounds clean, and forbade all useless surgery.

Such a man cannot be dismissed with a few phrases. In point of fact, for nearly four hundred years he has held a prominent place on the medical stage. Perhaps I cannot sum up in better fashion than to quote Dr. Dunster, who said in 1872 (Dalton[2]), "We cannot, therefore, refuse an acknowledgment of gratitude to Paracelsus, that magnificent charlatan, who struck at 'authority' the blow whose influence is felt even down to our day, and which shook the medical throne of Galen and Avicenna to its foundation."

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EXPERIENCES WITH THE ABDERHALDEN TEST IN THE DIAGNOSIS OF PREGNANCY.

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It would seem reasonable to assume that the diagnosis of a physiological process such as pregnancy, occurring since the very origin of human life, would not be surrounded by any particular difficulties. Its common everyday occurrence presents numerous opportunities to the practitioner to familiarize himself thoroughly with its various pathognomonic signs. These signs ought to suffice to prevent errors in diagnosis, and yet such mistakes are not infrequent. Were these errors limited to the earliest period of gestation, an excuse for their occurrence might perhaps to some extent be justly advanced, but it is not at all uncommon to find cases of pregnancy as far advanced as the sixth or seventh month mistaken for some other condition. Unfortunately, in quite a number of cases, conditions may be so complicated that a correct diagnosis may be extremely difficult, but in just such cases, on account of the bearing it may have upon the proper subsequent management of the case and its prognosis, it becomes imperative to decide definitely. The difficulty arises especially when a differentiation between pelvic tumors, diseased adnexæ, ovarian new growths, cystic formations, etc., is to be made from a normal pregnancy. Many an abdomen has been opened for suspected pathological conditions of the generative organs to find only a normal pregnancy; even hysterectomies have been performed for supposed fibroid tumors to find present, on further examination, nothing more than a condition of normal pregnancy. Such mistakes have to be prevented absolutely, positively. Therefore, any discovery which tends to improve our present methods of diagnosis of pregnancy, early or late, is a welcome addition to our present knowledge of this subject. Especially valuable is the acquisition of such methods whereby the personal equation of the examiner may be eliminated or restricted; such tests as will be sufficient in themselves and independent of particular skill of the individual examiner. Likewise it will be of inestimable benefit to have any tests as definite as most of the chemical tests of the other branches of medicine, such as uranalysis. It is evident, therefore, why the latest discoveries of Abderhalden[1] concerning the diagnosis of pregnancy by specific serological means has attracted much attention from numerous workers of both continents. The interest it has awakened is amply demonstrated by the number of articles published upon the subject in the short time since its first announcement by the discoverer, Emil Abderhalden.

The Principles of the Test.—The biological pregnancy test of Abderhalden is based upon the fact established by Veit, Weichard, and Schmorl, that

at certain periods of gestation detached chorionic cells are found floating in the maternal circulation. This occurs during the development of the placental chorionic villi, their penetration into the maternal tissues and the formation of intervillous spaces. The proteins of the above-mentoned chorionic cells are different in their composition from those of the mother and foreign to the organism in whose circulation they are floating. The maternal organism reacts against this invasion by a foreign protein with the production of a specific proteolytic ferment. The latter destroys the invader by decomposing it into its primitive or fundamental constituents. These primitive building stones are then utilized for the reconstruction of proteins peculiar to the maternal organism. The purpose of such transformation is wholly a protective one; it shields the maternal organism from the deleterious effects of proteins foreign to it. The ferments concerned in the disintegration of the more complicated, higher, non-dialyzable albumins of placental tissue into lower, less complicated, dialyzable substances are to be found only in the blood of those individuals in whom chorionic cells are circulating, *i.e.*, those of pregnant women, and especially in the earlier months of pregnancy. The blood of others does not seem to possess these qualifications. The trend of opinion of the greater number of investigators (Frank and Heiman,[2] Franz and Jarisch,[3] Schlimpert and Hendry,[4] Freund and Brahm,[5] Williams and Pearce,[6] McCord,[7] Epstein[8] and others) up to the present time has been toward substantiation of this principle, and with the exception of a few (Engelhorn,[9] Lindig,[10] Polano) the latter has been corroborated and accepted as true. The enzymes so engaged are not strictly limited in their action toward the proteins inducing their origin or appearance, but also destroy related proteins, although not as readily. They have no effect, however, upon proteins of other species or varieties, upon carbohydrates, etc.

Our Experiences.—Having recognized the value of the test and having been impressed by the remarkable results obtained by Abderhalden and his co-workers,[11] we undertook the study of this test to verify the results. We were especially favored by the rather abundant material suitable for such purpose as presented itself by a maternity hospital (Jewish Maternity Hospital, New York City). In addition our own private practices were drained as much as possible for suitable cases, and a number of blood specimens were obtained from our friendly colleagues, to whom we are greatly indebted for their kind cooperation.

We began our work several months prior to the latest publication of Abderhalden, in which he again details exact directions for the test and pleads for absolute adherence to them. We stumbled in a great number of our experiments again and again upon numerous difficulties, which we were at first unable to explain or correct. Oftentimes the findings proved contrary to our expectations and contradictory to the reports as published by the originator of the test. Had we been guided by our own findings exclusively and not swayed by the deference due to the statements of an authority like Abderhalden, perhaps a number of these incorrect findings would have been interpreted by us as correct, and an error thus committed. For this reason we were induced frequently to retrace our steps, study the discrepancies, and seek for their causes. A thorough analysis of all procedures, a careful examination of all substances utilized in the performance of the tests would usually reveal the causes of the discrepancies, and accurate results could thus be recorded.

We concur, therefore, fully with Abderhalden and others who insist upon absolute exactness of all procedures and the most scrupulous adherence to prescribed rules, as the correctness of the results obtained depends entirely upon the mode of procedure. During the later part of our experimentation, after we had been properly trained in the technique, we were unable to record even a single failure, as our reports will further show. We must repeat, therefore, that only absolute accuracy, closest attention to minute details, repeated controls, and exact technique will result in thoroughly reliable data.

The number of our cases comprises in all 202, upon which 357 tests were performed. The greatest number consisted of applicants to the Jewish Maternity Hospital. These were cases of pregnancy of the later months, from the sixth to the eighth. Very early term pregnancies were unfortunately few at our disposal, the earliest one having been nine days overdue and probably three weeks pregnant. A number of tests were also made from blood obtained during deliveries of the same patients, while some tests were performed postpartum. A number of experiments were also made with blood from various sources, from placenta, uterus, cubital vein, etc.; in others various modifications were employed for study and comparison. To detect dialyzable substances we used the chemical methods (biuret and ninhydrin) exclusively, as the optical is much more complicated and its equipment expensive.

Because of the variability of methods and different modifications conducive to variable conclusions, we had to divide the above tests in a number of groups. Some of these we had to disregard, because of our faulty technique and inexperience, while the others in general showed a satisfactory percentage of correct results, varying but little from each other, although different methods were employed in each group. In one of these, for instance, which consisted of twenty-four cases, five non-pregnant and nineteen pregnant, from the fifth to the eighth month of pregnancy, and in which well-prepared placenta, collodion fuchsin stained dialyzers and the biuret test were employed, 92 per cent. of correct findings were recorded. In another group of thirty-seven cases in which the same placenta and dialyzers were used, but the biuret was substituted by the ninhydrin test, 95 per cent. correct answers were obtained. In the last and largest single group, consisting of 106 cases and 159 tests, in which we strictly adhered to the methods to be detailed later, 98 per cent. correct findings were obtained. This last group deserves fuller description and explanation.

Of the 106 cases of this series tested 79 were those of pregnancy and 27 non-pregnant; of the latter, 11 males and 16 females. The male number comprised the following cases: 3 normal individuals, 1 gastric ulcer, 3 gastrointestinal catarrh, 1 osteosarcoma, 1 neurasthenia, 2 syphilitics (with positive Wassermann). With the exception of one of the syphilitic sera, all sera gave perfectly distinct and unmistakable reactions, negative as to pregnancy. The above-mentioned syphilitic case, one of the two unfavorable findings of this series, gave an indistinct biuret and a doubtful ninhydrin

reaction. In both syphilitics the sera in the control tubes (without placenta) upon boiling with the ninhydrin solution gave strongly violet colorations. A certain amount of violet coloring was noticed in a number of sera when tested with ninhydrin, but none seemed so exceptionally deeply colored as those with the positive Wassermann. The diffusate of one of these cases was of the same color as the control, but the diffusate of the other syphilitic resulted in a darker colored reaction with the ninhydrin, and had to be pronounced as doubtful or mildly positive. When diluted with distilled water it required nearly one-half the amount to equalize its color to that of the control. Unfortunately, we did not have sufficient serum to repeat the tests so as to assure ourselves as to its correctness.

Of the 16 non-pregnant female patients, 2 had gonorrhea, 1 chlorosis, 4 endometritis chronica with displacements or prolapsus, 1 ovarian cyst, 1 carcinoma uteri, 2 tuberculosis pulmonalis, 1 menopause, 2 enteroptosis, 1 chorea, and 1 hysteria.

All of these gave perfectly negative results for pregnancy and thus were interpreted correctly by the tests.

The positively pregnant cases of this group numbered 79; 6 up to third month, 21 from the third to the sixth month, and 52 from the sixth to the ninth month of pregnancy; 9 of these cases were in addition examined postpartum, five during delivery. Primiparæ were 15, multiparæ 64. Noncomplicated or normal cases were 71, complicated 8, of which 3 were ectopic, 1 uterus didelphus, 3 with pulmonary tuberculosis, and 1 postoperative (for sterilization). The cases were either delivered at normal term, or attended for abortion, or operated. In 78 of the 79 cases the results were absolutely perfect, having obtained more or less distinct positive reactions, some more strongly than others, but in one case, a case of ectopic with following laparatomy, the test resulted negatively. This case and the one cited previously (the syphilitic) constitute the only disappointments of this series, otherwise the results obtained were perfectly satisfactory in every detail.

Of the 159 tests employed for this series of cases 12 were made with collodion dialyzers only, 23 with collodion and Schleich and Schull's diffusion sacs, the rest with the latter dialyzers alone. The two kinds of diffusion condoms worked satisfactorily, although the imported variety (Schleich and Schull's) gave stronger reactions with the ninhydrin solution.

Every dialysate was tested with ninhydrin, in 34 cases the biuret test was also applied for comparison; 27 were distinctly as positive as the ninhydrin, in 7 less definite or uncertain. The diffusates gave a strong reaction in 128 tests, less prominently in 23 and absent in 4 (biuret) tests.

The Technique of the Test.—The tests of the above-described series of cases were performed strictly in accordance with the following procedures, which we believe are the proper ones to employ:

Preparation of Placental Protein.—A perfectly fresh, normal placenta (should be fresh in order to avoid possible contamination by bacterial fermentation) should be rinsed for an hour or two in running hard water and then irrigated through its cord vessels with several more liters of water until the placenta becomes quite colorless or perfectly bloodless. To facilitate the process irrigation with saline solutions (0.5 to 0.9 per cent.), as recommended by Schlimpert and Hendry, will make the placenta bloodless in about half an hour. The latter is then freed from the adhering membranes, its fetal surface and as many of the fetal blood vessels as possible. The placenta is then cut into small pieces (cubic inches or more), which are again washed and squeezed out (best done with a Boas sieve) and put into a vessel with distilled water to boil for one hour. The liquid is then poured off, fresh water added and boiled again for five minutes more. The fluid should remain clear and colorless, and if tested for protein bodies by the ninhydrin or the biuret methods a negative result should take place. If the contrary or a doubtful reaction is obtained, the boiling must be repeated with fresh water until the tests result negatively. The placental pieces are then removed, placed in a sterilized wide-mouthed vessel containing distilled water and chloroform, and the whole covered with a layer of toluol of sufficient thickness (from ½ to 1 inch thick) to insure against the invasion of bacteria and evaporation. Before utilizing the placental pieces for the test proper they must again be tested for the presence of low-grade proteins that may have appeared during preservation. This is done by boiling them for one minute in about five times their quantity of sterile water. Passing the fluid through a hard filter the filtrate must be tested for albumins by the ninhydrin test. The latter must result negatively; otherwise the placental pieces should not be employed for the biological test proper.

The Dialyzers.—As a dialyzer Abderhalden and others advise the use of Schleicher and Schull's condoms, No. 579, or better, No. 579 A. The latter are supposed to be specially prepared for this purpose, but we were unable to obtain them here and were limited to the use of the No. 579 variety. While this kind of dialyzers is perhaps the best obtainable for this use, yet full reliance should not be placed upon them, and they should only be used after having been tested as to their permeability toward albumins and peptones and for imperfections. A considerable percentage of the dialyzers may thus be found defective; out of 25 in a box we found at one time as many as eight unsuitable. The good ones may be used repeatedly, but one must always be on guard for imperfections, for sooner or later they are liable to become defective.

In a large number of our tests we have employed also condoms prepared from collodion (U.S.P.). Medium sized test tubes, three quarters of an inch in diameter and four to five inches long, were lined with a layer of collodion, stained with a little dye, such as fuchsin. Another coating was applied before the first was entirely dry. Both coatings were permitted to dry and shrink. If the test tubes have previously been scrupulously cleaned the condoms come out most perfectly and make reliable dialyzers. They should be preserved in water and used only once. They are cheap, not very difficult to manufacture, and seem to serve the purpose. A dialyzer prepared and specially tested for the serological pregnancy test of Abderhalden has now been placed on the market by the firm Schoepps in Halle. We have not been able to procure these dialyzers in this city up to this time.

The Preparation of the Serum.—The blood should be obtained from the patient, upon an empty stomach, preferably in the morning, at a time when the blood is most free from possible contamination

by low grade proteins due to a meal overabundant in proteins. Ten c.c. of blood should be drawn with a dry sterile needle and left for half an hour at room temperature to clot firmly. The clot is then separated from the walls of the container with a platinum needle to permit its sinking to the bottom. In separating the clot from the serum care must be taken not to break up the red blood corpuscles to avoid contamination with hemoglobin and their lysis by hemolytic ferments. Centrifuging is not advisable. The test tubes and contents are then put in a cool place until ready for use. They may remain for twenty-four hours or longer, if kept on ice, without detrimental effects on the test. Of this serum, which must be perfectly clear, three c.c. are used for each test.

The Ninhydrin Test.—The ninhydrin or triketohydrinder-hydrate reaction is always to be preferred to the biuret test. First, it reacts not only with *very minute* quantities of peptones but also with the products of their further decomposition, all amino-acids containing the acid amino group in the alpha position to the carboxyls. This permits of a larger number of dialyzable substances to be tested for, not all of which are detectable by the biuret test. Perhaps, therefore, we were enabled in some cases to obtain positive reactions in which the biuret reaction was indistinct if not negative. Second, because the whole volume of the fluid tested becomes colored, while in the biuret test only a faint ring appears to serve as a guide.

The contents of the tiny vial of ninhydrin, as marketed by the manufacturer, is dissolved in ten c.c. of distilled water, thus making a one per cent. solution. For each test 0.2 c.c. of this solution is added to 5 c.c. of the liquid to be tested and boiled from one to five minutes over a water bath. In our experience, one minute's boiling, as advocated by some experimenters, did not always suffice to induce a reaction, and in numerous instances a positive reaction appeared only after five minutes. The recording should be done half an hour after cooling and always and only by comparison with the controls. As the ninhydrin solution is dichrotic, only the violet color by translucent and not the pinkish by transmitted light should be considered in declaring the results positive. We wish to emphasize the fact that the quantities of ninhydrin solution added to the serum and controls must be measured with the utmost exactness, for unequal quantities will produce inaccurate reactions.

The Biuret Test.—There are a number of ways of performing the biuret test for peptones. In our experiments we employed it in the following manner: Fifteen to twenty drops of a twenty per cent solution of copper sulphate were diluted with 250 c.c. of distilled water. Pure colorless twenty per cent. solution of potassium hydroxid was used as the alkali. To 10 c.c. of the fluid to be tested three c.c. of the alkaline solution was added, shaken, and carefully stratified with the copper solution. In positive cases a very distinct and unmistakable violet ring separated the two liquids.

The Technique of the Test Proper.—A piece of placenta, the size of a pea or bean, weighing about one gram (a larger piece has no advantages) and prepared and tested in the previously described manner, is placed into one of the tested dialyzers. One and a half c.c. of the pure, clear serum is added to it. In another dialyzer the same amount of serum is placed, but without placental tissue; in a third placental tissue in distilled water without serum. Each of the three dialyzers is then placed in a suitable vessel, such as a large test tube or cylinder, containing 10 to 20 c.c. of distilled water. Both liquids, inside and outside of the dialyzers of each test, are then covered with toluol corked and placed in an incubator for from sixteen to twenty-four hours. To 5 c.c. of the dialyzate from each of the three test tubes 0.2 c.c. of ninhydrin solution is then added and placed in a water bath to boil for from five to ten minutes. After half an hour's cooling the three test tubes are compared as to color. Tube No. 3 must remain colorless; tube No. 2 may be colored violet, while tube No. 1 may approximate in color to that of No. 2 or may be more strongly colored. If No. 1 and No. 2 are of approximately the same color the reaction must be considered negative as to pregnancy. If No. 1 is distinctly more colored than No. 2 the reaction may be considered positive as to pregnancy. The differences in color must be sufficiently marked to be considered conclusive: that of No. 1 should be at least one and a half times as strongly colored as No. 2. This may be determined when an endeavor to equalize the two fluids as to color is made. It should be necessary to add at least one-half c.c. of distilled water to each c.c. of fluid No. 1 to equalize its color to No. 2. For further accuracy, owing to the variability in the rapidity with which different dialyzers permit the diffusion of dialyzable substances, the setting up of double tests and double controls for comparison is to be recommended.

In conclusion, reviewing our results and comparing them with those obtained by the majority of investigators, we find that the Abderhalden test is perfectly reliable and commendable. Schlimpert and Hendry in their last group of 79 cases obtained perfect results, Henkel in 40 cases reports perfect results, Abderhalden's 200 cases, only one discrepancy, McCord's 240 tests with practically no failure, and a number of such other reports certify as to the value, reliability, and utility of the test, provided the latter is performed by competent workers and strictly in accordance with prescribed rules. That the test is of inestimable value in pregnancy (especially in its differential diagnosis) has now been fairly well established, but its usefulness is not limited to pregnancy. Indeed, the field of usefulness of this serological method of diagnosis seems at present exceptionally promising. Ferments seem to be the active agencies in the destruction of tissues in a great number of diseases, such as carcinoma, fevers, eclampsia, diseases with exudates, with parenchymatous degenerations, etc., and low dialyzable proteids have already been found in the sera of those affected with these disturbances. This fact has already been utilized by some of the workers mentioned previously in the diagnosis of nephritis, myxedema, Basedow's disease, syphilis, etc. Epstein reports most interesting results of his experiences by means of the Abderhalden serological test in the diagnosis of carcinoma, citing perfect findings in a considerable number of cases.

To a certain extent the test is objectionable because somewhat complicated and attended with some difficulties, its performance being therefore necessarily limited to special laboratories. The simplification of the test is desirable, so that it can be placed within reach of every practitioner. We have begun an attempt toward such simplification. We have so far succeeded in making from placental tissue an active and durable extract, which will be

enclosed in specially shaped dialyzers, and the rest of the procedure so modified as not to require special qualifications on the part of its performer. As we have not as yet sufficiently completed our experimentations, we must postpone its announcement until a later date.

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Cardiac Disease in Childhood.—P. Nobécourt states that in general the cardiovascular troubles are less serious in children than in adults, for the heart of the former has not yet been subjected to the action of alcohol, of various diathetic disorders, or of multiple infections. It is not uncommon to see a child recover from a serious heart affection.—*Journal de Medécine de Paris.*

THE BOWEL DOORMAKER: WITH DESCRIPTION OF TECHNIQUE OF OPERATION FOR SHORT-CIRCUITING BOWEL.*

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The doormaker is an instrument for saving time, avoiding hemorrhage, and lessening the degree of peritoneal soiling in an operation for short-circuiting the bowel. The instrument is 12 inches in length, carrying one blade, which is fenestrated, and another blade in the form of a blunt wedge which fits into the fenestrum (Fenestrum 2½ inches long). The blades are bent away from the long axis of the shank at an angle of thirty degrees, for the purpose of avoiding pressure upon the sacral promontory.

When used for short-circuiting the bowel this instrument is passed into the rectum after wrapping the handle in a temporary sleeve of gauze or rubber dam. The object of the sleeve is to prevent the bowel mucosa from slipping between the shafts of the handle and becoming pinched accidentally.

When the doormaker is in the rectum, a customary opening is then made in the midline of the abdomen, just above the pubes, for purposes of bowel manipulation. The distal part of the ileum and the distal part of the sigmoid colon are brought into the abdominal incision together, the doormaker is pushed gently up to this point by an assistant and is then opened. The fenestrated blade remains in the rectum or distal part of the sigmoid bowel, while the wedge blade is passed through a puncture in this part of the colon and also through a corresponding puncture in the wall of the ileum. The jaws of the instrument are then snapped together and held together by an ordinary locking device on the handle. (Instrument made by W. F. Ford.)

A narrow strip of wall of ileum and of wall of colon are deprived of blood supply when wedged into the fenestrated blade by the wedge blade. A few Lembert sutures, at points where they are seen to be needed, will suffice to prevent leakage from the punctures in the walls of the ileum and colon.

The next step consists in angulating the ileum at a point situated near to but distally from the doormaker, for the purpose of turning contents of the ileum toward the door subsequently. Sutures are introduced for the purpose of making this angulation permanent. The sigmoid colon is angulated at a point situated near to and proximally from the

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doormaker, for the purpose of preventing antiperistalsis from carrying rectal contents back into the colon subsequently. Sutures are introduced for the purpose of making this angulation of the sigmoid permanent like that of the ileum. The abdominal incision is closed.

Neither the ileum nor the sigmoid colon are angulated to the point of causing obstruction. If reversed peristalsis is excited by the angulation—before the door has become opened—it can be quieted by the employment of opium.

At the end of forty-eight hours the handle of the instrument, which protrudes from the rectum, is pulled upon gently to determine if the wedge jaw has cut its way through the bowel walls. When it has done this the instrument is removed, the door having then been completed between ileum and colon by saprophytic or digestive destruction of the tissue which was wedged into the fenestrum and deprived of its blood supply.

Patients will complain about the presence of the instrument in the rectum, but this complaint is less than the complaint about general distress after the more severe operative work of the Lane operation.

After the door has been made there will be many bowel movements daily for a while, because of the comparatively small new storage room of the rectum, and because the rectum is not accustomed to receiving contents directly from the ileum. Patients will complain about the frequent bowel movements. Starch enemata soothe irritated rectal mucosa, and bowel movements after a while drop down to one, two, or three daily—varying with different patients.

The doormaker was developed for the purpose of simplifying technique and lessening the complications which go with short-circuiting operations. Physicians are apt to be frightened at the idea of the more severe operation when it is proposed for relieving patients with such cases of neuralgia, neuritis, rheumatism, mucous colitis, psychoses, and other toxic demonstrations as are due to colonic stasis.

I would not propose the employment of surgery in any of these cases until medical resources have been thoroughly and well tried out, but when the proper time really comes for relieving chronic constipation by a short-circuiting bowel operation, and for throwing most of the colon with its toxic contents out of commission, the simplest procedure that we can employ for the purpose will be the most desirable. The method which has been described appears to present a simplification of the short-circuiting operation. If further experience brings out undesirable features of the method in theory or application, a report will be made upon all such features later.

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MENTAL MORBIDITIES OF THE CONJUGAL STATE.

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Mental morbidities of the conjugal state are not alone of practical psychiatric interest, but are nearly allied to subjects which have of late attracted much general public attention and led to special legislation in some of the States. Thus the call for uniform divorce laws, the refusal by some ministers and churches to sanction the marriage of divorced parties, the requirements of certificates of physical fitness of those about to enter the conjugal state, the sterilization of those not to be allowed to propagate, and the whole question of eugenics, all show the active concern of the people in whatever has to do with married life and the family as the basic material of which the whole fabric of society and the nation is builded.

It is therefore the practical importance and the timely nature of the subject which leads to this clinical analysis of the causes and symptoms of the incipient or fully developed psychopathic states which make wreck of family life and often culminate in divorce, suicide, or homicide.

These mental morbidities of the conjugal state have never been adequately studied or described. In their incipient state the family physician often mistakes them for mere exaggerations of the intimate perplexities and personal difficulties which may arise between husband and wife, and finally, when as fully developed cases they are sent to hospitals for the insane, they are set down as due to family troubles or domestic worry. It is plain to the mental expert that frequent divorce court revelations of most outrageous conduct and almost incredible refinements of personal cruelty are often simply authentic instances of the outcome of these psychopathic states. It is a significant fact that the percentage of divorces to marriages in this country is greater than in any other, as shown by actual statistical returns, and that it is constantly on the increase.

The quickest and surest way to a complete understanding of these cases is an analysis of the exciting causes, and attention is invited to this brief practical review of the chief etiological factors. In the first place, when two people enter the conjugal state, which is the closest relationship and partnership possible between two human beings, there is a personal understanding and adjustment to be completely made if the union is to be perfect. If this adjustment is only partial, married life will be compromised, and if there is failure of this personal adaptation there will be at the best only an agreement to disagree, and, at worst, a prolonged open conflict which will likely end disastrously as regards the mental state of one of the parties. The causes which prevent this perfect adjustment in domestic life are various and complex. Differences of age, of social station, of religion, or of race may prove serious, as well as dissimilarity of native characteristics, and what, in common parlance, is known as incompatibility of temperament, for unlike tastes, views, and objects in life are a bar to mental harmony. Likewise, marriages of convenience, without love, for money or social position, especially where affection is already centered in some other person, are wont in the long run to end in mental morbidities.

In this analysis of causes it is clear that whatever occasions prolonged emotional stress may result in these psychopathic states. Thus all the trials or sorrows of married life are to be accorded due weight, such as accidents, sickness or death of husband, wife, or children; the constant cares of rearing, education, discipline, and choice of callings of children, and the lasting disgrace they bring when they turn out bad. Even the economic problems of domestic life demand consideration, for among the poor the constant appeals of children to parents for needed food or clothing which cannot be furnished are highly distressing, and have driven some to crime and others to insanity. Especially keen on

this score is the anxiety of the father as the natural provider for the family, and the sight of starving children is cause enough for a frenzied mental state.

There is a general underestimate of the prolonged mental strain of women in the conjugal state, apart from their admittedly exhausting and great natural function in the reproduction of the species. There is a continuity and multiplicity of everyday doings falling to the lot of the woman who is at one and the same time mother and nurse of children, chief executive of household affairs, directing servants and purveying supplies of food and clothing, and charged with the disbursement of a large part of the family income, and leader in all social functions, to say nothing of her presumed duties as connubial companion. Without a careful study of this host of petty but constant influences it is not easy to understand the resulting nervous exhaustion and mental perturbations.

In this necessarily brief survey of exciting and contributing causes only summary mention is here made of the sexual relations in these cases, even though in the modern deluge of Freudian ideas the sexual thing is the central pivotal point of departure of dreams past and actual morbid mental complexes present. To speak the plain truth in a word, sexual impotence and disease and various sexual perversions may be causative of conjugal misery and of the psychopathic states here considered.

The study of the symptomatology of these cases is next in order, and is facilitated by a division into clinical groups termed the jealous type, the querulous type, and the violent, suicidal, or homicidal type. This clinical grouping of symptoms often holds good throughout the entire mental malady, while in other cases there is some blending of these types.

First, then, as to the jealous type, which is about equally frequent in males and females, and displays in both the same morbid extremes and absurdities of conduct. The husband suffering from this mental morbidity watches the letters and visitors of his wife, and narrows her personal freedom, and after some silly, unsuccessful detective efforts hires professional spies to dog her footsteps, and his early expressions of suspicion soon reach the grade of open reproach and accusations of infidelity. The lack of positive proofs which might narrow or confine the dominant idea only lends freedom to the morbid fancy which runs wild riot and day and night racks the brain of the sufferer. In one of these cases observed by the writer a man of some means and lucky enough to escape confinement as a lunatic doubted the legitimacy of his own son, who strongly resembled him, and disinherited him under this delusion. This man had always been temperate and was successful in business.

As there is no loathing like love turned to hate, some husbands in this group of cases for long periods of time inflict indignities and cruelties on their wives, or their mental disorder may culminate in legal action or personal violence directed against imaginary trespassers on their conjugal rights.

A clergyman in full charge of a parish, preaching good sermons and acceptable in his parochial duties, became a victim of this type of mental morbidity, and confided his jealous suspicions to the wardens of his church. The mother of his wife, being a woman of means and influence in the community, concluded that her daughter's reputation for virtue was more important than the man's reputation for sanity, and had the reverend gentleman consigned to the writer's care for treatment. Thorough investigation revealed no proofs of the wife's frailty or of the man's insanity, apart from his unreasonable and unalterable attitude of jealousy. The matter was settled by a voluntary separation of the conjugal pair, and finally a return of the clergyman to his vocation in another locality.

The wife with this type of psychic trouble secretly watches her husband's callers and his letters, ransacks his closets and his pockets for proofs of her suspicions, which she finds in trifles light as air. Servants, near relatives, and even her own sisters, may become objects of her morbid jealousy. In the meantime she may break out in open accusations of her husband, with display of strong dislike, or may go to the other extreme and make exaggerated demands for his company and sympathy. In fact, these antithetical emotional moods are rather characteristic in the female types of this morbidity. In one of these cases, about whom the writer was consulted, the wife kept her husband, a well-known physician, under espionage for a long time, both as to his office calls and house calls, and as she repeatedly sought women consolers, who in turn became informers, the innocent husband suffered both personal annoyance and professional detriment.

The querulous type now to be described is a mental morbidity of the conjugal state more frequent in women than men. The wife in the incipient stage makes merry at the expense of the husband, and later her jokes are in a sarcastic vein, and finally take the form of open criticism. She chides her children much for slight cause, and later scolds them continuously, and all members of the household come in for their share of gibes. As the malady matures the wife develops a genuine "cacoethes carpendi," a perfect mania for fault-finding, and poses her husband in the light of responsible party to be blamed. He comes to fill her whole mental horizon, and to be regarded as the sole cause of every untoward event in domestic or social affairs. She distorts his remarks into some invidious secondary meaning reflecting upon herself. She comes to mingle self pity with her fault-finding—declares she is a household drudge, grossly overestimating the duties she really performs, and completely failing to appreciate the comforts and luxuries she actually enjoys.

She may speak enviously of wealthy neighbors, and claim if her husband had more affection and enterprise she, too, might have similar enjoyments in life. The querulous mood may eventually blend with an accusatory spirit which charges against the husband, first, personal indifference, then wilful neglect, and finally heartless treatment or actual cruelties. In some prolonged cases there is a remarkable renewal of various characteristics of immaturity—a positive reversion to childish ways, thoughts, and feelings, with loss of womanly, motherly, and wifely efficiencies. There is also a revival of the mother's influence, a desire to return to the mother's home and need of her care and advice. In this connection the patient regretfully compares her former happy lot in her mother's home with her present hardships in the conjugal state.

The husband of this morbid, querulous type begins by finding fault with his meals, criticises the way in which his wife and children are dressed, and ridicules the management of the household in general. He nags his wife first in a jocose and then in an irritable manner, and finally becomes an inveterate scolder. He displays a constant tendency for

argument, and discusses at length the most petty affairs, and during this diseased indulgence in verbal contention does not listen to replies, but continues on in a declamatory and domineering sort of monologue. In this querulous state if personal opposition is made the result is open conflict and constant domestic quarrels, from which relief is often sought in divorce courts, or this open scandal may be avoided if the family physician is sufficiently expert to recognize the mental trouble and separate the parties in time for the recovery of health.

There remains to be noticed the violent, suicidal, and homicidal type, which marks in the conjugal state the possible transition from the height of love and happiness to the depth of despair and cruelty. There is in marriage indissoluble union for weal or woe, and more continuous and profound action and reaction of the emotions than exists in any other relation in life. Mental fibers have their tensile strength and their breaking point, and when the conjugal state brings great and prolonged emotional strain, mental disorder may be expected. There are usually a gradual lessening of inhibitions, loss of self-control, outbreaks of temper, and signs of demoralization before violent acts are committed, but exceptionally all outward manifestations of the extreme inward tension are repressed, and the final suicide or homicide comes like a thunderbolt out of a clear sky. Almost every day the newspapers record these domestic tragedies, which are in a large percentage of cases due to these mental morbidities of the conjugal state. The wife, convinced of the infidelity of her husband, takes the life of her children before she commits suicide, that the whole family may be saved from disgrace. The husband who feels sure of his wife's dishonor kills the imaginary seducer and his life companion, and possibly himself. In rare instances the unhappy pair, having made a wreck of married life, enter into a suicidal pact, and may add child murder to fill up the full measure of horrors.

In fine, it is safe to affirm that the family circle for the husband and wife is the one intimate personal world of worlds, containing all that is nearest and dearest on earth, and when invaded by the demon of discord there is an end of all bright hopes and aims in life. When the domestic "lares and penates" have been broken on the family hearthstone and in their stead has been installed the green-eyed monster, jealousy, peace and love are supplanted by discord and hatred, and there is then no other conceivable environment more highly provocative of suicidal or homicidal acts, or of positive mental disorder.

Out of ten thousand cases of mental disorder which have been under the writer's care and treatment, about two per cent. might fairly be classed as mental morbidities of the conjugal state.

In conclusion there remains to be mentioned the means of prevention of this class of mental troubles. Wise foresight, expert knowledge, and general measures of prophylaxis as broad as the trouble is deep will alone avail. In the first place there should be a thorough educational fitting of young women for the rôle of housekeeping and homemakers. A man at the head of a business which he has not learned is doomed to failure, and much mental strain and endless troubles are in store for the young woman at the head of a household without knowledge of domestic economy, of the culinary art, of the purchase of supplies, or of the practical duties of servants.

The servant problem in this country is in a disgraceful state and is the bane of domestic life, and has caused the mental breakdown of many housewives. The State should concern itself with this matter and establish schools and issue certificates of graduation to those fitted for domestic service.

Young men should be taught something of the mental, moral, and physical nature of women, of the ethics of marriage, and be well instructed in the reciprocal relations and mutual responsibilities of husband and wife and of parents and children. In married life there should never be allowed any ground for friction on the score of conflicting business interests. Ante-nuptial adjustments of money matters are often a wise measure, and the wife is entitled to a perfect understanding of the amount of the annual income to be expended in household disbursements and for her own personal allowance.

The strictly medical measures to be employed vary with the individual nature of the case. There is urgent need of the early advice of a mental expert, who is to sit in judgment on all the circumstances and evidence and prescribe the proper remedial course to be pursued.

In women there is generally indicated relief from care of house and children, change of scene and surroundings, complete rest or outdoor life, and diversions according to the exact physical state, and the cheering company of some young person of her own sex. In men, if feasible, it is best to have respite from business cares, outdoor sports with a genial companion, travel in occasional cases, and sometimes an entire change to a less strenuous occupation. Unfortunately, the financial necessities of the case cause a compromise often between what is absolutely best and what is practicable. In nearly all cases prompt separation of the married parties is advisable for a few weeks, and, in most instances, may be prolonged for some months to advantage.

The whole trend of modern medical science is towards the prevention of disease, and the prophylaxis of the mental morbidities of the conjugal state is only to be accomplished by such broad measures as are here indicated.

AN UNUSUAL CASE OF RENAL HEMATURIA.

UNILATERAL CHRONIC HEMORRHAGIC NEPHRITIS; DECAPSULATION; APPARENT CURE; RECURRENCE; BILATERAL INVOLVEMENT; DECAPSULATION OF BOTH KIDNEYS SIX YEARS LATER.

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A very careful examination of the literature has failed to show any previous case of unilateral chronic hemorrhagic nephritis which had been treated by decapsulation, consequently the full report of the following case, already previously referred to by me ("The Main Points in the Clinical History and Diagnosis of Renal Congestion," etc., *New York Medical Journal*, April 13, 1907) may be of interest.

On March 28, 1905, Dr. H. C. Pitts of Providence, R. I., referred to me Mr. F. G., age 37, broker, who complained of progressive weakness, loss of flesh, and anemia, due to persistent hematuria. The history obtained at that time was as follows. Father died of Bright's disease, compli-

cated by diabetes. Mother alive, rheumatic and of very nervous temperament. Several brothers and sisters are alive and well except for occasional rheumatic manifestations. No cancer or tuberculosis in the family. Personal history: Measles and chickenpox were the only diseases of childhood. Had severe attack of malaria, tertian type, in 1899, while camping in the South; the chills were very severe and the attack lasted several weeks before any quinine could be obtained, after which time it was quickly controlled. Since then has often been in places where others had malaria, but has never had a second attack. Present history: Two months ago, while on a pleasure trip to England, he noticed that the urine had a reddish color. This soon became so red as to make him feel certain that it was due to blood. Some days the hemorrhage was very severe, and he soon consulted a prominent London physician. A diagnosis was made of renal hematuria, probably due to renal calculus, though there had been no severe pains or other symptoms referable to one kidney rather than the other, and in fact there had been more discomfort over the bladder than in the loins. He did not improve under medical treatment, became discouraged and returned to this country.

Upon his first visit at my office he was very weak from loss of blood, as the hemorrhage had been constant and especially severe during the previous two weeks. I advised complete rest in bed, with adrenalin chloride, ten drops every four hours. However, he had an important engagement in Chicago two days later, and insisted upon taking the train the next morning. When I saw him again five days later the difference in his appearance was very marked. He was very pale and anemic and so weak that he was hardly able to walk across his bedroom. Even the morning urine at this time was port-wine color, and a heavy red sediment was quickly deposited, which microscopical examination showed to consist of myriads of red blood cells. Cystocopic examination showed that the bladder was normal. By ureteral catheterization specimens of urine were obtained from each kidney. That from the left kidney was pronounced by Dr. H. T. Brooks to be practically normal, while the urine from the right kidney was loaded with red blood cells, and there were also many large epithelioid cells and a few casts, principally hyaline. These findings caused Dr. Brooks to make a tentative diagnosis of hypernephroma of the right kidney, although he also suggested the possibility of unilateral chronic hemorrhagic nephritis.

On April 17, 1905, I cut down upon the right kidney. The incision was made along the outer border of the erector spinae muscle, and carried down in the usual manner until the kidney was exposed. All perinephritic tissues were found to be normal. The kidney was large, about 5½ inches in long diameter, and of about normal consistency. The kidney, upper part of ureter, and surrounding structures were carefully palpated and nothing abnormal was found to account for the hematuria except chronic hemorrhagic nephritis. Consequently, it seemed best not to remove the kidney, but to decapsulate, and this was done. The capsule was thin and about normally adherent. As the capsule was removed the kidney parenchyma showed a somewhat yellowish mottling. A small wedge of kidney tissue was removed for histological examination. The wound was closed without drainage; primary union was obtained; convalescence was uneventful, and the patient was back in Wall Street just four weeks after operation. Dr. Brooks' report on the excised portion of kidney tissue was as follows:

"Microscopic examination of fragment of tissue taken from kidney of F. G. showed only that portion belonging to the peripheral part of the cortex. The convoluted tubules, glomeruli, and capsular spaces and, to a minor degree, also the broad (ascending) tubes of Henle, appear to be the portions involved. The lining epithelia of nearly all the convoluted tubules show marked granular degeneration and disintegration, and many of them have also desquamated. Some of the tubules are partly or entirely filled with only granular detritus and desquamated necrotic epithelia, but the lumina of the majority of them are more or less completely occluded by variable admixtures of diffusely distributed granular detritus, and red blood corpuscle shadows embedded in a homogeneous hyaline substance. A considerable number of tubules are filled with more or less densely arranged masses of desquamated necrotic epithelia, red blood corpuscles, and leucocytes embedded in a finely granular basement substance, while a few are obstructed with decolorized and partly disintegrated red cells (intratubular hemorrhage). Here and there a coarsely granular cylindrical mass, in which the faint contour of cellular elements can still be made out, are seen occluding the lumen (casts). The glomeruli are in some places swollen, and the capillaries widely dilated and empty; in other places they are compressed by an exudate into the capsular space of Bowman. This exudate in the capsular space varies in composition from pure blood or granulohyaline material to variable admixtures of desquamated capsule cells, leucocytes, red blood corpuscles, and granular and hyaline basement substance. The capsule itself is slightly thickened, loosely reticulated; the nuclei apparently slightly increased in number, but otherwise unaltered. A number of the broad tubes of Henle are filled with coagulated hyaline, coarsely granular and cellular masses (casts), but the epithelial lining is but little affected. The interstitial tissue is here and there loosely fibrillated, and the larger or smaller spaces thus formed are filled with a translucent coagulated hyaline material (edema). Other small areas are infiltrated with numerous polynucleated leucocytes in addition to the edematous infiltration. Rarely a small focus of fibrosis was observed."

At the time of operation, blood had been present in sufficient quantity to color the urine a light or dark port-wine color for nearly three months, while the patient had become so weak from loss of blood that he could hardly walk across the room. *Six days after decapsulation the blood disappeared from the urine macroscopically,* though it was about three months later before a specimen was obtained in which the microscope failed to show any red blood cells. The patient regained health and strength rapidly after leaving the sanatorium, and gradually returned to normal condition, though the microscope occasionally showed a few isolated red blood cells. Numerous urine examinations were made, of which the following show the course of the case: March 28, 1905 (about three weeks before operation). Sp. g. 1023; albumin, 25 per cent. by bulk; 1/10 of 1 per cent. quantitatively; no sugar; urea. 2.5 per cent. Few hyaline and blood casts; myriads of red blood cells (typical findings in specimens before operation). May 13, 1905 (26 days after opera-

tion). Quantity, 1000 cc.; sp. g. 1025; albumin, very faint trace; no sugar; urea, 2.9 per cent.; rather frequent hyaline casts; occasional epitheliated and partially finely granular casts; numerous mucous cylindroids; occasional isolated red cells; calcium oxalate crystals. October 2, 1905 (about six months after operation). Sp. g. 1034; no albumin; no sugar; marked indican reaction; occasional hyaline cast; innumerable mucous threads and cylindroids; very rarely an isolated red blood cell; innumerable calcium oxalate crystals. February 11, 1907 (nearly 2 years after operation). Quantity, 1500 cc.; sp. g. 1024; no albumin; no sugar, urea, 2.3 per cent.; indican, trace; very rarely a hyaline cast; numerous mucous threads and cylindroids; very rarely an isolated red cell; few calcium oxalate crystals. December 18, 1908 (3 years and 8 months after operation). Quantity, 1800 cc.; sp. g. 1018; no albumin; no sugar; urea, 1.7 per cent.; rarely a hyaline cast; occasional mucous shreds; no blood; no crystals.

About three weeks before this specimen was passed the urine had a reddish tinge for two or three days. This slight hemorrhage was the first sufficiently large in amount to color the urine since the operation, over three and a half years previously. After this time slight hemorrhages occurred at very irregular intervals (weeks to months apart), the first rather severe attack coming in April, 1910. The urine report for April 18, 1910 (5 years after operation), showed sp. g. 1018; marked trace albumin; no sugar; urea, 2.2 per cent. Very rarely a hyaline cast; occasional blood cast, and large amount red blood cells, singly and in small masses.

At this time he weighed 200 pounds, his general health was good, and, except for a temporary neurotic condition, due to overwork and the occasional hemorrhages, he considered himself well. Cystoscopy, to determine whether the hemorrhage came from the decapsulated or undecapsulated kidney, was suggested at this time and declined. In July, 1910, the hemorrhages began to appear more frequently, and by fall clear urine was the exception and bloody urine the rule, though even the worst hemorrhages at that time were not as severe as those in 1905. Gradually, however, the hemorrhage increased in severity and became practically constant by spring, 1911, the urine reports approximating that of March 28, 1905, quoted above. Moderate muscular weakness developed upon comparatively slight exertion; his mental processes became somewhat sluggish and memory tricky, and as medication had absolutely no effect on the bleeding he requested me to operate again and to decapsulate one or both kidneys, as I deemed best.

Accordingly, on April 22, 1911, he was prepared for operation. After he was anesthetized I cystoscoped, and found that the hemorrhage came from both kidneys. He was then placed prone on my special two-compartment triangular kidney cushion, and both kidneys were decapsulated. Edebohls' technique was followed throughout, except in the substitution of my own for Edebohls' kidney cushion. The left kidney was enlarged, measuring full 5½ inches in the long diameter. The capsule was thin, and about normally adherent, while the parenchyma showed the yellowish mottling, as noted at the original operation on the right kidney, six years previously. The right kidney was more firm to touch, and was appreciably smaller, the long diameter being about 4½ inches. The capsule was rather thick and adherent. In a number of instances minute wedges of parenchyma came away with the capsule, while the raw surface of the cortex as a whole appeared somewhat granular. A number of small vessels passed from the perinephritic tissues into various portions of the capsule where they were lost, while two rather large vessels penetrated the capsule near the center of the convex border, giving considerable hemorrhage when the capsule was stripped from the cortex. Small wedges of parenchyma were excised from each kidney for histological examination, while the generous portion of the right (reformed) capsule was preserved for the same purpose. Dr. Brooks reported that the pathological condition found in the left kidney was precisely similar to that noted in the right kidney six years previously and reported in detail above. The second specimen from the right kidney showed typical "replacement fibrosis," namely, areas of parenchymatous degeneration, with substitution of fibrous tissue in these locations as well as an increase in the connective tissue stroma generally. Numerous small wedge-shaped fibrous areas were seen running down into the cortex, the retraction of these accounting for the somewhat granular appearance noted at operation. The portion of reformed capsule showed nothing but a very richly vascular connective tissue membrane, with here and there fragments of cortex which had been torn off as the capsule was stripped away.

Unfortunately, the dressings were accidentally soiled, and both wounds were infected externally by the colon bacillus, necessitating reopening of the superficial tissues, the deep sutures not having to be disturbed. The infection was soon controlled by swabbing with 95 per cent. carbolic acid, followed by 95 per cent. alcohol and wet dressings of 1-1000 bichloride, and the patient left the hospital at the end of the regulation four weeks.

The course since this second operation has been very disappointing. There has never been a time when the urine has been free from blood microscopically, and seldom when there has not been enough to give it a decided pinkish tinge. As a rule it has been frankly red, with copious red sediment and a marked reaction for albumin. This was the urine condition at the time of last report in July, 1912. His general health has, however, improved, and he has been leading a rather strenuous life recently on a large ranch in the West.

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CASTRATION AND OPERATIONS FOR VARICOCELE AND HYDROCELE WITHOUT WOUNDING THE SCROTUM.

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Operations have been performed for thirty years by the author in the treatment of these diseases by a longitudinal incision through the anterior wall of the scrotum. There have been frequent failures because some of the necessary details regarding the pathological conditions were overlooked and in consequence the required treatment was not carried out. The primary cause of failure was that the incision through the anterior surface of the scrotum did not expose the diseased tissue sufficiently to enable the operator to examine it thoroughly.

In castration, tubercle deposits which are the

most frequent causes for these operations, and neoplasms and neoplastic infiltrations, the presence of which also necessitates these operations, were not discovered in the tissues operated upon because the incision made through the anterior scrotal wall did not expose them to the operator sufficiently to make these defects visible. In varicocele one is unable to tie off the vein sufficiently with an anterior scrotal incision, so that when their ends are joined they do not lift the testicle to the proper height to produce in every case a cure of this disease. In hydrocele one is less frequently able through the scrotal incision to close to a sufficient extent and tightly enough the physiological covering of the testicle, the tunica vaginalis propria, to insure a cure of this disease.

In castration by the inguinal method a transverse incision is carried downwards and inwards over the canal a finger's breadth above and parallel to the inner half of Poupart's ligament.* This inguinal incision gives an extensive view of the parts operated upon, it enables the operator to follow the vas deferens down to its entrance into the prostate gland, in tuberculous and malignant diseases thus making the cures more satisfactory. This wound heals much more promptly and more firmly than the scrotal incision, and it is for the reasons given much more popular with the operators who have used it in treating these diseases. They are usually able to complete operations with success and without complications through the inguinal incision which could not have been accomplished with the anterior scrotal incision. This incision corresponds exactly to the line of cleavage of the skin and therefore it comes together very easily.

Two large veins which descend in the superficial fascia, one at the outer and one at the inner part of the wound, require to be ligated. When the incision is prolonged outwards the superficial epigastric vessels are divided. The external spermatic facia, which is prolonged down upon the cord from the edges of the external abdominal ring is then divided; next, the muscular fibers of the cremaster, from the internal oblique; and the strong infundibuliform fascia, the continuation of the fascia transversalis, are similarly divided. Within the extension of this fascia, enclosed in the tunica vaginalis propria, lies the round ligament in the female and the spermatic cord in the male which is occasionally attacked with hydrocele. It consists of an infusion of fluid under the tunica vaginalis propria and frequently associated therewith is also a peritoneal diverticulum in the form of a hernial sac. In castration the testicle is pulled upwards, the vas deferens is cut through, and the spermatic artery, the artery to the vas deferens, and the venous plexus are individually caught up, ligated, and divided. When this must be done higher up on account of the presence of tubercle deposits or infiltrated nodules from malignant disease deposited in the vas deferens, the anterior wall of the inguinal canal, the aponeurosis of the external oblique, must be slit up. Should the disease extend still deeper subperitoneally, the postrior wall of the canal must be slit up and the canal carefully sutured thereafter.

Provided the testicle is not adherent to the scrotum, or decidedly enlarged, it may be easily pushed upwards out of the wound and removed. When the skin is adherent, or the tumor of the testicle is very large, castration is performed by means of a transverse incision in the coronal plane at the lower end of the scrotum. After division of the skin and dartos between the larger visible scrotal vessels the testicle is shelled out. As the incision is parallel to the scrotal vessels, and also parallel to the branches of the spermatic vessels which ramify upon the surface of the tunica vaginalis toward its lower pole, it is a much more suitable incision than that which is generally used in Great Britain and America. Here a vertical incision descending upon the anterior wall of the scrotum is the general incision used.

Castration is the correct operation for all malignant growths, but there is a difference of opinion regarding its use in tuberculosis of the testicles. Baumgarten's remarkable researches read before the thirtieth congress of the Society of German Surgeons, 1901, show that tuberculous infections can only take place from the testicles upwards and never take place from the prostate downwards. The author is personally in favor of attempting to cure the tuberculous developments in the testicles by the administration of one tumblerful of pure, sterilized milk every thirty-six minutes to a male patient for twelve hours, which is followed upon retiring for the night by a sufficient dose of fresh castor oil in black coffee or beer to insure an open alimentary canal, which is an absolute necessity if this forced feeding is to be tried. This treatment should be carried out for three months before castration is resorted to for the cure of tuberculosis of the testicles. Should the patient show an increase of weight castration will not be required as an antidote for tuberculous disease of the testicles. The author's paper on the "Treatment of Pulmonary Tuberculosis, Diseased Lacrymal Ducts, Catarrhal Otitis Media, Hay Fever, and Chronic Asthma Not Complicating Heart Diseases" is referred to as containing full particulars.*

Cases of varicocele are all permanently cured by the above described operation without complications, owing to the fact that from four to six inches of the vein can be removed from the spermatic cord every time by this operation; the operator is thus enabled to shorten the support to the testicle to the desired length. The author closes all of the wounds, even the external one, by continuous catgut or silk sutures, which are covered when exposed with a small piece of sterilized bandage which is cemented down by collodion applied over it. The necessary piece of vein cannot always be removed through an incision on the anterior wall of the scrotum that is required to cure varicocele. The inguinal incision thoroughly exposes the tissues and also allows one to observe if any possible complication is present. After the ligation and removal of this piece of vein, the ligating sutures are left long and tied together for supporting the testicle in a higher position than its former location. In hydrocele the testicle is greatly indebted to the inguinal incision for its future normal resting place and the uncomplicated nature of the cures by this improved method of operating. These perfect results cannot be regularly attained with the incision on the anterior surface of the scrotum.

The sac can usually be pressed out through the inguinal incision. If very large, by infusion it may

*Although the inguinal incision was described by Kocher in the earliest editions of his textbooks on operative surgery, it has recently been published by Pasquimangali as something new, and it is even referred to in the *Centralbl. f. Chir.*, No. 47, 1906, as something new.

**Journal of Laryngology, Rhinology, and Otology*, September, 1911.

be partially emptied by puncture, when the testicle and its physiological covering is thoroughly exposed through its entire length. This covering, the tunica vaginalis propria, is sufficiently removed to leave just enough of it to cover the testicle tightly throughout its entire length, where it has been formerly separated from this membrane by fluid. The tunica vaginalis propria, which is the normal membrane surrounding the testicle, is closely united by a continuous catgut or silk suture about the testicle, which produces a satisfactory cure of this disease in every case. The testicle thus closely enclosed in its natural covering is returned to the cavity in the tunica vaginalis communis and the opening therein is closed by a continuous suture of catgut or silk. With the incision on the anterior scrotal surface the above described details were very imperfectly completed, because the operator could not see distinctly the pathological defects in consequence of which the diseases frequently returned.

This lack of success with the anterior scrotal incision suggested the only operation which has been generally successful when used in connection with the anterior scrotal incision to be devised. This operation consists in removing the testicle from the tunica vaginalis propria and closing with a continuous suture the opening in this membrane through which the testicle has been removed and then returning the testicle without its natural covering into the cavity formed by the tunica vaginalis communis. The testicle is always surrounded by a foreign membrane which is frequently an annoying disadvantage to the patient. It leaves the testicle subject to chronic irritations, although the tendency of the testicle to swell has entirely disappeared. It is a safe conclusion in surgery not to disturb the physiological surroundings of tissues when an equally good result can be obtained by leaving them in their natural relations. The operations by inguinal incisions which readily allow these diseases to be cured without disturbing the physiological relations of the coverings were devised by Kocher,* and according to his words, which are here quoted, he has always been successful in curing these diseases.

The author's experience has been positively in favor of this inguinal incision in castration and operations for varicocele and hydrocele. Where there is an additional deformity of an enlarged scrotum it can readily be perfected by the removal of a sufficiently large elliptical piece to remove the enlargement, the resulting wound being united by a continuous suture of No. O catgut or silk.†

Chirurgische Operationslehre, 4. Auflage English translation, p. 237, 1903; *Ibid.*, 5. Auflage, S. 1049, 1907; *Ibid.*, English translation, p. 701, 1911.

†These operations can all be performed with local anesthetics consisting of 20 minims of a 10 per cent. solution of novocaine, which is introduced with a hypodermic syringe into the parts requiring this operation. If a general anesthetic is used the author strongly recommends pure ether.

Moraybank, Langside.

Piercing the Ears of Children.—Alois Epstein has made an exhaustive study of this practice, which he finds still widespread among the poorer classes, although it is still prevalent to the extent of 50 per cent. among the upper classes. Among the unsightly results of this operation occasionally noticed are complete clefts through the pinna, openings that have been closed by cicatricial tissue, and large irregular openings, all the result of suppurative complications. Among other untoward results are erysipelas, delayed healing in children of the exudative diathesis, eczema of the lobule, and worst of all tuberculosis of the latter. The author reports two cases of this condition.—*Zeitschrift für Kinderheilkunde.*

HEMORRHOIDS AND OFFICE PRACTICE.

By ERIC CARL BECK, M.D.,

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ATTENDING SURGEON TO ST. MARK'S HOSPITAL; CHIEF OF SURGICAL O.P.D. GERMAN POLYCLINIC.

Preoccupation and constipation seem to be conducive to hemorrhoids. Floundering about in the maelstrom of bustle and activity of a business life, men and women alike pay but little heed to that most important function of the body, the punctual evacuation of the bowel. Nine women out of ten will tell one that their bowels move all right when they take something and cannot be convinced that a bowel-movement every second or third day is not a natural state of affairs. The usual form of constipation is a sequence to carelessness of personal habits and this carelessness invites and promotes the formation of the succulent hemorrhoid.

In the cities, where thousands are occupied with clerical positions, the hemorrhoidal martyr abounds in large numbers. Physicians practising there are familiar with the type, and when a stranger walks into the office with the perturbed attitude of one balancing an imaginary object on his head the thought flies to the doctor's brain, "Aha, another hemorrhoid."

As a rule, when a patient becomes bothered by an inflamed or congested hemorrhoid, he seeks the nearest physician who promptly and properly advises rest, very light diet, perhaps cold local applications and a suppository containing opium or some other "pain-killer." If the pile is not too large or too much distended, these measures are sufficient to restore the patient to normal within two or three days. This treatment is pleasing to both patient and physician; it is successful and painless. No operation, no cutting, that bugaboo of the laity. But many of the hemorrhoids have gorged themselves, and, satiated with blood, their paunch protrudes into the gateway of the body and then all these measures are for naught. When operation is advised the patients are usually sent post-haste to a hospital or sanatorium where the hemorrhoids are removed *in toto*. The case is turned over to the rectal specialist and this is usually the last the physician sees of his patient.

Before taking up the subject of office-treatment it might not be a waste of time to insert a few remarks concerning the operations advised and devised for the removal and cure of hemorrhoids. In looking over the literature on hemorrhoids I was surprised to note the astounding similarity of the operative procedure as described by three different surgeons. Each one of them espouses the clamp and suture, the only difference being in the kind of clamp used. Two of the gentlemen use the Kocher forceps, while the third has devised a clamp of his own. The first report was published June 1, 1901, the second February 28, 1903, and the third June, 1906. As they are all alike I will quote the essence of the first: "The entire mass is caught and cut off close to the clamp and while the clamp is still holding the base an overstitch of catgut is inserted and fixed as the clamp is removed, thus burying the stump. There is no danger of hemorrhage, very little pain, a quick recovery, and absolute cure. It also permits the patient to resume his or her vocation in the shortest possible time."

No doubt this operation is an improvement over the old clamp and cautery, in which the overzealous operator has often used the cautery to such good

effect that the anus became almost inverted on itself. But its greatest attraction to the layman lies in the rapidity of repair, in the short time that the patient is kept from his vocation.

Since then an operation has been described by J. M. Lynch in the *Medical Review of Reviews*, October, 1907, which is extremely simple and can be performed in the physician's office. The following is an extract: "The patient is placed in the Sims position, on the right or left, with the knees well flexed, and asked to strain. When the hemorrhoid to be obliterated is selected, a needle, threaded with plain catgut, is now placed beneath the mucosa into the cellular tissue at the base, where the blood-vessels enter, and brought out on the other side, thus embracing both the blood-vessels and a little of the mucosa. The suture is now tied, the loose ends are cut off, and the hemorrhoid is allowed to recede into the rectum. As the base is within the sphincter and outside of the sensitive zone, there is no pain. The same procedure is then followed should there be others to be eliminated. An opium suppository is now inserted to prevent the bowels from moving and to allay the after-pain. The hemorrhoids do not slough off, as one might expect, because only the blood-vessels entering are tied, and the muscoa has sufficient blood-supply to nourish itself without these. The tumors swell for the first 24 hours, but afterwards gradually subside leaving nothing but a hard, bloodless mass of connective tissue. This is also absorbed in time, when the hemorrhoids are obliterated. The advantages of this operation are: (1) It is bloodless. (2) If desirous of hastening the process, the hemorrhoids can be removed without hemorrhage or pain, a few weeks after they are tied, by simply cutting them off with the scissors. (3) It offers a cure to those who refuse a cutting operation. (4) It is simple and can be performed by any one if the proper surgical precautions are observed." I have employed this technique several times in my clinics at St. Mark's Hospital and have found that Lynch's contentions are correct in every detail. However there is usually great pain for from 24 to 48 hours after the blood-vessels have been tied. I have gone further than that and have removed two hemorrhoids without pain, by following the same method but injecting a solution of Beta-eucaine and suprarenal extract before the operation. I use eucaine in all my minor surgery. The injection of the very weak solution caused a dissection of the tissues and an outbulging of the entire mass. I made an incision about half an inch long at the base of the hemorrhoid and ran a catgut ligature around the pedicle. Inserting a grooved director I was able to free the hemorrhoid from the mucosa, there being no adhesions on or around the sides; only a small area at the top. I then incised the hemorrhoidal sac, pressed out the contained blood, passed a hook around the mass, everted the empty pouch and cut it off just above the ligature. I repeated the process on the other side, painted the cut surface with tincture of iodine, inserted an opium suppository and applied a T binder. There was no afterpain to speak off. Simply a feeling of discomfort. When I saw the patient the next day there was slight edema and some discoloration of the mucosa, probably caused by pressure and traction during the operation. I was anxious lest the loose folds of the mucosa slough away, but my fears were groundless as they began to contract shortly after and the end-result was a perfect one. The patient's bowels were kept under control for four days with the aid of bismuth and opium powder.

Operations on hemorrhoids in the office, unless the case is an extreme one, can become the rule rather than the exception.

333 East Sixth Street.

LEPROSY AND THE KNIFE.

By E. S. GOODHUE, A.M., M.D., LL.D.,

HOLUALOA, HAWAII.

In an official publication of the Hawaiian Board of Health, for the twelve months ending June 31, 1912, the medical superintendent of the Molokai Leper Settlement, Dr. W. J. Goodhue, furnishes a report which is of great interest to the scientific and surgical world. Since the present incumbent's residence at the settlement, many changes for the better have taken place, due not only to Dr. Goodhue's suggestions, but to the fine executive ability of Mr. McVeigh, the superintendent, and the ready acquiescence of the Territorial Board of Health. New and commodious buildings have been erected and an adequate surgical and dressing room and modern equipment for the bi-weekly surgical clinics established by the operator have been installed.

These clinics, where contractures, ulcerations, necrosed and mutilated fingers and toes—and, in fact, all the disfigurements due to the ravages of leprosy—are treated, were the conception of the surgeon in charge, who has surgically treated in this place over 6,000 patients. His enthusiasm, perseverance, and skill have overcome all obstacles. Koch, who visited the settlement a few years ago, and many other distinguished physicians and scientists, have spoken highly of the work done there, and expressed their surprise at the results.

The following is taken from the last official report:

"Case I.—P. was declared a leper in 1906 by the Examining Board for lepers, after a careful examination in conjunction with the report of the official bacteriologist. He entered the Leper Settlement, Molokai, October, 1906. He presented extensive ulceration of the inner aspect of the arm, extending above, from a line corresponding with middle of axillary cavity, to the angle of elbow below. Widest ulceration, 4 inches, tapering down to from 1 inch to 1½ inches. Induration was marked, there was difficulty in flexion of forearm, and considerable necrotic involvement of the biceps. Operation was a radical dissection of the tissues involved, followed by 10 per cent. zinc chloride irrigation. Care was taken to arrest circulation by Esmarch's bandages during operation, and these were only removed subsequent to aforesaid and additional antiseptic cleansing.

For conservative reasons I have purposely refrained from reporting this case until a sufficient length of time had elapsed, so as to place the cure beyond the shadow of a doubt, or the possibility of metastatic recurrence. Eight months after the operation, the patient was brought before the official examining board, presented no physical blemishes, and rigid bacteriological tests were neutral. The patient was declared non-leprous, discharged from the settlement, and is now leading a useful life as a road overseer on the Island of Maui.

However unusual the statement may seem to those not clinically familiar with every phase of leprosy, I boldly assert that in the unsuspectedly large number of incipient cases where the disease is localized (peripheral and nerval) these or any other treatments which remove the then circumscribed area or focus of infection, without opening up channels for metastatic dissemination, will cure the disease in from six to twelve months' time. Ferruginous and nutritive tonics, emunctorial eliminants, including

hydrotherapy, are here of more than ordinary importance. While a cure of leprosy is always interesting as well as gratifying, I report this case and would also call attention to Cases II and III (given below).

Class A includes cases which especially emphasize a few points which have been borne in upon me as the result of ten years of uninterrupted clinical observation and the performance of over 6,000 surgical operations for the amelioration of every form of leprous lesion amenable to surgical intervention.

(1) Leprosy is more frequently than otherwise primarily a localized disease. (2) As such it may be eradicated through the judicious application of suitable topical remedies, or careful surgical interference. (3) The whole period between infection and development of the primary lesion (incubation) may be as short as five days.* (4) The initial focus may remain localized for anywhere from a few months to years or even a lifetime, through (a) natural, physiological, and economic phenomena, and (b) artificial circumscription or walling in of the primary infection as in the subcutaneous injection of a five per cent. solution of carbolic acid. (5) Leprous rhinitis or "snuffles" is very infrequently neither a primary infection or manifestation, but usually secondary to general or systemic invasion, and occurring only after a longer or shorter (more commonly the former) period of localization.

Left undisturbed, unrecognized, or untreated, systemic infection and general dissemination of the bacilli may occur from autoinfection through (a) natural proliferation of bacilli and toxins generated; (b) traumatic injuries such as lacerations, contusions, luxations and fractures; (c) intercurrent fevers; (d) intemperance and debauches with the usual concurrent exposure; (e) natural susceptibility or the same acquired through loss of bodytone; (f) and in the female, pregnancy.

"Case II.—A married woman, aged twenty-eight, entered the settlement as a leper, with her husband, in 1908. She presented an extensive eruptive skin affection of the abdomen and part of the left thigh. The eruption took the form of numerous irregular concentric rings separated by patches of healthy skin. She was placed on chaulmoogra oil, and the elixir of iron, quinine, and strychnine phosphates. Locally there were used at intervals tincture of iodine, pyrogallic and salicyclic acid ointments, and sulphur baths. The eruption seemed to be gradually closing in, so that a year ago, when thorium paste was begun, the eruption resembled a large plaque with the rings largely coalescing to form a single patch. This result was due largely to the irritant drugs used and the friction employed to relieve itching rather than to an increased activity in the specific lesions themselves. Application of the paste was made every third day, covering about 2 inches at a time. The day following the application of the paste the patient herself used the ointment. Result: the eruption has about all disappeared, leaving good, clean skin. The internal treatment was changed to Fowler's solution, alternating monthly with Blaud's pills. I hope to present this case for examination at the next meeting of the Examining Board, and I believe the woman will be declared non-leprous.

"Case III.—Mrs. K. H., married, aged twenty-three. No children. Entered settlement in 1904. Presented indurated, discrete patches on face, principally between the eyelids and the cheeks, which were raised, as an eruption, or depressed, the latter appearing like the pitting of smallpox. In every other clinical aspect the case shows absolutely no lesion, sign, or symptom of the disease. To put it differently, the bacilli of Hansen, wholly responsible for the leprosy, are localized in certain circumscribed facial lesions, and the infection, although existing over nine years, has never succeeded in becoming systemic."

The Doctorage

*American Medicine, October, 1907.

THE ADMINISTRATION OF OXYGEN TO THE FETUS.

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In the Medical Record of January 11, 1913, there appeared a short article of mine upon the treatment of the toxemia of pregnancy. In that article I ventured to advance the theory that suboxidation is the chief factor in the production of preeclamptic toxemia, and that the free use of oxygen, either by inhalation or subcutaneously, is a valuable method of treatment and one which does not interfere with other methods of proved efficiency, such as rest, milk diet, catharsis, hydrotherapeusis, and so on. Further experience, which I hope to report later, has served to confirm my opinion, and I now believe that the occasional administration of oxygen in pregnancy is desirable and beneficial, acting as a prophylactic and invigorator even in cases approximately normal, and especially when the patient is obliged to remain indoors a large part of the time. I also believe that it will do much to relieve subjective weakness, oppression, and discomfort, in cases that are probably mildly toxic, but not far enough advanced to present typical symptoms.

The object of this communication, however, is to call attention to certain immediate effects of oxygen upon the fetus, which have, I think, hitherto escaped attention.

In the first place, the inhalation of oxygen by the mother appears to increase the rapidity of the fetal heart. I have before me the notes of eleven tests made at the City Hospital. Each test consisted in the inhalation of oxygen for five minutes by a pregnant woman at or near term, the fetal heart being counted before and after inhalation. Fetal movements were also observed, and uterine contractions noted. In order to eliminate the personal element I did not do the counting myself, but entrusted the task to one of my assistants. The rapidity of the fetal heart sounds was increased in every case. In two cases the increase was so small as to be practically negligible, two and four beats respectively; in a third it was eight beats, and in the remaining eight cases it was from sixteen to twenty-five beats. The average increase was about fifteen beats. The real increase was somewhat greater than is here indicated, since the inhalation of oxygen appears to excite uterine contractions, and in at least four cases the counting was done during a contraction. It is a matter of everyday experience that the fetal heart beats more slowly during a contraction.

Another new and curious fact noted during these experiments is that oxygen increases the frequency and activity of the fetal movements. Out of nine tests it was found that the fetal movements were increased in five. In three of these they were marked simply "increased" and in the remaining two "markedly increased." In the case of one patient near term and since delivered, the fetus underwent remarkable contortions, but without harm.

Why do the fetal heart sounds become more rapid, and the fetal movements more active, under the influence of oxygen? Certainly not because of a general stimulation of the maternal organism. Drugs given by the mouth or hypodermically do not ordinarily affect the fetal heart. The fetal and maternal circulations, however, are really one, and if oxygen

enters into chemical combination with the maternal blood, how can the blood of the fetus escape its influence?

Now if we can administer oxygen to the fetus, and if the fetus responds symptomatically to that administration, is it not plain that we can do much in the prevention and treatment of antenatal asphyxia? The normal slowing of the fetal heart during contractions ususually does no harm, but if labor is much prolonged or if the contractions become tetanic in character, the fetus will sooner or later show the effect of the diminished supply of oxygen. During a uterine contraction there is of course a corresponding diminution of the placental area. The fetus thus receives less blood and consequently less oxygen. In our experiments at the City Hospital the fetal heart sounds were increased in frequency during the contractions. Therefore it would seem a wise precaution to administer oxygen to the mother in cases of prolonged second stage, in partial separation of the placenta, or whenever slowness or irregularity of the fetal heart sounds indicates impending asphyxia.

I am aware that there are many sources of error in counting the fetal heart, but the fact that in eleven cases an increase was noted in every case, that the average increase was about fifteen beats per minute, and that in some cases it was as high as twenty-five beats per minute, and that in a large proportion of cases the fetal movements were increased, sometimes markedly so, seems to indicate that the inhalation of oxygen by the mother is not without its effect upon the fetus.

I may add that since the above tests were made I have supervised two further tests. In both the heart rate was increased ten beats per minute and fetal movements were observed.

I have also had an opportunity to observe the stimulating effect of oxygen upon the fetus in a difficult version.

203 West One-hundred-and-third Street.

Medicolegal Notes.

Physical Examination of Injured Party—X-Ray Photographs.—In an action against a railroad company for personal injuries, the defendant moved for an *x*-ray examination of the plaintiff, a married woman, and a physician was appointed by the court to make it. The physician proposed to engage a photographer to make *x*-ray photographs, to which the plaintiff objected, and refused to submit to an examination under these circumstances. The Florida statute gives a trial court discretionary power, in a suit for damages for personal injury, to appoint a physician to make a physical examination of an injured party. It was held that the statute be exercised with due regard to the rights of the parties and confined to its expressed terms. A physician appointed by the court for the purposes indicated in the statute must himself make the physical examination; and, while he may use the *x*-ray in his examination, he has no authority to take *x*-ray photographs of the person of the party examined without his or her consent; and much less has he authority to appoint an outside photographer to use the *x*-ray, or to take such photographs.—State v. Call, Florida Supreme Court, 59 So. 789.

Insurance—"Serious Disease or Complaint."—A life policy provided that it should be void if the insured had been attended by a physician for any "serious disease or complaint." Proof was given in an action on the policy that the insured, prior to the application, had malaria, congestion of the kidneys, and endometritis. The trial court found that the insured had not been attended for any serious illness. There being no testimony in the record that any of the diseases named might reasonably entail permanent or material impairment of health, it was held that the finding was not reversible error.—Metropolitan Life Ins. Co. v. Little, Kentucky Court of Appeals, 149 S. W. 998.

Misrepresentation as to Cure—Deceit.—A complaint substantially alleged that the plaintiff was suffering from irritation of his stomach, and applied to the defendant for advice and treatment, which the latter undertook to give. Thereupon the defendant, for the purpose of deceiving the plaintiff, falsely and fraudulently made a pretended diagnosis of his condition, and advised him that he was suffering from rheumatism of the stomach, and that the proper and necessary treatment therefor was to cover a large portion of his body with a plaster, which the plaintiff afterwards learned was composed of olive, amber, and kerosene oils. The defendant also represented as of his own knowledge to the plaintiff that this treatment would have no injurious effect upon his health, but that it would cure the ailments from which he was then suffering. The defendant at the time of making such representations knew each of them to be false, and made them for the purpose of deceiving the plaintiff and inducing him to submit to the treatment and thereby get his money. The plaintiff believed and relied upon the false representations, and submitted to the proposed treatment, which did not cure him, but on the contrary, injured his health and severely blistered his body, causing poisonous sores and ulcers thereon, to his damage in the sum of $10,000.

The trial court sustained a demurrer to the complaint and on appeal the question was: Did the complaint state a cause of action for fraud? It was held that it did, under the rule that, where one deliberately makes a false representation of a material fact, or as of his own knowledge without knowing whether it is true or false, intending that another shall act upon it, and he does so to his injury, an action for deceit lies. It was immaterial that the defendant did not in fact obtain any money from the plaintiff, as the injury to one's person by fraud is quite as serious as injury to his pocketbook.—Flaherty v. Till, Minnesota Supreme Court, 137 N. W. 815.

Insanity of Defendant—Privilege of Family Physician.—In a murder case where the defense was insanity, a medical witness for the State was asked on direct examination whether, in his opinion, the defendant was or was not insane on the day of the murder. In cross-examination at this point by the defendant it appeared that the witness had been the family physician for the defendant's family for several years before. The State then asked him if he could separate his conclusions from his professional calls on the defendant and his observations on the day of the murder. He replied that he could. His answer that he saw nothing to indicate but what the defendant was competent and sane was objected to by the defense, chiefly on the ground that it was a privileged communication Many courts have held such evidence incompetent. It has often been said that the human mind is not competent to separate the facts of which it is cognizant into two classes —those that were obtained professionally, and those coming within the observation of the witness not so obtained—and distinguish an opinion derived from one series of facts from an opinion derived from another. Some have suggested that the witness might not be competent to determine as a matter of law how far the rule of personal privilege extends and so be able to determine what facts the law would regard as having come to him through his professional capacity. Without deciding the point the court held the evidence incompetent because his testimony amounted, not to a statement of what his opinion was as to the sanity or insanity of the defendant, but that he had not observed enough to lead him to the conclusion that the defendant was insane, without testifying to the facts and conditions which he had observed.—Larson v. State, Nebraska Supreme Court, 137 N. W. 894.

Masseur Practising Medicine.—A conviction of a masseur for unlawfully practising medicine was affirmed where the State alleged and proved that the defendant practised upon human beings and treated them for disease and disorder as a doctor or physician and charged indirectly therefor without procuring and having registered a license therefor. The defendant claimed that he did not so practise, but that he practised simply and solely as a masseur.

Masseurs in their particular sphere of labor, it was held, who publicly represent themselves as such are exempt from the law requiring a certificate of their authority to be recorded before practising that art, but if, notwithstanding he so represents himself as a masseur, he undertakes to cure diseases for pay, and represents himself as able to cure diseases in that manner, he could not do so legally without the proper certificate registered in the clerk's office, etc. In other words, he could not hold himself out as a masseur, claiming to treat diseases without pay, and as a matter of fact treat human beings for disease and disorder as a doctor and indirectly charge them therefor, without a registered certificate.—Milling v. State, Texas Civil Appeals, 150 S. W. 434.

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CRIME AND ITS SOCIAL BASIS.

NEARLY ten years ago there died at Paris the eminent French jurist and sociologist, Gabriel Tarde. "To be recognized as an original thinker in three separate fields of knowledge—psychology, sociology, and criminology; to pursue successfully the careers of magistrate, statistician, and professor of political science—such an achievement is rarely to be recorded. It is a brief summary of the life work of Gabriel Tarde." With this lucid characterization is introduced the editorial preface to the English edition of Tarde's "Penal Philosophy,"* a work teeming with interest to all thoughtful students of social questions, particularly at the present time, when the reciprocal relationship of the individual and society challenges the attention of all.

One of the distinctive features of Tarde's philosophy was his protest against Lombroso's anthropological and physical theories of crime. He became the modern exponent of the Aristotelian doctrine that man is by nature a political animal. The mainspring of human action is imitation rather than the exercise of free will. According to Tarde, man living as a dependent unit of society is an automaton, but instead of being acted upon only by geographical, climatic, and other physical factors, he is the resultant of social forces. Imitation is the supreme factor in human life, and is all the more operative the greater the density of population. The inferior imitate the superior in dress, in language, in opinions, and in vices. Tarde points out how in former times the vice of drunkenness and the crimes of poisoning and murder which were the peculiar prerogative of the nobility became the inheritance of the common people. At the present day in a similar manner rural districts take their cue from the cities in fashions, in slang, and in viciousness.

One of the striking illustrations of the power of imitation or of suggestion in the production of crime is the occurrence of so-called "crime waves" following the publicity given by the newspapers to sensational crimes. The recent epidemic of attempted suicide by means of corrosive sublimate is another instance of the same law of imitation. Great is the responsibility of the public press and of the stage, which may exert a powerful educational influence, but which may become, as is so frequently the case, the means of disseminating among the young and impressionable the blight of immorality, and which may even become the direct incentive to wrongdoing. "Crime," says Tarde, "is a social phenomenon like any other, but a phenomenon which is at the same time anti-social, just as a cancer participates in the life of an organism, but working to bring about its death."

In these days when in spite of "peace" congresses war is waged as frequently and with as much ferocity as at any time in the world's history, it is interesting to note Tarde's definition of war as "the highest and most absolute possible expression of crime which has become a mutual affair." According to this view the soldier has evolved from the brigand just as the workman has evolved from the slave. Militarism is the collective substitute for the individual passions of hatred, envy, cruelty, and greed, which although separately condemned are in the larger aggregate justified and glorified as the means of national expansion or defense. Recent events in the Balkans apparently illustrate at least in part the truth of this statement. When engaged in a common cause against Turkey, the Balkan states and Greece fought with uncommon unity of purpose and mutual respect. Now with their hated foe subdued, the Allies are arrayed against one another, their native jealousies and hatred unleashed by the cessation of their common cause.

Of special interest to physicians is the doctrine of responsibility which Tarde erected as the keystone of his penal philosophy. He conceived of criminal responsibility as dependent upon two factors, personal identity and social similarity. The former represents the maintenance of the psychological unity or self with its multitude of elements—comprising obligations to one's self and fellows, a recognition of the heritage of the past and the duties of the present—all of which go to make up the identity of the normal individual. When this identity is impaired, when the consciousness of the individual is dissociated into its various parts, so that they no longer blend to form the harmoniously acting being, one is justified in saying that criminal responsibility is lacking. Social similarity is that factor in the maintenance of responsibility by virtue of which the individual does not act counter to the settled customs and conventions of the society in which he lives. A Fiji Island savage transplanted to our shores cannot be expected to at once act in accordance with the laws of his new neighbors. This lack of social similarity will absolve him from responsibility for any crimes that he may commit.

With this brief exposition of Tarde's conception of crime and of criminal responsibility one cannot adequately present even in outline the vast scope of the book which deserves careful reading by everyone who is interested in the delinquent, unfortunately an appreciable part of the social edifice.

*"Penal Philosophy," by Gabriel Tarde, late magistrate, and professor in the College of France. Translated by Rapelje Howell, of the New York Bar. With an editorial preface by Edward Lindsey, of the Warren, Pa., Bar, and an introduction by Robert H. Gault, assistant professor of Psychology in Northwestern University and managing editor of the *Journal of Criminal Law and Criminology*. Price $5.00 net. Boston: Little, Brown & Company, 1912.

THE MEDICAL COUNCIL OF CANADA.

Canada is to be congratulated on not being hampered by legal barriers in effecting a national registration law to regulate the practice of medicine, or rather on having in its medical profession the unity of spirit which has enabled it to bring about such a desirable law. Henceforth any one desiring to obtain a medical license which will grant him the right to practise medicine in any or all of the provinces of Canada without further examination may obtain the same from the Medical Council of Canada. This council is composed of members representing each provincial medical council and each university medical school. The qualification granted by the Medical Council of Canada will be known as the "License of the Medical Council of Canada" (L. M. C. C.), according to the first Announcement of the Council just issued. The council appoints examiners who submit the candidates to written, clinical, and oral examinations. One of the main objections to the introduction of thorough practical examinations in this country is the great expense. This will be met by the Medical Council in Canada by charging a fee of $100 for the examination. Whether or not it will ever be possible here in the United States to establish a like examining body whose license will be recognized and give the privilege of registration in each State is difficult to predict.

At present there is organized the Federation of State Medical Boards of the United States which is working to this end. We cannot have a national registration law without amending our federal constitution because Congress has no power to regulate the practice of medicine within any given State. All that Congress could possibly do now would be to pass a law that would be applicable to a doctor taking an examination in more than one State. Under our present constitution, reform on a national scale must come by all the States enacting uniform laws.

Many practitioners have suffered the annoyance of having to take examinations that are far from practical when they have moved to another State. By these physicians, if not by the rank and file of the profession, a national licensing body would be most welcome. It would seem that such a body could be established more quickly than to bring about a uniform standard for medical education and uniform laws in all the States. Many of the State boards might have moved rightly in the direction of recognizing high standard examinations conducted by colleges or other States if it had not been for the unfortunate introduction of the so-called reciprocity clause in many of the State laws. This reciprocity clause might better be termed the retaliation clause. A State which has an obviously lower standard then another State that refuses to indorse its license retaliates by refusing in turn to indorse the license of the higher standard State. This wrongful retaliation is deplorable. It is to be hoped that we may before many years be able to have a national licensing board similar to the Medical Council of Canada.

THE MEDICAL EXAMINATION OF ALL WORKERS.

This age is certainly the age of the cult of health. In every civilized country the attention that is being paid to the prevention of disease, to the preservation of health, and to the measures that are being taken to treat disease, increases day by day. Governments and municipalities are more than ever convinced that if the population is not healthy, decay from every point of view is sure to progress.

"Ill fares the land to hastening ills a prey,
Where wealth accumulates and men decay."

A convincing proof of this universal feeling was afforded recently, by the meeting of the British Royal Institute of Public Health. A paper read at this meeting by Dr. I. C. McWalter was especially deserving of notice. It dealt with the necessity for the medical examination of all workers and pointed out that the enactment of the Employers' Liability Act in Great Britain had altogether changed the views of the employer as to the health of his employees. Formerly the employer was callously indifferent to the health of the workman. Now, if the workman be stricken down at his work it will be presumed that the accident arises from his employment and it will go hard with the employer to prove otherwise; and if he die the employer will have considerable difficulty to disprove that death did not arise from the effects of his work. Further, the workman is insured and therefore has much to gain by keeping at work for a few months, because thereby he becomes entitled to sickness and disablement benefit after a certain interval. Thus the mere fact of a man being at work now endows him with certain privileges. He must be insured, and he must, in certain circumstances, get even a lifetime's disablement benefit, and consequently it appears fairly obvious that it is only a question of time when the workman in Great Britain will be compelled to undergo a medical examination before he is allowed to work.

Of course, ill health is a tax on the community, and it is to the ultimate benefit of all concerned that no person should be permitted to engage in any employment until he or she has been tested and found physically fit for work. It is argued that such regulations would press heavily on the poor, but it cannot be urged that it is to the real benefit of anyone that a sick person should be allowed to work. The examinations, it is to be presumed, would not be equally strict for all trades, and it is also well understood that the individual should not be permitted to suffer unduly for his condition of health, except possibly in the case of certain diseases. As McWalter shows, the advantage to the employer of such a system is obvious, while the advantage to the employed is yet greater. He omits, however, to draw attention to the fact that the advantage to the race should be the greatest argument in its favor. The days of natural selection, the survival of the fittest, have passed and now steps must be taken to conserve the population by the best means available, and it would seem that

medical examination of workers is logically one of the most important of such means.

It may be pointed out that this country, Great Britain and her self-governing dominions are the only civilized countries of the world which do not possess the advantages given by conscription. Whatever may be the drawbacks of conscription, the system at least has this in its favor, that when a man has to serve in the army he is medically inspected and tested.

Perhaps, on the whole, the laws of this country with regard to the health of working people are more lax than in any country, and although it is always being refreshed and replenished by new blood, by immigration, this mode of revitalizing is becoming of doubtful value. The type of immigration has changed completely of recent years, the new blood does not revitalize as formerly—to some extent it poisons, and, moreover, the conditions of life in the big cities are approximating those of Europe.

Present Status of Organ Transplantation.

At a recent session of the Berlin Surgical Society (*Berliner klinische Wochenschrift,* June 16) Stich gave a much needed sketch of this subject. Seven years ago Carrel began his autoplastic work, and it was thought highly probable that animal organs could be successfully implanted from an animal to another of the same species and from man to man. This held quite good for segments of blood vessels and in invertebrate animals the heads even could be exchanged. Carrel's experiments showed that neither homoplastic nor heteroplastic transplantation could be successfully made between vertebrates. The transplantates grow in, but degenerate within a short time. The only exception is tumor transplantation. In regard to homoplastic transplantation, this is said to be possible at times in animals which are consanguine. Many remarkable cases of homoplastic transplantation seemed for a while to have been successful. Carrel, Unger, Sajou, Ullman, and others have reported cases of kidney transplantation of all three types, some on human beings. Carrel and Unger have shown the practicability of homoplastic transplantation in animals, while quite a few cases of the heteroplastic type have succeeded. In human beings, he said, failure awaits either form of transplantation. It is claimed by Unger, however, that remarkable instances of prolongation of life as a result of transplantation justify occasional resort to the latter, when all other measures fail and the patient is still responsive to treatment. He implanted both kidneys of a large ape in a girl with uremia. The kidneys were permeable in thirty-two hours and showed no sign of degeneration.

A Depreciation of Psychoanalysis.

The healthy opposition to Freudian analysis—healthy because it only pursues constructive ends—is not only to be expected but invited. The doctrine is, however, like religious creeds and dogmas, temptingly easy to attack. At the recent annual meeting of the Deutscher Verein für Psychiatrie (*Deutsche medizinische Wochenschrift,* June 19) both Bleuler and Hoche so riddled Freud's theories that they and their kind tend to be under the suspicion of proving or disproving too much. Yet there seems to be no desire to be destructive. The burden of this and of all similar criticism is to drive the Freudians to abolish doctrines founded on minute, prolonged studies of the individual and to build up a general propaganda, applicable alike to all. Because prolonged study of one patient brings out a homosexual primary factor, we should not understand that this element is universally in evidence in psychoneuroses. Hoche sums up his critique in a series of propositions: thus the advocates of psychoanalysis are not able to furnish proofs of their doctrines; they confound analogy with identity; their course of procedure is arbitrary, and depends on chance; they do not care to argue with their opponents; while the faculties of the psychologists are sharpened by psychoanalysis, there is no corresponding increase in our knowledge of psychiatry; the method is very tedious, and wastes the time of physician and patient.

News of the Week.

City Death Rate.—For the week ending July 5, the death rate in New York City was 12.54 per thousand of population, representing a total of 1,291 deaths. This rate was 0.3 of a point lower than that for the corresponding week of last year, although the total number of deaths was increased by 18. Nineteen deaths were reported during the week as due directly to heat stroke, as against one in the same week of 1912 when weather conditions were more favorable. Whooping-cough and chronic heart and kidney diseases also gave an increased mortality. The infant mortality, however, was considerably decreased, the death rate for the entire city during the week being 89 per 1,000 births, as compared with 104 per 1,000 during the corresponding week of 1912. This represented a decrease of 35 deaths of infants under one year of age, and there was also a decrease of 45 deaths under five years of age. The death rate for the first twenty-seven weeks of 1913 was 14.94 per 1,000 as compared with 14.98 during the same period of 1912.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for the month of May, 1912, gives the total number of deaths from all causes among employees as 38, of which 27 were due to disease and 11 to violence, equivalent to an annual average death rate per thousand of 7.63. For the entire population of the cities of Panama and Colon and the Canal Zone, including both employees and civilians the death rate for the month equalled an annual average death rate per thousand of 19.66, which is 0.65 of a point higher than for the same month of last year. Deaths from the principal diseases were as follows: dysentery, 1; hemoglobinuric fever, 1; lobar pneumonia, 5; organic heart disease, 3; tuberculosis of lungs, 1; typhoid fever, 2. During the month of April the Culebra Hospital and sick camp were discontinued, the dispensary alone being kept open. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

Dr. Friedmann of Berlin, who, it may be remembered, was in this country last spring trying to effect the sale of an alleged cure for tuberculosis, has not received an over-warm welcome from the medical profession of his native town. Indeed, most of them repudiate him, quoting Dr. Mannheimer's report in the Medical Record in disproof of his claims. On his return to Berlin he had

recourse to the newspapers there, as he did here, in the endeavor to convince the laity that he had a sure cure for tuberculosis, but is apparently succeeding no better there than here. In New York he had to contend with the therapeutists, who found no signs of improvement following the administration of his remedy to the tuberculous. In Berlin it is the bacteriologists who are disproving his claims, asserting that his bacillus is not acid-fast and therefore fails to prove itself a member of the tubercle bacillus family.

International Opium Conference.—Secretary of State Bryan has requested from Congress an appropriation of $20,000 toward defraying the expenses of the International Opium Conference at the Hague, on the ground that the United States would be derelict in its fight against the opium evil if it did not participate in the meetings.

X-Ray Victim.—Mr. Burton E. Baker of Hartford, Conn., died at his home in that city on July 10 from injuries due to exposure to the *x*-rays in the course of his experimental work.

Bronx Hospital.—The trustees of the Bronx Hospital, New York, have recently purchased a site for the proposed building, consisting of five lots at the southeast corner of Crotona Park East and Charlotte Street, the plot measuring 125 x 105 feet. On this it is planned to erect, as soon as sufficient funds are collected, an eight-story building costing about $300,000. The Bronx Hospital corporation was organized about two years ago and has maintained a dispensary in which 30,000 patients were treated last year.

New Convalescent Home.—It is reported that Mr. Vincent Astor has purchased a site of ten acres at Rhinebeck, N. Y., on which he will erect, in memeory of his father, a home to be known as the John Jacob Astor Home for Convalescent Children. Plans for the buildings have not yet been completed, but it is probable that accommodations will be provided for one hundred children.

Hospital Fund Incorporated.—With the object of raising a fund to be used solely to acquire real property, erect buildings thereon, and endow them for the Washington Heights Hospital of New York, the Building and Endowment Fund Association of Washington Heights Hospital was incorporated in Albany on July 7.

Dr. William G. LeBoutillier of New York has resigned the office of chief surgeon on the staff of Major-General O'Ryan, because of the pressure of private business.

American Physicians in Paris.—The party of medical men who sailed from New York two weeks ago arrived in Paris on July 13. They were received by Ambassador Herrick on Monday and visited the Pasteur Institute and a number of hospitals. Their itinerary includes a visit to the principal clinics and spas of Germany and closes with attendance at the International Medical Congress in London, August 6 to 12.

Prize for Ophthalmology.—An anonymous donor has given 500 francs for a prize for researches on iritis and cyclitis. The papers (which may be in English) are to be sent to the editor of the *Annales d'Oculistique,* 26, Boulevard Raspail, Paris, before August 15, 1914.—*The Lancet.*

Atlanta Medical College.—By the consolidation of two of the larger medical schools of Atlanta, Ga., the Atlanta College of Physicians and Surgeons and the Atlanta School of Medicine, a new school has been formed to be known as the Atlanta College of Medicine. This was the title of the first medical school established in Atlanta, in 1854, which later merged with the Southern College to form the College of Physicians and Surgeons, in 1898. The Atlanta College of Medicine will have Dr. Willis F. Westmoreland, at present professor of the principles and practice of surgery in the Atlanta College of Physicians and Surgeons, as its president, and Dr. W. S. Elkin, now Dean and professor of gynecology in the same institution, as its Dean. Two other officials will be nominated by the Atlanta College of Medicine, and the faculty of the college will be selected from the members of the two institutions.

Obituary Notes.—Dr. Edward Everett Hyde, Assistant Editor of the *Journal of the American Medical Association,* died on July 4, after a brief illness, from myelogenous leukemia. He was born in Galesburg, Ills., Jan. 19, 1875, and was graduated from the College of Physicians and Surgeons, Chicago, in 1900. The same year he was ordained a minister in the Congregational Church and went as missionary to the Caroline Islands. Returning in 1902, on account of the ill health of his wife, he was appointed on the staff of the *Journal,* where he remained to the time of his death.

Dr. George Joseph Gorman of New York, a graduate of the New York University Medical College in 1891, and a member of the Department of Health of New York City, died suddenly at his home on June 28.

Obituary.

BENJAMIN LEE, M.D.

PHILADELPHIA, PA.

Dr. Benjamin Lee of Philadelphia, assistant commissioner of health of the State of Pennsylvania, died at his home in Point Pleasant, N. J., after a brief illness, on July 11, aged 79 years. Dr. Lee was born in Norwich, Conn., Sept. 26, 1833, and was graduated from the University of Pennsylvania with the degree of A.B. in 1852, receiving his master's degree in 1855 and his Ph.D. degree in 1878 after attending courses of the auxiliary faculty of medicine. He attended lectures at Jefferson Medical College in the session of 1853-54 and at the New York Medical College in 1854-56, being graduated from this institution in the latter year. From 1855 to 1856 Dr. Lee was resident physician to the Colored Home of New York City. In the following year he served as interne in Bellevue Hospital and in the winter of 1857-58 he pursued studies in the hospitals of Paris. In 1858 he made a study of obstetrics in Vienna under the direction of the late Karl Braun. Subsequently he returned to New York City, but after a professional residence of seven years he took up medical work in Philadelphia. Dr. Lee was a member of the 22d Regiment New York National Guard; assistant surgeon in the United States Army in 1861, surgeon in 1862. In 1885 he became a member and secretary of the newly created Pennsylvania State Board of Health and he continued in that relation until the Board was superseded in 1905 by the State Department of Health in 1906, when he became assistant to the Health Commissioner. He was secretary of the Pennsylvania State Quarantine Board from 1893 to 1905. He was for a time professor of Orthopedic Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine. He supervised the sanitary medical service in and about Johnstown following the great flood of 1889. In the same year he was appointed United States Commissioner for the

Condemnation of Land for Quarantine Purposes at the Mouth of the Delaware River, and in 1891 he was appointed a member of the Quarantine Commission to select a site for a new station on the Delaware River or Bay. He was Health Officer of the Port of Philadelphia from 1898 to 1899. He was a member of the American Academy of Medicine, the National Conference of State Boards of Health, the American Public Health Association, the American Orthopedic Association, the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the American Medical Association, and the Mutual Aid Association of the Philadelphia County Medical Society.

HORACE JAYNE, M.D., PH.D.

PHILADELPHIA, PA.

DR. HORACE JAYNE of Philadelphia, formerly director of the Wistar Institute of Anatomy and Biology of the University of Pennsylvania, died suddenly at his home in Wallingford, Penn., on July 8, aged 54 years. The last years of his life were devoted to the preparation of a work on biology which is left uncompleted by his death. Dr. Jayne was graduated from the University of Pennsylvania, receiving the degree of A.B. in 1879 and of M.D. in 1882. After studying for a time in Leipzig and Jena, he was appointed assistant instructor in biology in the University of Pennsylvania, and in 1884 was made professor of vertebrate morphology, holding this chair until 1894, when he became director of the Wistar Institute. This office he resigned in 1905. From 1884 to 1889 Dr. Jayne was also secretary of the Faculty of Biology of the University, and from 1889 to 1894 Dean of the College Faculty. He was co-editor of the *Journal of Morphology*, the *Anatomical Record*, and the *Journal of Experimental Zoology*, and had written largely on anatomical and biological subjects. He was a member of the American Academy of Natural Sciences, the Society of American Naturalists, the American Philosophical Society, and a fellow of the American Association for the Advancement of Science and the Philadelphia College of Physicians.

HENRY JACQUES GARRIGUES, M.D.

TRYON, N. C.

ON July 7, 1913, at his home in Tryon, N. C., Dr. Henry Jacques Garrigues, formerly of New York, died after a short illness, aged 82 years. Dr. Garrigues was born in Denmark, and received his medical degree from the University of Copenhagen in 1869, coming to this country shortly afterward. He was for some years professor of obstetrics in the Post-Graduate Medical School, and professor of gynecology and obstetrics in the New York School of Clinical Medicine, and was foremost in the adoption of asepsis in maternity work. He was a member of the American Gynecological Society, an honorary fellow of the Obstetrical Society of Edinburgh, and a former president of the German Medical Society. During his active lifetime he was associated with many hospitals, and at the time of his death was consulting surgeon to the New York Maternity Hospital, consulting gynecologist to St. Mark's Hospital, and consulting physician to the Mother's Home. Dr. Garrigues had recently taken up the study of Esperanto, and had been elected president of the Esperanto Society of South Carolina.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OFFICIAL RESEARCH COMMITTEE—HOSPITALS ASSOCIATION, SIR W. OSLER ON VOLUNTARY SYSTEM—AMENDING INSURANCE ACT—RESEARCH DEFENSE SOCIETY—A SURGICAL TRIP—HISTORICAL MUSEUM—DEATH OF JONATHAN HUTCHINSON.

LONDON, June 27, 1913.

THIS week it is officially announced that the Chancellor of the Exchequer has appointed a committee with executive functions to be known as the Medical Research Committee, for the purpose of dealing with the money available for research under the Insurance Act. The total of such money amounts to about £57,000 per annum. It seems that the recommendations of the Treasury Committee on Tuberculosis are accepted by the Chancellor. The chairman is to be Lord Moulton, F.R.S., who has extensive knowledge of science and a judicial mind, so that it is possibly better for the committee to be presided over by a non-medical person. The other members are Sir T. Clifford Allbutt, K.C.B.; Dr. Addison, M.P.; Mr. Astor, M.P.; Mr. C. J. Bond, F.R.C.S.; Dr. Wm. Bulloch, F.R.S.; Dr. Matthew Hay, LL.D.; Dr. F. Gowland Hopkins, F.R.S.; Col. Sir W. B. Leishman, F.R.S. These first appointments are for three years; in and after 1916 three members are to retire at intervals of two years, their places being filled (whether by reappointment or otherwise) by the minister responsible for national health insurance. The duties of the committee are to formulate the general plans of research for each year at its outset and make arrangements for carrying them out, to supervise them so far as necessary, and in particular to secure adequate co-ordination of the various parts of the scheme. The Chancellor has also appointed another body, an "Advisory Council," consisting of forty members, for which no one seems to see the necessity. It cannot be for the sake of finding posts for his friends, for he says he obtained suggestions for the names from all the universities, Royal College of Physicians and Surgeons, and other public bodies. Perhaps he was thinking of political bodies, but hardly so, for he is not obsessed with the notion that two chambers are needful for the constitution of such—indeed, he belongs to a cabinet which desires to restrict the power of the second chamber. Howbeit, he has set up this council with the duty of considering the committee's scheme year by year, submitting such criticisms and suggestions to the minister about it as they think advisable with a view of securing adequate consideration for the problems of research at home and abroad. You will observe that every proposal of the committee will have to be passed on to the Council, who forward it for final approval to the minister responsible for National Health Assurance. It is clear that this democratic politician means to retain complete control for himself and successors over the two bodies he is establishing. Lord Moulton is to preside over the council as well as the committee.

Yesterday Sir Wm. Osler presided at the annual meeting of the British Hospitals Association. In the course of his address he contrasted your methods with ours, extolling yours as much superior. He admitted, indeed, that our county hospitals were admirable. But he startled some hearers with an attack on the voluntary system. As you know this

has long been a feature on which most English people pride themselves, but his counsel was to "give it up, it is antiquated, and not likely to continue." We must, he said, make up our minds to take pay in the general hospitals and by way of encouraging us assured us there is not a general hospital in the United States or in Canada which does not take all the money it can get out of all classes of patients. In England, he said, everything is done for the poor who are rich in hospital care and comfort, but then the "poor rich" are the most neglected people in the country. He wanted every general hospital to have a private pavilion for these and was sure it would pay. This he followed with a severe criticism of our clinical and pathological arrangements which he would not say were out of date because they had never been in date. They must reform their ideas about many of them for they were pig-headed, obstinate, and hopelessly ignorant. Hospitals should be centers for the medical profession, and this could be promoted by linking up with the insurance scheme. If the hospitals were alienated from the panel doctors the only alternative would be a state service. Dr. Macintosh of Glasgow said before discarding the voluntary system they should show it had failed. Sir Hy Burdett said the unpopularity and perilous state of the insurance scheme was entirely due to the fact that such a revolution ought not to have been hurried through until the wisest and most experienced heads had been consulted. He suggested a plan for erecting pavilions on loan, but Mr. Alvey declared no sane hospital authority would borrow on such terms, adding that at his hospital (Charing Cross) the Act seemed to have decreased the outpatients and had no effect on the in. A majority of the societies would meet the hospitals fairly.

The bill for amending the Insurance Act has been brought in and read a first time. It deals with a number of small points and makes some concessions at a cost to the state of an additional £207,000 per annum, illustrating the evil of hasty legislation. Statutory authority is to be given for the additional grant made this year for medical benefit. Full medical benefit is to be continued to insured persons up to the end of life—not merely up to the age of 65. The 2s. 6d. per head given to insured persons is to be extended to uninsured members of all approved societies who were in receipt of medical benefit before the act. Medical and sanatorium benefit is to be provided out of the payments of employers for the 80,000 persons now exempted from insurance. These and other amendments were urged in the House, but Mr. Lloyd-George refused to consider them. He was so self-satisfied with his proposals that he thought it impossible to improve them. Now after two years he is compelled to ask the House to sanction amendments which he previously rejected with scorn. It is intended, after a second reading, to send the bill to a standing committee—a plan strongly objected to by the approved societies. These have previously made various requests which the government refused to listen to, and many are convinced that the administration of the act is likely to break down. They have asked for control of the medical benefits in order to cooperate with the practitioners and check sickness claims, but nothing has been done. They have urged the abolition of the costly division of the insured population into four national groups with four separate commissions and officers, rivaling each other in issuing circulars, forms, and various instructions. But again nothing results and the Friendly societies still have to carry on separate accounts. Some supporters of the government condemn this expensive system and admit that if no by-elections were pending the bill would not have been proposed.

The annual meeting of the Research Defense Society was held at the Royal College of Physicians on Tuesday, Sir David Gill (president) in the chair. In his presidential address he said that if people before joining antivivisection societies would but read the report of the Royal Commission on the subject they would learn the real truth about it. The proposal in one of the bills before Parliament that an inspector should be present throughout the whole course of an experiment was an insult to a class of honorable and humane men. Bishop Frodsham (a V.P.) said th society had done much to form a healthier public opinion on a work which had suffered much from misstatements. He held that from a Christian standpoint research was not only justifiable but an act of service to God. The Earl of Cromer entered a protest against the Society for Prevention of Cruelty to Animals for not re-electing Lord Cheylesmore on its council. He thought it was a "snap vote," due to Mr. Stephen Coleridge, and did not represent the mature views of the members generally. If he were mistaken as to that he should withdraw from the Prevention Society and hoped others would do the same.

The surgical section of the Royal Society of Medicine has followed the example of some other sections and held a meeting in the provinces. This was at Birmingham, to which about a score of London surgeons went and had a successful day at the General and the Queen's Hospitals, where both operations were witnessed and cases exhibited. Among these was a patient on whom Mr. J. T. J. Morrison had done an Estlander for empyema, several cases shown by Mr. G. Barling of tumors of the brain which he had removed, some of them years previously. Other interesting cases were by Messrs. Haslam, Heaton, Lucas, Billington, Nuthall, and Woodman. A paper or two completed the day's work and the staffs of the hospitals entertained their visitors at dinner, which important function was concluded in time for the last train to London.

We are talking of the approaching International Congress of Medicine which is to be held this year in London and we hope to make it as successful as any of its sixteen predecessors. There is to be a section for the History of Medicine, over which Dr. Norman Moore is to preside, and on Tuesday he opened a museum, which is to be a kind of side show of this section. It has been collected and arranged by Mr. H. S. Welcome and is intended to illustrate the development and progress of the healing art in all countries and in all ages. The wide range of the exhibits from prehistoric specimens down through the centuries to modern times affords an opportunity of study and amusement which many will doubtless enjoy. The great variety, too, will excite surprise and gratify curiosity. Think of a trifle like the first tooth brush, of relics like Livingstone's pocket case and his Bible, of Mungo Park's pocket case, and so on. Art, too, has many products illustrating the subject—models, statues, paintings, colored drawings, diagrams, books, instruments, and appliances of all kinds. Objects have been lent by the British and other museums, by the colleges and other institutions at home and abroad. This interesting collection will remain

open until September, but already there are ideas afloat that it might become, after the loans are returned, the nucleus of a permanent museum.

Jonathan Hutchinson died on Monday, June 23, in his eighty-fifth year, at his country house at Haslemere. It is needless to tell you the story of his great work—known to you and wherever surgery is cultivated. He took the double qualification in 1850, the F.R.C.S. in 1862, and the Astley Cooper prize in 1865. He was very early elected to a vacancy at the London Hospital, with which he continued his connection throughout his life, passing from the assistancy to the full surgeoncy and retiring as consulting surgeon and as Emeritus Professor of the college of that great hospital where his clinical work was carried on. He was president of the Royal College of Surgeons in 1889, and on his eightieth birthday the president and vice-presidents sent him a letter of congratulation in which they expressed their sense of the value of his varied contributions to surgical science and his devotion to the profession. Probably this indication of the regard in which he was held, not only by the fellows and members of the college, but by the profession throughout the civilized world, was more appreciated by him than the many honors which universities and societies conferred upon him as degrees, fellowships, and presidencies. In his early days his doorplate in Finsbury contained only the words Jonathan Hutchinson, in large letters reading across the door. When he removed westward he took the prefix Mr. on a smaller plate, but when, at eighty years of age or thereabouts, he received a knighthood he did not change the prefix to Sir. It seemed rather curious at times to hear him spoken of by non-medical persons as a specialist, one would say for this, another for that, and a third for something else. This, however, shows the wide reputation he had acquired and the variety of subjects to which he devoted his researches. He enjoyed for half a century an enormous field for clinical observation, and I think it was the patient cultivation of that which gave him so much fruit. He was further a diligent collector of whatever discovery or information would throw light on clinical problems. Museums attracted him. He founded one at Haslemere and another at Selby. They were mostly devoted to natural history and largely stocked and kept up at his expense. He used to say he would like to see one in every county. He also founded the Polyclinic—a post-graduate college which was deeply indebted to him not only for money but for help in the teaching and for its great collection of pathological drawings. Yesterday the funeral took place at Haslemere. The presidents of the two Royal Colleges and numerous representatives of the hospitals and other institutions with which he was connected attended the ceremony.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

INCREASE IN PLAGUE—MALARIA—TYPHOID INOCULATION—PERSONAL.

MANILA, May 10, 1913.

DURING the week ended April 26 there was a sharp increase in the number of plague cases reported in the city of Manila. Four deaths occurred within a period of 72 hours. One case was at No. 334 Calle Padre Rada, one at 1419 interior Calle Dagupan, one at 1364 Calle Sande, and one at 642 Calle Haya. On further investigation it was found that all of these persons worked in a silversmith's shop at No. 1364 Calle Sande. They were all employed on the first floor and this was found to be of cement. Ordinarily such construction would be regarded as rat-proof but owing to openings being found near the sides which resembled rat-holes, and cracks found here and there, it was deemed advisable to tear out the floor, which was done, and several mummified rats were found, whose death was probably due to plague, although this fact could not be definitely established. In addition to the four deceased persons, there was found another person at No. 1492 interior Calle Dagupan with malaise, headache and fever, who was regarded as a plague suspect and transferred to San Lazaro Hospital. Soon after admission to the hospital many of his glands became palpable and a few days later a definite diagnosis of plague was made, which was confirmed soon afterwards by autopsy. This individual also worked in the jewelry shop at No. 1364 Sande.

The foregoing experience illustrates in a striking manner the intimate relationship which exists between rat and human plague and that rat-proof construction must be kept in good repair. In this instance there is reasonable ground for believing that after the rat host of the fleas had died the fleas made their way through the cracks in the cement and attacked the workers in the shop. The premises were treated with petroleum on account of its insecticidal properties and then disinfected with a coal-tar emulsion. All the contacts were kept under observation for a period of ten days and no further cases have occurred.

It is also of interest to note that these human cases occurred in the district in which there was reported, over a month previously, a decided increase in the percentage of rat infection. Infected rats are still being found in the same section from which these human cases came, and the fact that there are not more human cases again illustrates the control which the modern sanitarian has over plague.

The regular monthly meeting of the Manila Medical Association took place in the amphitheater of the College of Medicine and Surgery, University of the Philippines, at 8:30 P. M., May 5.

The principal papers of the evening were read by Dr. T. W. Jackson and Dr. W. E. Musgrave, which formed a part of a symposium upon malaria at the San Jose sugar estate in Mindoro. This sugar plantation consists of many thousands of acres and is located in a section of Mindoro that since time immemorial has been known to be a hotbed of malarial fever. Several years ago when laborers were first introduced in large numbers malaria became so prevalent that for a while the prosecution of the work in connection with establishing the sugar mill and planting sugar cane was almost entirely frustrated, and even as late as last January it was reported that in spite of the sanitary efforts, the death rate still remained approximately 240 per thousand from all causes, the majority of the deaths, however, being due to malarial fever. It was stated that the habitations and the immediate area surrounding them have now been practically made free of mosquitoes, and that the next great step of the problem was to find the ways and means by which infected persons could be legally compelled to undergo treatment and the use of prophylactic doses of quinine enforced. The

authors of the papers were of the opinion that measures of this kind should be carried out. It seems, however, that there is no law at present in the Islands by which such a course could be enforced and that it would therefore be necessary to request the Legislature to pass the law to legalize the procedure.

Dr. Rembe of the Philippine General Hospital then exhibited two cases of meningocele which came through the ethmoidal sinuses and projected from the right side of the nose.

Dr. C. S. Butler of the U. S. Navy read a paper contrasting the sanitary conditions, especially with regard to typhoid fever, in the Florida army camp in 1898 and in the army camp in Texas in 1911. The author pointed out that he did not question the value of typhoid inoculation, but that he was of the opinion that the experience had in these two camps was not necessarily conclusive that the absence of typhoid fever in the Texas camp was due to the typhoid inoculation which had been practised. He laid special stress upon the fact that there were hundreds of cases of diarrhea in the camps of Florida while there were none in the Texas camp, and that this result could not have been brought about by typhoid inoculation. He also called attention to the small sick report and stated that the Florida camp consisted of volunteers, while the Texas camp consisted of regulars, who it was safe to assume were under better discipline. Investigation showed that there had been excellent camp sanitation in Texas, while the camp sanitation in Florida had been very poor. He also stated that the surrounding country of the Florida camp was heavily infected with typhoid fever, while in the vicinity of San Antonio typhoid was not very prevalent. In view of the foregoing, it would be impossible to state that the absence of typhoid fever was necessarily due to the typhoidinoculation which had been carried out.

Assistant Surgeon Julian Gillespie of the U. S. Public Health Service, who has been on duty as quarantine boarding officer in Manila, has been ordered to Hong Kong for duty in the American Consulate.

Dr. John E. Snodgrass of the Bureau of Health has returned from an extended leave of absence in Australia and the United States, and has been assigned as assistant to the Director of Health.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 3, 1913.

1. Some Abuses in Surgical Practice. H. Gage.
2. The Study of the Causes of Juvenile Delinquency. E. R. Spaulding.
3. Intestinal Stasis. E. G. Schlesinger.
4. Five Generations of Blue Sclerotics and Associated Osteoporosis. F. A. Conlon.
5. A Case Illustrating the Efficiency of the High Frequency Current in the Treatment of Tumors of the Bladder. J. D. Barney.
6. Compulsory Dentistry. F. A. Keyes.
7. Separation of the Epiphysis of the First Metacarpal Bone. Report of Two Additional Cases. W. P. Coues.

1. Some Abuses in Surgical Practice.—H. Gage notes that the glamour of surgery, its directness of attack, and its tangible results make it particularly attractive to all medical students, and inspire the majority of them with an ambition to practice it. Surgery, too, occupies by far the larger part of our hospital equipment, and has led to the establishment of numerous small community hospitals, which are chiefly surgical, one of the most obvious results of which has been that the local practitioner feels obliged to undertake surgery, just as he feels obliged to undertake obstetrics in order to protect and develop his general practice. Sir Patrick Cullen's observation, "that chloroform has done a lot of harm, it has enabled every fool to become a surgeon," has become still less an exaggeration of the truth since the discovery of asepsis. Active interference has been invoked for the relief of all sorts of disorders, both functional and organic, in many cases with but little justification, and major surgery has been freely practised by men whose training and opportunities for the observation and interpretation of living pathology have been far from adequate. Moore is quoted as stating that "some operations should be radical, but no surgeon should be so." Hasty snap-shot diagnoses have certainly led to much ill-advised and unnecessary opening. It seems that the purely mechanical side of surgery has been receiving far too large a share of attention. One must not forget that "any operation which does not better the condition of the patient must be regarded as a therapeutic error," and that to possess a sound judgment as to the indications and counter-indications for operations, based upon a careful and thorough knowledge of the natural history of disease and of surgical pathology, is far more important and valuable than the acquirement of mere mechanical skill.

3. Intestinal Stasis.—E. G. Schlesinger presents the views of Arbuthnot Lane and his school upon this subject. He states that clinically, cases of intestinal stasis fall more or less naturally into four groups, which one may term "the obstructive," the "toxic or suprarenal," the "mixed," and the "end-result" groups. The "obstructive" type is usually regarded as having a duodenal ulcer, a gastric growth, or what is known as "nervous dyspepsia." The patient, more usually a man, complains of pain after food, sometimes at once, sometimes after an interval, with vomiting, which usually relieves the pain. On examination the patient is very tender over the duodenum and points to this as the site of his pain. He may or may not complain of pain in the iliac fossa, but the patient is invariably extremely tender on pressure in this region, and the end of the ileum is readily palpated as a thick tender cord. A discriminating *x*-ray examination shows a firmly fixed point in the ileum, and a dilated and hypertrophied duodenum. The effects of ileocolostomy on this type of case are most striking. The second group of cases, the "toxic" or "suprarenal type," occurs more generally in women, and is the group most commonly recognized. In these people constipation is generally present, and, unless it has led to that condition of irritative diarrhea and paralytic secretion commonly called mucous colitis, is often extreme. The direct abdominal symptoms, apart from the constipation, are, however, overshadowed by the group of symptoms called toxic. Chief among these symptoms is a condition of mental depression and general misery, which is only increased as measure after measure that promises relief is tried, and the econdition grows steadily worse. This type of case shows as a rule marked pigmentation, a low blood-pressure, cold and clammy hands and feet, and marked general asthenia. Vomiting is practically constant, but differs from the obstructive type in not being related to food and in consisting usually of a watery fluid. The "mixed" group of cases includes these patients who present a mixture of the obstructive and the toxic symptoms. The group to which the term "end result" is applied is a large and varied one, consisting of cases in which the end result has reached such proportions as to overshadow the underlying cause. This group includes cases of such diverse nature as trigeminal neuralgia, many cases of dementia, of gallstones, and pancreatitis, and many cases of cancer of the breast, etc.

4. Blue Sclerotics and Osteoporosis.—F. A. Conlon asserts that hereditary blue sclerotics are always associated

with osteoporosis. In the author's cases these peculiarities were transmitted through five generations. From a study of his own and others' cases it is noted that the blue sclerotic is a result of direct transmission. What Bateson calls the "knight's move" in heredity, transmission to males through unaffected females never occurs. There is no skipping of generations. In other words, no member with a white sclera ever transmits the blue sclera to his offspring, but breed true. This is in accordance with the Mendelian laws of heredity. In the author's cases the blue sclera seems to be a dominant character.

7. **Separation of Metacarpal Epiphysis.**—W. P. Coues believes that increased care and thoroughness in the examination of the injuries about the carpus in children, with good *x*-ray pictures, will probably show an increasing number of separations of the epiphysis of the first metacarpal bone. This injury in children may take the place of the Bennett fracture in the adult. Union with some displacement of the epiphysis does not seem to affect the usefulness of the hand to any marked degree.

New York Medical Journal.

July 5, 1913.

1. Note on Action of Testicular Extract. A. J. Smith and W. J. Crocker.
2. Plans for the Reduction of Infant Mortality. E. J. Lederle.
3. The Relations of Adhesions and Intestinal Angulations Resulting from Enteroptosis, to Chronic Constipation. R. C. Kemp.
4. Some Radiographs of Obscure Stomach and Intestinal Cases. S. Touscy.
5. Torpor Recti; Dyschezia. G. Singer.
6. A New Biorontgenographic Apparatus. I. S. Hirsch.
7. Nontuberculous Apical Lesions. M. Fishberg.
8. The Early Diagnosis of Renal Tuberculosis. R. C. Bryan.
9. The Luetin Skin Reaction in Syphilis. D. J. Kafiski.
10. The Need of the Microscope in the Treatment of Gonorrheal Urethritis and Prostatitis. J. Broadman.

1. **Action of Testicular Extract.**—A. J. Smith and W. J. Crocker found that as the result of injecting a salt solution extract of cock's testis into the subcutaneous tissue of the hen the comb in most cases actually increases in size, both in the flat outline and in thickness. The combs brighten; the wattles in correspondence enlarge and brighten; in some of the hens the neck feathers become somewhat more brilliant; and slight growth and brilliancy of color appear in the small feathers at the base of the tail; in one a slight but distinct growth in spurs is recognized; the production of eggs diminishes; some of the hens become combative, and several times individuals are seen to attempt to cover the other hens after the manner of the cock. The observations are suggestive of the credibility of the idea that upon some internal secretion from the testis, a hormone, the prominent secondary sex characteristics of the male bird are dependent.

7. **Nontuberculous Apical Lesions.**—M. Fishberg believes that unilateral apical signs which simulate those characteristic of pulmonary tuberculosis are not as rare as is generally supposed. In mouth breathers one often finds retraction of the right apex, dullness, altered breath sounds, and even râles which are circumscribed and localized, giving a clinical picture of pulmonary tuberculosis; and the patient is often treated for a considerable time as being tuberculous. Many of the rapidly cured incipient cases are, in fact, instances of collapse atelectasis of the apical parenchyma due to interference with the entrance of air into the right apex in mouth breathers. Collapse atelectasis and induration are to be borne in mind in all right sided lesions of the lung apex occurring in mouth breathers, showing no tubercle bacilli in the sputum, and manifesting no tendency to follow the usual course of pulmonary tuberculosis, with fever, night sweats, tachycardia, malaise, languor, progressive loss of weight, etc. In such cases the fact that the patient has been working all along in spite of his cough, which may date back to childhood, and has developed physically at a normal rate, speaks very strongly against tuberculosis, and the apical signs are indicative of collapse induration. Physical signs of a lesion at one apex occurring after an attack of influenza, or met with in persons with pulmonary emphysema or defective muscular development, especially in young women, and among indoor workers generally, should not be hastily pronounced as indicative of tuberculosis. It must always be borne in mind that a person who never coughs and has suffered no progressive loss of weight, anorexia, malaise, etc., for months before the onset of an attack of grippe, may have a simple localized apical catarrh giving signs simulating those of incipient pulmonary tuberculosis, although it is not due to acid fast bacilli. On the other hand, the vast majority of cases of tuberculosis give a history of several attacks of "grippe," or "colds," extending over several months or years preceding the last "cold," which, in their opinion, was the beginning of their present illness. Clinical observation for a few weeks, with the judicious use of the thermometer and several examinations of the sputum, usually clears up the diagnosis even in cases in which the physical signs persist for months.

Journal of the American Medical Association.

July 5, 1913.

1. The Surgeon and the Research Laboratory. A. F. Jonas.
2. Yesterday, To-day and To-morrow. The Activities of the Council on Pharmacy and Chemistry. T. Sollmann.
3. Anaphylaxis in the Diagnosis of Cancer. J. L. Ransohoff.
4. Surgery of the Thyroid. Observations on Five Thousand Operations. C. H. Mayo.
5. Lange's Colloidal Gold Chloride Test on the Cerebrospinal Fluid in Congenital Syphilis. C. G. Grulee and A. M. Moody.
6. Exposure of the Brachial Plexus with Nerve Transplantation. H. K. Tuttle.
7. The Treatment of Profuse Kidney Hemhorrage by Means of Epinephrin. H. L. Kretschmer.
8. Purpura, Urticaria and Angioneurotic Edema of the Hands and Feet in a Nusing Baby. I. M. Snow.
9. The Cock's-Comb Test for the Activity of Ergot Preparations. A. C. Crawford and J. P. Crawford.
10. Classification and Treatment of Nephritis According to Functional Tests. M. Goldsmith.
11. Results of Schiötz Method in Ridding Diphtheria Cases and Carriers of Diphtheria Bacilli in the State Agricultural and Industrial School. F. L. Wright.
12. A Note on the Treatment of Cough in Advanced Pulmonary Tuberculosis. J. D. Blackwood, Jr.
13. A Rapid Method for Ripening Stains. L. W. Strong.
14. A Simple Method of Applying the von Pirquet Test. L. Shalet.
15. Treatment of Pellagra with Lactic Acid Bacilli. W. L. Law.

1. **The Surgeon and the Research Laboratory.**—By A. F. Jonas. (See MEDICAL RECORD, July 5, 1913, page 36.)

4. **Surgery of the Thyroid.**—By C. H. Mayo. (See MEDICAL RECORD, July 5, 1913, page 37.)

5. **Colloidal Gold Chloride Test in Congenital Syphilis.**—C. G. Grulee and A. M. Moody conclude that while from their small series of cases one cannot show that the gold chloride test gives specific reactions in cases of cogenital syphilis, one would seem justified in making the statement that the reaction is very suggestive and may prove to be of much more value in the diagnosis of congenital syphilis than any laboratory reactions previously projected. One must not lose sight of the fact, however, that laboratory tests of the nature of the gold chloride reaction must always be regarded only as an aid to clinical diagnosis. From the cases reported by the authors it would seem strongly suggestive that a case showing clinical signs of congenital syphilis could be confirmed by the reaction of the cerebrospinal fluid to the colloidal gold solution of Lange. It is possible that treatment will distinctly modify this reaction but to a much less degree than it would the Wassermann reaction.

7. **Suprarenal Extract in the Treatment of Renal Hemorrhage.**—H. L. Kretschmer enumerates the advantages of this method of treatment as follows: If by this simple procedure one is able to control the renal bleeding, the condition of the patient's urine may be studied at a time when it is free from large quantities of blood. In cases in which there is a severe degree of secondary anemia, due to the loss of large quantities of blood, the patient may be put on a general tonic treatment besides

the suprarenal extract treatment, until such improvement is reached as will render operation a safe procedure. This method of treatment may be the means of avoiding nephrectomy. It may be employed temporarily, at least until a positive diagnosis of the cause of the bleeding can be made.

10. Classification and Treatment of Nephritis According to Functional Tests.—M. Goldsmith describes Schlayer's recent experiments in testing the elimination of iodine, sodium chloride and milk sugar through the kidneys. Following a series of animal experiments it was ascertained that in persons with healthy kidneys the three substances were eliminated at a definite rate: 0.5 gram of sodium or potassium iodide in from forty to fifty hours, 10 grams of sodium chloride in thirty-six hours, and 2 grams of milk-sugar in four hours. In applying the tests to nephritics it was found possible to divide the cases into those with normal elimination of salt and iodine, but with delayed elimination of milk-sugar, and those with normal milk-sugar elimination but delay in the excretion of salt and iodine. Each group has associated with it certain clinical manifestations of nephritis which are not found in the other group, all indicating that the two types of nephritis occur distinctly in the human being, similar to the experimental forms produced in the lower animals. By means of these tests, in combination with the clinical features, all cases of nephritis may be classified as tubular, vascular, or azotemic. Such a classification is of value from the viewpoint of treatment. Many cases are found in which a combination of types exists, but one type always predominates and indicates the special line of treatment. Treatment, to be rational, should aim to spare that part or function which is especially incapacitated. This may be accomplished by excluding chlorides in tubular nephritis and nitrogenous food in the azotemic variety, and restricting, or excluding fluids in the vascular form.

The Lancet.

June 28, 1913.

1. The Relation of So-called "Influenza" to Bronchitis and Tuberculosis. A. J. Jex-Blake.
2. The Dietetic Treatment of Gout. A. E. Garrod.
3. A Note on the Preparation and Use of Subgallate of Bismuth Gauze. E. A. R. Newman.
4. Two Cases of Vein-grafting for the Maintenance of a Direct Arterial Circulation. J. Hogarth Pringle.
5. Sensitized Vaccine in Acute Bacterial Infection. Results Obtained in a Series of Cases. M. H. Gordon.
6. A Practical Method of Growing the Acne Bacillus from the Comedo for the Preparation of Vaccines. T. H. C. Benians.
7. A Plea for the Appointment of a Royal Commission on Venereal Disease. Sir Malcolm Morris.

1. Relation of Influenza to Bronchitis and Tuberculosis.—A. J. Jex-Blake concludes that one should be slow to content oneself with diagnosing any acute febrile catarrh of the respiratory system as "influenza" unless the disease is about in epidemic form, or unless the patient's discharges show a pure culture of the *Bacillus influenzæ*. Unless these precautions are observed it is probable that the attack will in all probability be an acute infectious catarrh due to other microbes as the tubercle bacillus, the pneumococcus, *Micrococcus catarrhalis*, staphylococci, and streptococci. The second conclusion to be drawn is far more important than this form from the practical point of view. It is this: that to diagnose "influenza" rashly and readily entails a great risk of overlooking the early stages of pulmonary tuberculosis—a most serious matter for the health of the patient and for the credit of the medical practitioner. The outlook and prospects of recovery in tuberculosis of the lungs depend very largely on getting suitable treatment applied at the earliest possible moment, before the pulmonary lesions have advanced far. The author's figures show that in no less than 112 out 416 unselected cases of tuberculosis of the lungs the onset of the disease coincided with an attack of "influenza"; the frequency with which this occurs shows that it cannot be a mere coincidence. It is obvious that to make a diagnosis of "influenza" when the case may very well be one of pulmonary tuberculosis—as, indeed, it appears to have been in 264 out of my 1058 instances—must give a false sense of security to both patient and medical man, and must make the latter prone to overlook the more serious disease. Yet the two can be distinguished from one another with certainty, if not by the physical examination of the patient, at any rate by the examination (or by repeated examinations, if need be) of the sputum for tubercle bacilli. In other words, one ought to make sure that pulmonary tuberculosis has been excluded before resting satisfied with the diagnosis of "influenza" or "influenzal bronchitis."

2. Dietetic Treatment of Gout.—A. E. Garrod ventures to express a doubt whether by dieting gouty patients we achieve nearly as much as we think we do. It must be confessed that among hospital patients who could not, if they would, follow out any strict rules of dietary, who seldom pay heed to our advice that they should give up beer, and who, as soon as an acute attack is over, revert to their previous habits of life, the course of gout does not seem to differ materially as regards the character, frequency, and severity of attacks from that followed in people who are able to adjust their living according to the best advice to be obtained. Errors of diet are not the only factors at work in the causation of gout, and regulation of diet is only one of the means available for its control. Temperance in all things, and not in eating and drinking alone, is the golden rule for the avoidance of this disease and its manifestations. And even such temperance may not avail him who comes of thoroughly gouty stock.

5. Sensitized Vaccine in Bacterial Infection.—M. H. Gordon finds that the method of Besredka has the conspicuous merit of producing immunity in animals rapidly, without discomfort, and without producing any preliminary diminution of resistance. The experience of the author with cases suffering from bacterial infection goes to show that, where there is latent power available in the general resistance of the patient, the method has a similar effect on man under these circumstances. In some instances, moreover, this dormant power of the specific resistance may be awakened by sensitised vaccine even at a comparatively late stage in the attack. In cases in which the treatment did no good there was no evidence to show that it did the slightest harm. The method should have a great future prophylactically in the face of epidemics. It seems possible that sensitized vaccine may also be useful prophylactically in hospitals—e.g., by this means the resistance of the patient might be raised to *Bacillus coli*, *Streptococcus pyogenes*, or the pneumococcus before operations on the alimentary tract or other infected area. Similarly, the method is open to the physician for the purpose of preventing secondary infections. Further, a prophylactic dose of sensitised vaccine might be given to cases of difficult labor. Finally, in cases already infected the evidence brought forward shows that in a proportion of instances it is possible by this method to materially promote the patients' recovery. By administering a sensitised vaccine to these patients, one brings into action available reserves in that complex and still incompletely defined entity, the patient's specific resistance.

British Medical Journal.

June 28, 1913.

1. The Diagnosis and Treatment of Dysentery. Sir Charles Pardey Lukis.
2. Miners' Nystagmus. T. Lister Llewellyn.
3. Amino-acids and Sugars in Rectal Feeding. A. Rendle Short and H. W. Bywater.
4. The Experiences of a Medical Adviser under the Insurance Act. B. M. H. Rogers.
5. The "Controlled" Use of New Tuberculin in the Treatment of Pulmonary Tuberculosis. A. C. Watkin.

1. Diagnosis and Treatment of Dysentery.—Sir Charles Pardey Lukis differentiates as regards their symp-

tomatology bacillary from amebic dysentery as follows: (1) Bacillary dysentery is always acute in onset, and it runs a rapid course in nearly all cases. Amebic dysentery, on the other hand, even though it may begin with an acute attack, always runs a chronic course. It is therefore the form one is most likely to see in this country. (2) In bacillary dysentery pyrexia is common; in amebic dysentery it is rare. (3) In bacillary dysentery toxemia is a marked symptom; in amebic dysentery it is absent except when a liver abscess is forming. (4) In bacillary dysentery the stools are mucopurulent, with a large cellular exudate and small in bulk; in amebic dysentery they are grumous, like those of serous colitis, they are copious, and they contain little or no cellular exudate. (5) Liver abscess never occurs in bacillary dysentery; it is a common complication in amebic dysentery. In bacillary dysentery one may adopt either the saline or the bacteriological methods of treatment, but in the amebic form of the disease one must rely upon ipecacuanha or emetine. The bacteriological treatment consists of the use of a vaccine or of an antitoxic serum.

3. **Amino-Acids and Sugars in Rectal Feeding.**—A. Rendle Short and H. W. Bywater state that the older observations on the absorption of foodstuffs from rectal enemata, based on the analysis of rectal "washouts," are unreliable. The daily output of nitrogen in the urine of patients given nutrient enemata of milk or eggs peptonized for twenty or thirty minutes demonstrates that almost no nitrogenous matter is absorbed. Modern physiological opinion holds that proteins are absorbed principally as amino-acids. The failure of the rectum to absorb ordinary nutrient enemata is largely due to the fact that peptones are given instead of amino-acids. Chemically prepared amino-acids, or milk pancreatized for twenty-four hours so that amino-acids are separated, allows of a much better absorption of nitrogenous foodstuffs from the rectum, as demonstrated in five cases by the high nitrogen output in the urine. The low output of ammonia nitrogen shows that this high output was not due to the absorption of putrefactive bodies. The rectal washings were not offensive. Dextrose is much better absorbed than lactose, and relieves the acidosis due to starvation. Fat is not well absorbed. Scarcely any of the fat of ordinary milk enemata is retained. The best nutrient enema consists of milk pancreatized for twenty-four hours, with the addition of 5 per cent. pure dextrose.

Münchener medizinische Wochenschrift.

June 17 and 24, 1913.

Abbott's Treatment of Scoliosis.—Erlacher, an assistant of Spitzy's, sums up this subject briefly as follows: Abbott himself has shown by photographs and radiographs that he has completey cured very bad scleroses, some of which have remained healed and have gone without any sort of corrective apparatus for two and a half years. Naturally the duration of treatment of Spitzy's cases is too brief for comparison with those of Abbott. Nevertheless they have thus far filled the requirements expected of them and the results are superior to those of the older methods. There are certain types of curvature which it cannot hope to reach.

Puerperal Sepsis Cured by Operation.—Brix reports the following case: After evacuating the uterus for an abortion, the temperature rose. The patient continued to feel well for some days but was seen to be weakening. A radical course was then executed. Laparotomy was made on the very fleshy patient, who was then but in the Trendelburg position. After due preparation, the peritoneum was divided over the right hypogastric artery and vein. Both were simply ligated. The process was repeated on the other side. The entire uterus was now extirpated down to the vagina, and the end of the latter clamped. The peritoneal incisions were now nearly closed by continuous suture, so that a funnel was formed by traction on the sutures which were allowed to lie in the vagina, a device being used to prevent slipping upward. Convalescence was smooth. There is no mention of thrombophlebitis in connection with this case.

Sudden Death in Labor from Acute Pancreatic Necrosis.—Saenger writes at length on this subject. Many cases of sudden death during or just after labor are upon record; and when the subject of pregnancy toxemia was first discussed, it was surmised that some at least of these cases would be found due to this cause. Still later the use of drugs to produce the half sleep so-called—scopolamin and other narcotics as well as hypophysis substance as an oxytoeri were likewise held in suspicion. Mere coincidence seems responsible for what is known as false eclampsia, in which meningitis, pneumonia, etc., cause death at or soon after labor. A few cases are known to have been due to air embolism. The author now describes a case due to acute necrosis of the pancreas. We know little about the nature of this affection. The patient was corpulent and somewhat of an alcoholic. She ate very heartily just before labor began and the latter lasted but two and one-half hours. The introabdominal pressure must have been very high so that the pancreas was compressed. Soon after expulsion of the placenta she collapsed and vomited, death occurring so soon after that air embolus was suspected. Autopsy showed that the pancreas was the seat of an acute necrosis. There were fresh, toxic lesions in the liver, due apparently to the escaped pancreatic ferments; but there had been no pancreatic hemorrhage. The author finally asks whether this pancreatitis could have been due directly to the toxemia of pregnancy and is obliged to confess his inability to throw light on the subject.

Differential Diagnosis of the Poxes.—Bäumler writes of the differentiation of small pox, varioloid, varicella, and vaccinia, according to the most recent data. All depends on early recognition of small pox in one of the other forms. Wherever there is much exchange of travelers we have of course to look for small pox, along with typhus and cholera. Not much new matter is brought out. The existence of typical varicella in adults, apparently unheard of in some quarters, is not so rare in others. He refers the reader to Rickett's and Byle's atlas for a series of plates, which illustrate adult varicella and is about to have this work appear in a German edition. Occasionally epidemics of supposed measles have proved to be variola or varioloid. The distribution was not that of measles, for the efflorescences appeared on surfaces exposed to irritation and the effects of compression and gravity. We are taught about the forehead and cheeks as seats of predilection in variola; but authors do not often speak of a little isolated patch or row of vesicles where pressure or irritation has occurred. This phenomenon is of great value in differential diagnosis. The simultaneous outbreak in delayed vaccination of vaccinia and variola, together with the weakened "varioloid" which develops after vaccination with brief protective power, were known to Jenner as well as to any modern, and are still as difficult of differentiation.

New View of Sciatica.—Stoffel believes that in this affection certain paths in the sciatic nerve are at fault. If we can locate and isolate these nerve fibers we can cure the entire disease. If centripetal fibres are involved in the process a certain amount of scoliosis develops, and undergoes involution if the affected nerve tissue can be removed. He knows no such thing as a sciatic nerve, but instead a cable of individual nerve fibres, with motor and sensory, which have to do with the rear aspect of the lower extremity. So also he knows no disease sciatica

but only neuralgia as it affects one or more of the sensory paths. Before operation it is of course necessary to map out the location of the affected nerve paths. These are thereupon carefully mobilized, in order to avoid injury to motor tracts. The sensory path is first resected whereupon its ends are so treated that reunion cannot occur (this latter step may not be necessary). With this resource the author has succeeded in terminating the pains of sciatica, as well as all other symptoms of the latter. As in Foerster's operation the expected analgesia did not develop to any unpleasant degree nor have any trophic changes been noted. The sensory path left behind undergo degeneration, which prevents all possibility of rerudescence of symptoms.

Berliner klinische Wochenschrift.

June 23, 1913.

Serodiagnosis of Pregnancy.—Rosenthal of Budapest has for two years past made use of the antitrypsin reaction in the diagnosis of pregnancy. When the reaction is positive this indicates simply an increased metabolism of protein matter, and since this is known to occur in gestation we have the application of a general reaction to a particular case. The test is also negative when pregnancy is absent. After narrating documentary cases the author seeks to compare the antitryptin with the Abderhalden reaction. The latter, thought at first to be specific, has later been pronounced by Abderhalden himself as having diagnostic value in numerous other affections. As we continue to compare these tests it becomes apparent that the methods are sufficiently analogous in their nature to furnish the same type of results in the healthy subject. In diseased conditions departures are shown, but in the healthy gravida the two argue closely. The antitrypsin reaction gives a positive result in 30 minutes while both of Abderhalden's methods (optical and dialytic) require hours. In the case of conception in diseased women the two tests may be used to corroborate each other. Gottschalk, in an article on Abderhalden's dialysis method, states that he has employed the latter in 43 women, nine of which were not pregnant. Twenty-one women were gravid in the first two months. All of these gave a positive ninhydrin reaction. So far nothing more could be asked of a test. But it happened also that two nongravida gave a positive reaction. In both of these there was a history of abortion, the uterus was enlarged, etc. The positive test in such cases was a paradox, the author can only insist there the positive test could not have been due to errors of technique.

Functional Tests of the Liver.—Isaac reviews the recent literature of this subject. To test the work of the liver we are dependent on changes in the blood and urine. As the N of the nutriment passes through the liver we must study the mutual changes suffered by each, if the one be in great excess, and the other crippled. Under normal conditions, the urinary nitrogen should have the following partition: urea, 85-88 per cent.; ammonia, 3-5 per cent.; amino acids, 3 per cent., and the balance uric acid, kreatinin and similar bodies. Many attempts have been made to see to what extent extensive disease of the liver affects the nitrogen partition. The results are as good as negative—working beyond a doubtful fluctuation in the ammonia. Alkalies inwardly are said to cause all the ammonia to disappear from the urine. Others have recently asserted that in certain hepatic diseases there is increase in the urine of the nitrogenous acids. An artificial "acidaminuria" may be produced by feeding with these bodies, and this fact may prove useful in liver testing. It has been known for 70 years that in acute atrophy of the liver the urine contains large quantities of amino acids; so that in general disease of the liver an increase in the nitrogenous acid should be natural. Tests of hepatic activity with glucose, galactrose, etc., have been very extensively practiced. The production of an artificial glucose fever in disease of the liver and gall-bladder is sometimes noted. In general the finds with sugar testing are not at present reduced to harmony, and the subject is bound up with hyperglykemia. Urobilinaria, long known as evidence of hepatic insufficiency, is still the most familiar resource. However while it is never absent in hepatic disease, it may be present under other circumstances.

Deutsche medizinische Wochenschrift.

June 19, 1913.

Nature and Treatment of Heat Stroke.—Hiller discusses this subject from the viewpoint of a German Army officer. Victims of heat stroke are most psychoneurotic. In addition to the duplex picture of relaxation and exhaustion, they present many hysterical and neurasthenic symptoms. The heat swoon is the simplest type of heat stroke, and in a sound subject the treatment—that for ordinary syncope—is quite sufficient. A psychopath on the other hand may suffer for several days with paresthesias, motor pareses or disturbances of special senses. These usually yield to a few doses of aspirin. Among soldiers, where many suffer from heat stroke while marching we find special types peculiar to the men concerned. The mildest type is one of relaxation, which is a preliminary to the severe forms, and hence serves as a warning. When these men are placed at rest the breathing and cardiac action becomes quiescent, and in from half an hour to an hour. There need be no treatment. With recovery there is profuse perspiration, which should be encouraged by freely drinking. Strong coffee is greedily drunk. The next degree or asphyctic form is that most commonly encountered. Since the soldier is making great exertions in a hot and humid atmosphere, and his respiration and circulation alike suffer, with resulting cyanosis. He falls and is found apparently lifeless and cyanosed. No time should be lost with other measures but one must proceed at once to artificial respiration, maintained if necessary for two hours. Under this management some of the most desperate cases have recovered. Cold affusions are mentioned but nothing of cooling the temperature with ice. The heart stimuli preferred are digitalis, strophanthus and caffein. A third form of heart stroke in troops is the socalled dysercrasic-paralytic. This occurs in those who have not been prostrated by the forms already mentioned. The most characteristic symptom is abolition of the perspiratory function. These are the cases of extreme temperatures (44° C). The term dyscrasic refers to the altered state of the blood. Aside from dry skin and fever, we note anuria, coma and convulsions (epileptiform), vomiting, motor pareses. While other measures are useful, a copious venesection is lifesaving. Next in order is saline infusion.

Injury of Bones from Steinmann's Nail-Extension.—According to Wagner this method of treatment has been almost faultless and when we consider its field of uselessness in ancient badly united fractures and other rebellious types it must be regarded as a decided advance in the treatment of these cases. However infection may result now and then as shown in the following case: A middle-aged man sustained a fracture in the middle of the right femur, with much displacement of broken ends. Bardenhener's extension method had to be given up on account of bedsores. Hirschberg's nails were then applied by Steinmann's technique, the nail penetrating the bones. But while firm union occurred, the points of exit and entry of the nail refused to heal, leaving fistulas. Three years later the fistulous tract was opened and found to communicate with a cavity in the centre of the femur. This was laid bare when the exposed surface filled with granulations and healed with a firm scar.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

ELEMENTARY PRINCIPLES OF LIFE INSURANCE.

Adapting the Policy: The policies issued in former years were full of exceptions which provided that under certain conditions the claims would not be paid. This custom has been supplanted by the removal of most of the restrictions and by the issuance of a variety of contracts in which there are about as many privileges as there were limitations in the old ones. The prospective applicant will seldom understand the nature of the conditions and privileges of the modern policies without assistance.

The intending insurer will usually choose the plan in accordance with the advice of the agent. It will be at once impolitic and injudicious for an examiner to intrude with advice of any sort whenever an agent has approached and solicited an individual, as the latter should be considered the more competent judge through his special knowledge of the subject and he will naturally resent interfernce.

Examiners are expected by their neighbors and constituents, especially in the smaller communities, to be more or less conversant with the methods and forms of insurance in vogue. Only a few examiners, however, have had an opportunity to inform themselves on this subject, but if they have studied the previous articles on the elementary principles of insurance they will have gained a sufficiently good understanding of the subject to enable them to impart some advice to those who are uncertain and who have not yet been interviewed by an agent.

An individual should not only be wise enough to insure his life, but he should also take the form of policy best adapted to his own circumstances. Even when the choice of policy has been made through the good offices of an agent, the applicant has not always succeeded in securing a policy fitted to his individual needs. The chief reason for this lies in the fact that some agentss are what are called "One policy men." They have studied a certain form of policy, sincerely believe in it, and are enthusiastic about it. They, therefore, have convinced themselves that everybody should believe in it. The companies have no preference as to what plan is chosen when good risks are offered.

Term Insurance: In this form the insurance is for a certain number of years and the premiums are based upon the mortality of these years only, not of the entire life. Like fire insurance, the contract expires at the end of the term unless the insured has died previously. This kind of insurance is adapted for those who must have protection at a low initial cost for a certain number of years.

After three or four years, however, this advantage of the term over more desirable forms of policies is practically lost, as the larger dividends of the latter may be devoted, then, to reducing the premium and thereby afford protection at about as low a net rate.

The companies will usually scrutinize the applications for term insurance very closely on account of the danger of adverse selection by those who have some reason to believe they will not live long and trust to the possibility of their physical weaknesses escaping detection by the examiner.

Those who can afford to pay more should select a form of policy in which some permanent benefit and ease of mind will accrue to themselves as well as to their dependents. Loans, as a rule, are not made on term policies and there is no surrender value in the way of continued insurance, paid-up insurance or cash in the case of default in payment of the premium. Another feature, often unsatisfactory in the ownership of a term policy, is the expiration of the contract at a set time. This is apt to leave the individual who has become an impaired risk in the meantime and to whom insurance is still a necessity in an unenviable plight. On the other hand, the policyholder usually has the privilege of changing to more desirable forms of policies without medical examination during the first few policy years. If this privilege of changing were permitted in the later years of a term policy, it would give too good an opportunity for adverse selection.

(The entire subject of Adapting the Policy requires more space than can be given in this number. The concluding remarks will be discussed in the next contribution.)

Death Rate of Middle Life.—One of the memories of the days of our childhood is the number of middle-aged and old people we were accustomed to see in the homes of our friends and on the streets of our towns and cities. When we make a mental note of this and compare it with the number seen to-day we realize the effective difference, since notwithstanding the difference in the modes of dress and customs tending to make youthful in this generation, there is a decided decrease in the middle-aged and old population. Dr. J. T. J. Battle (in a paper read before the Medical Section, American Life Convention, Hot Springs, February, 1913) ascribes this marked decrease to the difference in the manner of living and to the habits of excessive eating and drinking indulged in by the people of to-day. Statistics bear out his statements. During the past two or three decades, the increased mortality after 40 years of age is somewhat astounding. It is from 20 to 25 per cent. and is on the increase. This frightful death rate is principally caused by diseases of the kidney, liver, brain, and vascular system, practicaly all the organs susceptible to influences brought to bear through abuse of the digestive tract. Not these alone, but the high rate of tension at which we live, demanding more and more strain from our nervous systems, hence more restraint on our dispositions and a consequent decided laxity in our general ideas of life and its true values; all these are marked causes for shortened lives for the men and women of to-day, and cause us to pause and consider whither it is tending, and whether a short life and a merry one is after all more to be desired than the so-called old-fashioned slow lives of the days of our grandparents, when the moments were lived in a quiet content and deeply, not in a mad rush always to anticipate the future and to skim the surface in order to abolish any opportunity to reach the heart of life and its meanings. At least the medical examiner can now do his part by frankly telling his applicants what the inevitable result will be if the same unthinking life is continued.

Medical Section of the American Life Convention.—The third annual meeting of this Society will be held in St. Paul, Minn., on August 19, under the presidency of Dr. H. A. Baker. The program includes papers by V. M. Kime on "The Curve of Mortality," L. K. Frankel on "Popularizing Health Conservation," M. O. DeVeney on "Special Features of a Medical Director's Work," A. Talbot on "The Insurability of Women," and L. I. Dublin on "The Insurability of Women as Shown by Industrial Insurance."

Book Reviews.

Lehrbuch und Atlas der Konservierenden Zahnheilkunde. By Dr. Gustav Preiswerk. With 32 colored plates and 323 text pictures. Price 14 marks. München: J. H. Lehmann, 1912.

This text book for the use of practitioners and students is beautifully and profusely illustrated. It contains special reference to the operative methods employed in dentistry to-day. A detailed description of the steps in gold filling, and treatment of pulp and roots is given. This book is a supplement and finale to the three volumes recently published by the author. Stress is laid upon the technique and procedure of conservation.

Die Einfluss der Erwerbs und Arbeitsverhältnisse der Tabakarbeiter auf ihre Gesundheit. Von Dr. Thiele, in Oldenburg. Price 2.40 M. Berlin: August Hirschwald, 1913.

This little book opens with an account of the technique of manufacture of cigars, cigarettes, snuff, etc. The manufacture of the latter two and of chewing tobacco is mostly in cities, while cigars are made in the country. The conditions of home manufacture and also of child labor are discussed. The earnings are also set forth, followed by a description of the damage done and the means to combat it by improvements. Statistics of sickness follow, including anemia, nervous diseases and tuberculosis. There are many references to the literature and statistics of diseases and deaths in factory workers.

Diabetes: Its Pathological Physiology. By John J. R. MacLeod, M.B., Ch.B., D.P.H., Professor of Physiology, Western Reserve Univ., Cleveland, O.; late Dem. Phys., London Hosp. Price $3. London: Edw. Arnold; New York: Longmans, Green & Co., 1913.

This is a compilation of a series of eight lectures given in London University, 1912, and is intended to enable those who are unable experimentally to follow up the latest physiology and pathology to keep breast of the times. Examination for traces of sugar, sugar in the blood, and assimilation limits are well discussed. The latest work on the production of sugar from protein, possibly from fat, is given a chapter. The book is up-to-date and should be of use in every-day practice.

Festschrift für Herrn Professor Th. Kocher zur Feier seiner Vierzigjährigen Lehrtätigkeit von seinen Schülern gewidmet. *Deutsche Zeitschrift für Chirurgie*, 116 Band. Mit einem Bildnis, 120 Abbildungen im Text, 7 stereoskopischen Bildern in Mappe und 6 Tafeln. Leipzig: Verlag von F. C. W. Vogel, 1912.

That pleasant Teutonic practice of dedicating a special number of a medical journal to the honor of some famous professor finds an admirable expression in the "Festschrift für Kocher," which forms Band 116 of the *Deutsche Zeitschrift für Chirurgie*. This jubilee number marks the fortieth year of Prof. Kocher's pedagogical activities and contains a series of interesting and important papers written by his pupils and prefaced by an excellent halftone portrait of the master. As is quite natural, considering Kocher's life work, the subject of the surgery and pathology of the thyroid gland occupies a prominent portion of the text. There are two such papers on tuberculosis of the thyroid, an exceedingly rare condition, two on exophthalmic goiter, and one on the anatomical history of the thyroid gland, which abstracts some interesting old articles. An excellent article by Rollier, which is very well illustrated with *x*-ray photographs, details the results obtained in surgical conditions by heliotherapy. Space does not permit of a complete list of the papers, but among those particularly interesting and admirable are one on sporotrichosis, one on spontaneous fractures of the radius, with fifty illustrations, and an excellent article by de Quervain on the technique of thyroid operations, with twenty-three illustrations. The volume is therefore an important contribution to surgery and pathology.

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. 12mo volume of 480 pages, fully illustrated. Fourth Edition. Thoroughly Revised. $1.75 net. Philadelphia and London: W. B. Saunders Company, 1913.

The fourth edition of Dr. Davis' well-known book has been enlarged and thoroughly revised in order to bring it up to date and it should prove of great value to those who are engaged in this branch of nursing. The book is well printed and clearly illustrated and serves as an excellent guide in obstetrical and gynecological nursing.

The Clinical Pathology of Syphilis and Parasyphilis. By Hugh Wausey Bayly, M.A., M.R.C.S., L.R.C.P., Pathologist to London Loch Hospitals, Clinical Pathologist to National Hospital for Paralyzed and Epileptic, Asst. in Bacteriological Dept. of St. George's Hospital. Price $2.25. New York: Wm. Wood and Co., 1912.

This book is intended for the general practitioner and student. It is designed to give the points of clinical pathology of syphilis and parasyphilis to aid in diagnosis and treatment. It begns with a study of *Spirochcta pallida*, its staining methods, culture, habitat, etc. Then follows a chapter upon blood changes, the anemia being most often of a chlorotic character. The Wassermann reaction is next discussed including technique, modifications, and clinical value. The antigen antibody phenomena are entered upon. Under treatment the technique of salvarsan treatment is described, also mercury treatment. The book is up to date and scientific.

Diseases of the Heart and Aorta. By Arthur Douglass Hirschfelder, M.D., Associate in Medicine, Johns Hopkins University. With an Introductory Note by Lewellys F. Barker, M.D., LL.D., Professor of Medicine, Johns Hopkins University, 344 Illustrations by the Author. Second Edition. Price $6.00. Philadelphia and London: J. B. Lippincott Company, 1913.

This very excellent work on diseases of the heart and aorta has in less than three years reached a second edition. As was said in a review of the first edition, the book is the outcome of the experience of a skilled clinician who is also well acquainted with the physiology and pathology of the subject, set forth in lucid and concise language. The book is well arranged and presented in a manner calculated to appeal forcibly to students and practitioners of medicine. Perhaps in no field of medical inquiry has more progress been made than in the study of the heart and its diseases. Mackenzie, Lewis, and Cushing have in some respects revolutionized our views with regard to certain aspects of heart movements and disease and further researches bid fair to change long standing ideas to a yet greater extent. As is pointed out in the preface to the edition, the electrocardiograph has thrown so much light upon the site of origin of the normal and abnormal heart beat, the action of the cardiac nerves, and the paroxysmal tachycardias and the permanent irregularity that it has become a procedure of routine in many medical clinics. This instrument is discussed in detail. Other investigations which concern the circulatory apparatus and which have been in progress since the publication of the first edition are dealt with adequately in the volume. A feature of the edition, as of the first edition, is the wealth of illustration; most of the figures, by the way, being made from original drawings and tracings. The book is a good specimen of the printer's and binder's art, and from a medical and scientific standpoint may be strongly recommended to the medical profession.

Handbook of Diseases of the Ear. By Richard Lake, F.R.C.S., England, Surgeon for Diseases of the Ear, etc. London School of Clinical Medicine, Surgeon to Seamen's Hospital and Royal Ear Hospital. Fourth Edition, revised and enlarged. Price $3. New York: Wm. Wood & Co., 1913.

The author states that this book is for students and practitioners though it seems somewhat comprehensive for the former. The anatomy of the ear is briefly discussed with several good illustrations: the general examination of the patient is next undertaken and covers history, past and present, as well as physical examination. Then follow descriptions of diseases of the external car (cysts, rodent ulcer, etc.) of external meatus (eczema, keratosis obturans, etc.) and of the middle ear acute and chronic, suppurative and nonsuppurative. The illustrations of various forms of caries are good. The intracranial complications of middle and internal ear diseases are given with their diagnosis. Operations are given some thirty-five pages including some good illustrations following which diseases of the internal ear are rather cursorily discussed.

Hydrologie Élémentaire. Par Allyre Chassevant, Professor of the Faculty of Medicine of Paris. Price 4 fr. Paris: Vigot Brothers, 1913.

This book has to deal with the pharmacology and therapeutics of mineral waters. The origin, composition, and physical properties as well as the chemistry and pharmacology of the mineral waters of France are discussed. There is a considerable study of geology and the movement of water beneath the earth, its filtration, contamination, etc. The contents of different waters are given, also their radioactivity. The book will probably be useful to those interested along these lines.

Die Prostitution, Vol. I. By Iwan Bloch, Specialist for Sexual Diseases in Berlin-Charlottenburg, author of "The Sexual Life of Our Times," "Origin of Syphilis," etc., etc. Price 10 mk. Berlin: Louis Marcus, 1912.

This book is one of great interest, and from the tremendous number of references in almost every language, is the result of almost endless labor. Prostitution is studied in every class, in every country and in every age, and though at times the psychology of the study seems somewhat Freudian, the book is calculated to hold one's attention to the end. Prostitution is described as a two-headed monster whose one face points to nature and the other to culture. It is a remains of the old free primitive sexual relation and its analogies are seen in monkeys. The earliest organized prostitution in history was at the time of Solon (630-560 B. C.) and it has come down through all the ages. A quite elaborate discussion is taken up of what constitutes prostitution and what the latter has meant in different countries and at different times. Almost all writers agree, however, that the greatest factors are publicity, gain in money, and repetition. Particularly Bloch emphasizes the lack of choice, that is, the generality as being characteristic, or, as he says, the "sine dilectu." He discusses conditions of free love and states that primitive marriage was probably of more economic importance than sexual. The forms of religious prostitution play a considerable part in history, for example, the prostitution before the temple of Aphrodite described by Herodotus. The old idea was usually that dancers and musicians were prostitutes, and Bloch describes many seductive dances used in this connection.

The organization of prostitutes is next discussed from the time of Solon and a classification is given.

Then follow chapters upon sexual perversions from earliest times, homosexuality, etc. The sexual question and its importance in the struggle against prostitution and the effect of Christian morals are discussed. The sexual ethics of Christian times have tended to cling to prostitution as a result of the double system of morals, and the chief organization dates from the thirteenth century.

The book has wide scope, and is scholarly without being heavy.

The Interpretation of Dreams. By Prof. Dr. Sigmund Freud, LL.D. Authorized Translation of Third Edition, with Introduction by A. A. Brill, Ph.B., M.D., Chief of the Neurological Department of the Bronx Hospital and Dispensary; Clinical Assistant in Neurology and Psychiatry, Columbia University; formerly Assistant Physician in the Central Islip State Hospital, and in the Clinic of Psychiatry, Zurich. Price $4 net. New York: The Macmillan Company, 1913.

The American medical public appreciates Freud as he is appreciated by no other medical public; and it is under obligations to the translator of this work for accomplishing a difficult task in making this masterpiece accessible to the English reader. In the plan of the book, the author gives in his first chapter a résumé of the scientific literature on the problem of the dream, from Aristotle down. In the second chapter he describes his method of dream interpretation and gives the analysis of a sample dream. The title of the third chapter is "The Dream Is the Fulfilment of a Wish." This is the central idea of the book. The fourth chapter is on distortion in dreams; the fifth on the materials and sources of dreams; the sixth, the dream-work; the seventh and last chapter is on the psychology of the dream activities. There is a literary index of 118 writings on dreams by other authors in the back. The book was written for the use of physicians and other scientific men and not for the reader looking for light reading. It will, however, undoubtedly be widely read; so, in view of certain recent modifications of Freud's infantile sex theory, there might, without loss, be omitted from future editions of the translation, a few of the cruder sexual interpretations used as illustrations. This also in view of the fact that there is really much of interest in the book for the general reader as well as the psychologist, neither of whom may have the broader conceptions of a medical training. The general index could be emended and added to with improvement. With these minor criticisms, the reviewer recommends unreservedly this book, as indispensable to the psychoanalyst and the psychiater and of distinct value to the physician; and of interest to all. It has not only a wide bearing on the study and treatment of certain nervous and mental disorders, but the new psychology therein expressed, is already revolutionizing the literature of these subjects and other literature and also our conception of art, ethics, and sociology. Freud's new psychology is beautifully worked out in a few of the more recent plays. The dream is intimately associated with both normal and abnormal mental life. In its relation to the psychoses it reveals to us, says the translator, in his preface, not only the cryptic mechanisms of hallucinations, delusions, phobias, obsessions, and other psychopathological conditions, but it is also the most potent instrument in their removal.

Medicolegal Examinations and the Workmen's Compensation Act, 1906. By Sir John Collie, M.D., J.P., Medical Examiner for the London County Council, Chief Medical Officer to the Metropolitan Water Board, Examiner (Accidents and Claims) Sun Insurance and other insurance offices. Price $2.00 net. New York: Wm. Wood & Co., 1913.

This book will be found of very practical interest to all who are brought into contact with workingmen, either as employers, insurance men, physicians, or lawyers as well as to legislators. It gives a very clear summary of the liability and compensation questions in Great Britain, but naturally much of its contents is applicable as well in America, especially in view of present and prospective legislation along the lines of workingmen's insurance, employers' liability, and compensation for occupational diseases. The following condensed table of contents will give a clear idea of the scope of the work and of its value in the way of suggestion to those interested in legislation along these lines: Psychological and Moral Effects of Legislation; The Detection of Fraud—Contracting Out; Summary of the Compensation Laws; Employers' Liability Act, 1880; Workmen's Compensation Act, 1897; Workmen's Compensation Act, 1906; Scope of the Act of 1906; Limitations of the Act; Amounts of Compensation Payable Under the Foregoing Acts—Compounding; Certain Diseases Scheduled as Accidents Under the Act of 1906; The Intention and Result of the Workmen's Compensation, 1906; Decisions of the Courts; Conclusions; The Remedy; Proposed Amendments of the Workmen's Compensation Act, 1906.

Insurance Medicine, being Suggestions to Medical Examiners. By Henry H. Schroeder, M.D.; Medical Director, Mutual Life Insurance Company of New York; Editor Insurance Department, Medical Record. Price $2.00 net. New York: William Wood & Company, 1913.

This volume is a collection of the articles which have appeared in the Medical Record during the past eighteen months under the title of "Suggestions to Medical Examiners." It presents and explains the attitude of the life insurance company in the matter of the examination of applicants for insurance and has for its purpose the establishment of a feeling of confidence between the field and home forces. It is written with tact, directness, and completeness, and seems well designed to accomplish its purpose. The position and experience of the author lend special weight to his words and the volume can be recommended without reserve to all who are interested in the subject.

The Individual in the Animal Kingdom. By Julian S. Huxley, B.A., Research Associate of the Rice Institute, Houston, Texas; late Lecturer of Balliol College, Oxford. Price 40 cents. New York: G. P. Putnam's Sons, 1912.

The author aims to give a general definition of the individual and to show in what ways individuality manifests itself in the animal kingdom. The major portion of the book is devoted to showing that living matter always tends to group itself into closed independent systems with harmonious parts. Such systems he believes to be identified with individuals. The book is intended to lessen the gap between science and philosophy and the ideas and interests of every day life.

The Soldier's Foot and the Military Shoe. A Handbook for Officers and Noncommissioned Officers of the Line. By Edward Lyman Munson, A.M., M.D.; Major, Medical Corps, United States Army; President Army Shoe Board; Director Field Service School for Medical Officers; The Army Service Schools, Fort Leavenworth, Kan. 54 Illustrations. Approved by the War Department. Price $1.35. Fort Leavenworth, Kan., 1912.

This very useful little book deals most thoroughly with foot injuries and marching capacity, the anatomy and use of the foot, the military shoe, the fitting of military shoes, shoe supply, the care of the feet, the socks, and the care of the shoes. Major Munson has given not only a valuable work on the care of the feet, but has rendered interesting a somewhat dry subject. The illustrations are excellent and the book may be commended to the consideration of civilians as well as soldiers.

Society Reports.

CONNECTICUT STATE MEDICAL SOCIETY.

One Hundred and Twenty-first Annual Meeting, Held in Hartford, May 21 and 22, 1913.

The Question of Balance.—Dr. Ansel G. Cook of Hartford said that in order to fit one successfully the surgeon had to think of 418 different things at the same time, and if he should forget one of them and it happened to be the most important—which it generally was—the other 417 would go for nothing. He observed that all of those things could not be thought of at the same time without system, and that that system was balance. Should a deformity exist in which the parts involved had become changed in shape he felt that the parts should be brought back into corrected position and used in that position until they became normal in contour. In deformity of the spine the parts should be put in a position so that the force of gravity would work for one instead of against one. In this way Wolff's Law would come into play and correct the deformity. Dr. Cook said that he had been able to accomplish this correction by means of a simple plaster corset, with windows in the sides.

Dr. Oliver T. Osborn of New Haven observed that there was no question but that orthopedists were needed, and that he thought the profession in general needed balance as well as the orthopedist. He said that the internist should state his findings and the orthopedist should state his; and that they should work together to correct the patient's condition.

Dr. William Porter, Jr., of Hartford agreed with Dr. Cook that the first thing to be done was to find out what was really the matter with the patient. He said that that principle applied to not only the orthopedist but to all members of the medical profession. He suggested that Dr. Cook's paper be read carefully by all of them and put into practice.

The Clinical Significance of Vertigo.—Dr. Charles A. McKendree of Cromwell expressed the opinion that vertigo included many degrees, from mere discomfort to manifestations of severe disturbance reported to consciousness from labyrinthian, ocular and static sources. He further said that it was very important to find out the exact nature of the sensation experienced by the patient; seasickness and train-sickness representing a vertigo in which the ocular and auditory nerves participated. He declared that vertigo from vascular degeneration was very common, and was often seen in organic brain disease. In lesions of the pons and cerebellum vertigo it should be regarded as an important symptom. He directed attention to vertigo in neurotic subjects, and said that no physician was justified in diagnosing a functional nervous disorder without first having eliminated every physical element and all the possible contributing factors.

Dr. Charles N. Haskell of Bridgeport thought that when the presence of brain tumor was suspected the first thing to be looked for was vertigo, and said that he had done a number of lumbar punctures without any ill results. He recommended that every one should be cognizant of the ordinary causes of vertigo, such as the reflex causes, like neurasthenia, epigastric ptosis, etc.

Dr. Henry L. Swain of New Haven felt that vertigo was an exceedingly interesting and contradictory sort of symptom, and an indication of many general diseases of the most varied types. He thought the objective symptom of vertigo, nystagmus, was most significant of the connection between the two important functions of sight and equilibrium, and said that marked vertigo, by the conditions inherent in arteriosclerosis, occurred with increased blood-pressure; the simple rotative test for ear-disease sometimes throwing to the floor a big strong man, whose blood-pressure was below normal. He stated that vertigo associated with a purulent middle-ear process was a matter of extreme importance and should be looked to carefully. If simple measures did not remove the danger signal, real surgery should be employed in order to avoid the danger of meningitis. He recommended small doses of quinine, with happily adjusted doses of bromide for working wonders in some forms of dizziness; and said that in others he used some preparation of ergot. In one case he had employed strychnine, in another pilocarpine, while in another strong glasses had removed all trouble. A simple case of a good calomel purge he also thought might be useful.

Dr. Frank K. Hallock of Cromwell declared that it was hardly possible to formulate a satisfactory anatomical basis for the production of all kinds of vertigo. In order to understand the clinical significance of vertigo he had divided the symptoms into the following varieties: First, the vertigoes which resulted from an organic or fundamental disturbance of the organs of the nervous system, which had directly to do with the act of equilibrium. Second, those, for example, secondary to blood and vascular conditions, were disordered functions, etc. Third, were those which were due to transitory physiological disturbances. Fourth, those which might be called psychic. Dr. Hallock stated that upon the particular state of the cortical centers, representing the basis of consciousness, depended the power of peripheral stimuli to cause vertigo.

Dr. Charles Fitzgerald of New Haven remarked that just now nystagmus was at the boiling point of interest to otologists. He thought that in chronic suppurative otitis media, if nystagmus was present the radical mastoid operation might suffice; but said that one must be prepared to perform the radical labyrinth operation later, if necessary.

Dr. Dorland Smith of Bridgeport said that one useful clinical fact was that if vertigo were aural in origin, nystagmus generally accompanied it, and if there was no nystagmus at the time of the operation the vertigo was not due to the ear.

Dr. E. Terry Smith of Hartford observed that vertigo was one of the most prominent symptoms that the oculist had to deal with. A slight paralysis of the extrinsic muscle of the eye, and a slight disturbance of the middle ear, which would disturb the pressure in the internal ear, were the two most frequent causes, he said.

Dr. McKendree, in closing, said that most men regarded lumbar puncture as a valuable adjunct to the treatment of persistent aural vertigo. He did not see the advantage of doing a radical mastoid operation before a labyrinthotomy. He differed from most men who thought that ocular vertigo was caused by errors in refraction, and held the opinion that it was produced by a paresis of a nerve supplying the ocular muscle.

The Work of the Infant Welfare Association of New Haven.—Dr. Joseph I. Linde of New Haven told of how the Pure Milk Committee had withdrawn from the Consumers' League in 1912 and formed the Infant Welfare Association. The old system of dispensing milk had been very expensive and had contained no educative value. All the mother had had to do was to give the babies the milk already prepared for them, but now, he said, they were putting the work on the mothers by teaching them to prepare the milk themselves, and that it had been wonderful to see how they had responded to the teaching. He stated that the Visiting Nurses' Association had supplied the nurses and four stations had been established. The nurse assigned to each station held weekly conferences with the mothers, who brought their babies to be weighed and examined by the doctor in charge. He said the formula was changed whenever it was thought necessary, and sick babies were referred back to their own physician. He described how the mother was taken into the laboratory and given a lesson in making modifications of milk on her first visit, and how, the next day, the nurse visited her at her home in order to see that this work was being done properly. Materials were supplied at cost, and when milk was delivered at the home the Association insisted that it be from a dairy whose name was indorsed by the New Haven Medical Society. By the end of the first summer pre-natal instruction was begun.

Dr. Julia E. Teele of New Haven felt that scientific philanthropy had regard to two things: the study of the conditions and the changes in them and the education of the people; and that preventive medicine and scientific philanthropy joined hands in infant welfare work. She considered the home-modification of the milk far superior to the standard formulæ, and said that, much to their own surprise, they had been able to teach most of the mothers—no matter how ignorant—to mix the milk properly and to care for the infants in a hygienic manner. She said that at their conferences on Monday they gave instruction in feeding the baby, general hygiene, the bathing of the baby, care of its clothing and also the care of the home. She had been much pleased that their work had kept up during the winter, and laid great stress on the importance of pre-natal work; recommending that the nurse should visit the prospective mother and give her advice as to the care of herself, the engaging of a doctor, going to a hospital and suggestions in regard to the coming baby.

Dr. Merriman Steele of New Haven said that he had, at the beginning of their work in New Haven, been absolutely convinced of the necessity of station-made modi-

fications, but he was glad to report that under the guidance of Miss Gilbert and her able assistants a clean milk had been made possible in a tenement; where the only thing clean was the milk and the utensils used in its preparation.

Dr. Kate C. Mead of Middletown stated that their nurses in Middletown were not trained, but practical; and that while they had been able to carry on their work for only three months during the summer, yet that had reduced the death rate one-half. She was concerned with the fact, however, that many of the babies saved during the summer had died in winter of pneumonia, because they could not afford to have nurses call and look after them during that time.

Dr. Frank W. Wright of New Haven thought that they had pretty well educated the milk producers and dealers, and that the one who needed education now was the mother of the infant.

Dr. Arthur S. Brackett of Bristol felt that it was neither necessary nor right that a few persons should stand the expense of all the work, and stated that the State should see to it that the schools were used as teaching centers; lectures along these lines being given in them at night. He also suggested the teaching of the young girls, from eight to twelve years of age—to care for the babies and expressed the opinion that they would take a live interest in the subject, as, next to the mothers, they had the most care of the infants.

Dr. Linde, in closing, stated that they had had some cases of pneumonia during the winter months among their station babies, but he did not know the exact number. He showed a pamphlet which they gave out that contained instructions as regarded the daily care of the bottles and which recommended breast-feeding, fresh air, etc.

The Treatment of Chronic Suppurative Lacrymal Disease.—Dr. E. Terry Smith of Hartford stated that Theobold was the first to treat lachrymal disease scientifically. To his mind the destruction of the canaliculus seemed poor surgery. He preferred the method of Mueller of Vienna, which was described in Fox's textbook. He showed some photographs taken after extirpation. In the first case the sac was removed without rupture, and the patient made an uninterrupted recovery. The second case was a double extirpation of the lacrymal sac. He declared that cases of acute and chronic dacrocystitis formerly constituted a legacy passed from one oculist to another, and seldom cured, many eyes being lost through ulcer of the cornea. He favored the treatment of these cases radically, unless there was some contraindications.

Dr. Dorland Smith, of Bridgeport stated that for some years he had been following a method devised by his partner, Dr. F. M. Wilson, which avoided the slitting of the canaliculus, and admitted of using quite large probes. In his description he said that the first step was to cut, with sharp-pointed scissors, from the punctum straight back to the edge of the eyelid, as far as the perpendicular part of the canaliculus went. He advised probing by all means, if the doctor and patient had the courage; but said that if either lacked the courage, to excise the sac.

Pseudoileus Due to Intestinal Nerve Impulse Disturbances.—Dr. Patrick J. Cassidy of Norwich said that enterospasm was a neurosis of the intestines associated with affections attending a general neurotic condition. The symptoms of the attack might vary from simple constipation with pain and distension to the grade of the most pronounced symptoms of complete metchanical obstruction. He advised operative interference as being a benefit from the point of diagnosis, and said that this would enable the physician to caution the patient as to the best means of preventing the frequency of future attacks. He felt that this disease should be given more thought, as the patients were increasing in number.

Dr. Joseph M. Flint of New Haven favored the operative treatment of cases of obstruction, because of the mimicry of pseudoileus to the true type. He thought that medical men were more liable to see such patients than those in hospitals. He had had two cases; one, high in the ileum; the other, in the transverse colon.

Dr. Oliver C. Smith of Hartford felt that the question of intestinal obstruction was one of as great importance to the general practitioner as to the surgeon. He said that in three thousand laparotomies the only cases in which they had found pseudo adynamic ileus had been explicable on some general anatomical grounds. He thought that there was a tendency on the part of the physician to err on the side of conservatism in cases of intestinal obstruction, and said that he, himself, had postponed operations too long.

Dr. John W. Churchman of New Haven reported having seen in one patient the actual lesion. During operation the small intestine became completely obstructed by a sharp and definite localized spasm of the ileum, causing a tumor mass, which could be picked up and handled. It made the diagnosis absolutely positive. A cure was brought about by the administration of large doses of belladonna.

Dr. Ernest H. Arnold of New Haven said that he constantly met with spasms of the stomach in tubercular lesions of the dorsal region of the spine. He advised, in cases of repeated attacks, in which the operation failed to relieve the condition, that the spine be subjected to a careful *x*-ray inspection.

Dr. Cassidy, in closing, stated that he wanted to emphasize the necessity for early operative interference in all cases presenting the symptoms of intestinal obstruction. The medical treatment he advised was belladonna and opium.

Aniline Dyes in Surgery.—Dr. John W. Churchman of New Haven felt that the principle of selective affinity which some drugs had for the cells of the body was really an old one. The recognition of what that principle meant had had two general effects; first, by increasing the ability to recognize cases, and, second, by increasing the ability to treat them. Among the drugs that had this selective action he mentioned lead, quinine, mercury, salvarsan, etc. He told how fifteen years ago he had shown that it was possible to demonstrate a selective affinity between a common dye, gentian violet, and certain bacteria. By use of that dye one could pick out distinctly two kinds of organisms—one absolutely unaffected by the dye; and the other, killed, if stained with it, and prevented from growing if gentian violet were added to the media in which they were growing. He asserted that in poliomyelitis the dye had a distinct restraining effect on the virus; but he was not willing to claim that it actually killed it. He was confident that eventually something important would come out of the findings in that line.

Dr. Leo F. Rettger of New Haven told of how methylene blues had been regarded as a particularly active agent, and were known as far back as 1880. He claimed that their results had borne out those of Dr. Churchman and stated that all those dyes had a wonderful fusibility throughout the body, and if the extreme disinfection action could be combined with that quality there was great hope in the treatment of all bacterial infections.

Prolapse of the Uterus.—Dr. Otto G. Ramsay of New Haven stated that the one constant factor at work in all such conditions was the change from the normal relationship of the pelvic floor. As a result of that the vaginal walls separate and roll out when there is any exertion on the part of the patient. The pelvic tissues should be brought back to their proper relations as nearly as possible, he said; and failure in operating was due to a wrong conception of the etiology and development of the condition. In the young he advised the classical operation; but in the older patients he suggest another kind of operation. He reported 75 of such cases with no mortality; his oldest cases being three years old, with no recurrence.

Dr. Phineas H. Ingalls of Hartford declared that prolapsus uteri had been a bugbear to surgeons for years. He felt that the sliding down of the bladder and the rolling out of the anterior rectal wall caused a great deal of trouble; but the idea of stitching the round ligaments to the apex of the triangle was new to him. He cautioned against long operations in these cases, and felt that an operation on these organs, which did not include the taking back of the cystocele and the rectocele would be a failure.

The Present Status of the Röntgen Rays in Diagnosis (with Moving Pictures).—Dr. Arthur C. Heublein of Hartford showed some very fine *x*-ray moving pictures of the gastrointestinal tract with a bismuth meal; and declared that the scepticism which had long prevailed concerning the accuracy of Röntgen rays in the diagnosis of bone injuries, etc., was fast disappearing. He said that in the lower urethral region it was absolutely necessary for the cystoscopist and the radiographer to work together. It was his opinion that gallstones were seldom found by means of the *x-ray*, because of their being largely made up of organic salts.

Dr. Thos. N. Hepburn of Hartford told of how he had worked with Dr. Heublein in the field of renal diagnosis, and how they had, with the aid of the *x*-ray and collargol injections of the ureter discovered that urethral disease was comparatively common, and had been previously frequently overlooked. He described their method of getting collargol injections—which varied from most persons. They used a dilating catheter and inserted it into the urethral part until it fitted snugly, and then let the collargol flow in, using the gravity method. Anywhere along

the course of the ureter one might see the stricture in the fluid column. Dr. Hepburn also advocated *x*-ray as a help in deciding what to do with the kidney; and he emphasized the importance of taking *x*-ray pictures of both kidneys for renal calculus, as double renal calculus was exceedingly common. He advised that the surgeon also have a picture after the operation in order to prove that the calculi were not there.

Dr. Orrin R. Witter of Hartford declared that Dr. Heublein's demonstration more fully demonstrated the value of the *x*-ray in diagnosis than any written article could have done. He wished to emphasize the value of a negative finding in the case of a kidney condition in which the entire clinical picture was of renal calculus with extreme pain and blood in the urine, the *x*-ray picture being negative.

Dr. George Blumer of New Haven had occasionally found that chronic interstitial nephritis was accompanied with typical attacks of renal colic, and felt that in such cases a negative picture would be of great value.

Dr. Heublein said in closing that he always made it a point to go over both kidney regions, the ureters and the bladder.

Pyelitis.—Dr. Charles J. Bartlett of New Haven stated that pyelitis was common in both adults and children, and was one of the easiest conditions to pass unrecognized; being frequently overlooked or mistaken for some other disease. He said that in acute pyelitis the destruction of the tissues was slight, but in the later stages the organ was usually beyond repair; the urine being bactericidal and quite resistant to bacterial invasion under normal conditions. He felt that the most common predisposing cause was some anatomical condition interfering with the outflow of the urine, the intestinal wall becoming impervious to bacteria, under certain pathological conditions, and allowing the bacteria to enter the blood-stream. He advocated, as a rational treatment, the use of hexamethylenamine; increasing the quantity of the dose until free formaldehyde was formed in the urine, thus producing the toxic effect. When vaccines were used he said that they should be autogenous.

Acute Primary Pyelitis in Children.—Dr. Fritz C. Hyde of Greenwich believed it was possible that mild cases of pyelitis often recovered without especial treatment, and that the infection was usually ascending; giving the following reason for his belief: Infection, via the female urethra from soiling of the vulva was theoretically easy and likely, whereas infection borne by the blood would probably cause involvement of the true kidney structure and not localize in the pelvis of the kidney. Recorded cases showed no evidence of nephritis, he said. His six cases, all girls, were characterized in common by fever, pus in an acid urine, no bladder symptoms—except in one instance—and prompt improvement and cure by the use of ordinary antiseptics.

Dr. John W. Churchman of New Haven felt that cases called bacteriuria were impossible to distinguish from cases called pyelitis. There was no question whatever in his mind but what organisms could easily reach the pelvis of the kidney from the blood-stream. He thought the success of internal medication depended on two things, namely, the character of the invading organisms and the extent to which the organisms had invaded the tissues, and if the invasion had been made into the substance of the kidney that they would be very hard to dislodge. In cases of pyelitis in pregnancy he advised the administration of urotropin during the puerperium.

Dr. Charles A. Goodrich of Hartford said that many pyelitis cases had been first treated for malaria, while others had been mistaken for digestive derangements. He had not had much success with potassium citrate, but felt that urotropin, in moderate doses, was beneficial.

Dr. Geo. Blumer of New Haven thought that the type of pyelitis not recognized in adults was that described as primary pyelitis, often occurring in connection with pregnancy and sometimes with menstruation in non-pregnant women. He said the temperature charts in pyelitis and in some cases of pneumonia were very much alike and advised routine examination in every case of that disease.

Dr. Bartlett, in closing, spoke of Vanderhoff's claim that this condition might be recognized at diagnosis in two per cent. of the cases, provided the examination was well made.

Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.—Dr. David R. Lyman of Wallingford observed that if the lungs could be put to rest in such cases the chances of recovery on the part of the patient were greatly increased. He felt that that procedure would also promote the formation of connective tissues and tend to limit the process and finally control it. He preferred the use of nitrogen gas to either oxygen or sterile air, and the incision to the puncture method of performing the operation, although he admitted that recent improvement in the puncture method seemed to have made it the one of choice. It was his belief that injury to the lung and the production of gas emboli might be avoided by means of the manometer.

Dr. H. S. Wagner of Hartford remarked that during recent years there had developed a tendency to study the failures and to report on them and to let the successes take care of themselves. He felt that this was particularly true with regard to the treatment of pulmonary tuberculosis by means of pneumothorax, and declared that such a procedure meant real advance. He believed that pneumothorax would decrease the räles and sputum in certain tubercular cases.

Dr. Henry F. Stoll of Hartford also advocated the use of the manometer, saying it was the only thing to do, for if you had an adhesion you could not strike the pleural cavity and the hole would be much larger. He used holocaine, instead of novocaine, with good results, and said that if you waited a few minutes after injecting the holocaine, before operating, you would have complete anesthesia. He used an aspirating needle of fair size with a comparatively short point.

Dr. Lyman, in closing, stated that when discomfort came he always stopped, and he thought it would be risky to do a deep pneumothorax in such cases.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. D. Chester Brown, of Danbury; *Vice-Presidents*, Dr. W. M. Hurlbert, of Stamford, and Dr. Kate C. Mead of Middletown; *Secretary*, Dr. M. M. Scarborough of New Haven; *Treasurer*, Dr. Joseph H. Townsend of New Haven. The next annual meeting will be held in New Haven May 20, 1914.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-ninth Annual Meeting, Held in Washington, D. C., May 5 to 7, 1913.

The President, Dr. Pearce Bailey of New York, in the Chair.

Presidential Address.—Dr. Pearce Bailey of New York delivered this address, stating that in all organic life there existed two principles for action, viz., desire and fear; desire showing itself as a tendency on the part of the individual to acquire for himself what was beneficial, and fear a tendency to avoid, by whatever means possible, what was harmful. There soon became associated with these two motives the emotions of pleasure and pain. As evolution proceeded these two motives became enormously elaborated to form instincts, and through all the instincts one or both of them could be found. With the development of the intelligence the instincts became very much checked and modified, so that desire showed a constructive purpose and fear became sunk in the unconscious, showing itself chiefly as prudence. Human personality was a combination of the instincts with fear and desire back of them, modified by the checks of the intelligence, but the fundamental motives could always be detected, and man, however much his primal characteristics might be hidden by the teachings of his intelligence, nevertheless remained essentially an egotistic individual. This could be shown by analysis, in his ordinary actions, and became very evident under any circumstances which acompanied an unhinging, temporary or permanent, of his intellect. Thus, under the stress of violent emotions, of fatigue, of physical disease, and especially of mental disease, the teachings of the intelligence were more or less lost sight of, and a man reverted or regressed to earlier types of behavior. Under these circumstances he showed various phases of the evolutionary stages through which the race had passed.

The Present Status of Neosalvarsan in the Treatment of Parasyphilis of the Nervous System.—Dr. Edward D. Fisher of New York read this paper, stating that since the finding of the spirochetes in the brain and cerebrospinal fluid in general paresis and tabes the term parasyphilis must be discontinued. All diseases of the nervous system due to syphilis were due to the same active agent which was the cause of the pathological changes, both in cerebrospinal syphilis and in the more chronic manifestations formerly classed under the head of parasyphilis. The discovery of the spirochetes gave us a rational basis for the use of neosalvarsan. The question arose: What was the relative efficiency of this remedy in the later manifestations of syphilis of the nervous system, i. e. in tabes and general paresis? In the writer's experience the hopes raised by Prof. Ehrlich's discovery had not been

fully realized and could not be. We had only to consider the pathological changes in these diseases to understand the reason why. We had, however, with the Wassermann reaction test a rational plan of treatment in the use of neosalvarsan and mercury and the iodides. As we found the Wassermann test negative we could stop our medication and resume it as it became again positive. It was certainly rational to remove the active agent of disease, as we could by the use of neosalvarsan, and thus prevent further extension of disease. In the light of our present knowledge we were in a position to make an early diagnosis, and the importance of beginning treatment early was emphasized. The importance of being conservative in our claims for this most valuable remedy should be emphasized, as it must be many years before we could know whether its early employment, i. e., at the time of the initial lesion, prevents the later manifestations of syphilis of the nervous system.

Dr. Joseph Collins of New York said that he was in accord with Dr. Fisher in regard to the necessity of now and forevermore dispensing with the terms parasyphilis and metasyphilis. He was not sure that we all recognized a fact which seemed to be a fact, namely, that when face to face with tabes and general paresis and what was known under the term of meningeal syphilis, we were not dealing with nervous disease, but dealing with the disease syphilis. Dr. Collins said that he had understood Dr. Fisher to say that the spirochetes were found in the cerebrospinal fluid. Dr. Collins supposed they had never been found in the cerebrospinal fluid.

Dr. Philip Coombs Knapp of Boston stated that the clinical and pathological distinction thus far justified the division into ordinary syphilis and parasyphilis and that it was a convenient distinction which he thought might still be held. In regard to the use of neosalvarsan and salvarsan Dr. Knapp's experience had been that there was a good deal still in Ehrlich's original claim that in syphilis of the nervous system the results were not so likely to be beneficial as in the early stages of syphilis manifesting itself in other organs of the body. Experience both with neosalvarsan and salvarsan in syphilis of the nervous system had not, on the whole, led Dr. Knapp to believe that we had gotten so much more than we had in the use of mercury and iodine. In the last two months he had been trying the intraneural method and thus far the benefits of the method seemed to be uncertain and possibly not of sufficient value to warrant the increase of danger that accompanied the use of that method.

Report of a Case of Juvenile Tabes.—Dr. C. Eugene Riggs of St. Paul, Minn., presented this paper, saying that a boy of 7½ years, with no luetic history in either parent, no symptoms of hereditary syphilis, had begun to have gastric crises when ten months old; they now occurred every there months. Marked ataxic gait, muscular weakness, knee and Achilles jerks were absent. The blood exhibited a positive Wassermann and spinal fluid the same; no lymphocytosis, no globulin excess.

Dr. Philip Coombs Knapp of Boston stated that cases of juvenile tabes were so rare that it seemed to him permissible to speak of a case now in his wards, which, although not confirmed by autopsy, seemed to him probably a case of juvenile tabes, a girl of 16 of whom nothing could be learned in regard to her family history. At the age of 5 she had been run over and her head injured, suffering several scalp wounds and being unconscious for a day. After that there had been no trouble at all until the age of 11, when her sight began to fail. At the age of 12 she had lost vision completely. Some one examined the eyes and found the optic atrophy of so-called traumatic origin. There had been a history for 1 or 2 years of typical tabetic pains, sharp, shooting pains of brief duration. On examination there was some perception of light and well marked primary atrophy of both disks, no indications of any keratitis, no radiating scars about the lips. The two central upper incisors were peculiar, in that they were somewhat broad, but there was no characteristic of Hutchinson's. The knee jerks were absent on one side, obtained only by reinforcement on the other. There was marked Wassermann in the blood and the cerebrospinal fluid and globulin reaction, but no increased lymphocytosis.

Dr. H. M. Thomas of Baltimore said that a boy of 7 years was sent to the Surgical Department of Johns Hopkins with the diagnosis of tumor, probably of the cerebellum. Dr. Thomas was asked to see the lad in consultation. He had been extremely bright up to the fifth year, when he had begun to deteriorate and then it was thought that he had an injury. His deterioration took the form of being unable to speak as well as he had before; he had been loquacious; he became noisy and fretful and hard to manage and his walk became so unsteady that he could hardly get about. On examination he showed no signs of hereditary syphilis. He had no choked disk, his walk was distinctly cerebellar, his pupils were distinctly unequal, they did not react to light, and his reflexes were exaggerated. The boy's blood gave the positive Wassermann reaction and the diagnosis of cerebral syphilis was made. He was given two doses of neosalvarsan and changed markedly. He became quieter, his walk became steadier, and he left the hospital, having done pretty well. However, on getting home he became extremely quiet and in a week he was brought back in an absolutely different condition. At that time he was speechless, his walk was perhaps a little less ataxic, still he made no attempt to walk. The physical signs were the same. A lumbar puncture was done. He had a cell count of 33, positive globulin and positive Wassermann, and a Wassermann in his serum was also positive. The case then seemed to be one of juvenile general paresis and as it was the only case the consultants did not venture to make that diagnosis, yet they had been extremely interested.

Two Cases of Removal of Extradural Tumor of the Spinal Cord.—Dr. Philip Coombs Knapp of Boston read this paper, saying that tumors of the spinal cord were rare. In 3517 autopsies at the Boston City Hospital a tumor was found only four times, but the spinal cord was not always spared. In 1294 patients in the neurological service a tumor was diagnosticated 10 times. In 11 cases operation had been performed, in 6 cases with fatal results, in 4 with some improvement, so that the patient could get about on crutches, and in the fifth with marked improvement followed by a return of symptoms and a second operation. Two of these cases were reported. Case I. Woman, 40, married, nullipara. Menopause at 36. Considerable alcohol. Entered hospital May 20, 1912. For six months or more had had pain between the shoulders, shooting into arms, and worse on motion. For three or four months the pain had been growing worse, for six weeks the legs had been numb and for two weeks paretic. Micturition was difficult and the urine at times had to be drawn. Sexual desire unimpaired. Some rigidity of dorsal spine. Legs paretic and spastic. Knee jerks exaggerated, double Babinski. Sensibility diminished from level of ensiform cartilage downward. Unable to pass urine which contained a trace of albumin and some pus. Wassermann and Noguchi in blood, positive. The cerebrospinal fluid was clear, 20 lymphocytes to a cubic millimeter, globulin reaction absent. Wassermann and Noguchi negative. Somewhat vague shadow in upper dorsal region. The paresis increased to complete paralysis, the spasticity was much greater. Salvarsan and mercury did not benefit her. July 30 laminectomy by Dr. E. H. Nichols. Two small masses were removed from external posterior surface of dura at level of sixth dorsal spine. Made a good surgical recovery. She gradually improved, regaining control of her bladder, being able to stand alone and walk with crutches, and having normal sensibility. She was still somewhat spastic and had exaggerated reflexes. She was still on crutches and in the hospital for chronic diseases. Case II. Woman, 33, married, four children. Entered hospital July 30, 1912. Three years before, in the sixth month of her fourth pregnancy began to have pain in the right loin, buttock, and leg. After delivery the legs grew weak. Pain subsequently appeared in left leg. Loss of sexual desire, micturition and defecation imperative, occasionally incontinent. Gradual increase in weakness of legs. When first seen was unable to stand or walk without support. Sensation diminished below a line 22 inches below umbilicus. Tender over lower dorsal vertebrae. Some spasticity. Wassermann and Noguchi negative. Lymphocytes twenty to a cubic millimeter. Laminectomy August 16 by Dr. J. A. Hubbard. Small growth, apparently fatty, removed from posterior external surface of dura at level of eleventh dorsal spine. Dura opened, arachnoid bulged, no pulsation. Considerable fluid drained from arachnoid. Some fever and bedsore, but otherwise she made a good surgical recovery. Gradual recovery of motion and sensation. Able to stand and take a few steps on September 7. Toward the end of October walked without crutches, and later improved so that she could walk half a mile, dance, and travel in the trolley cars alone. Early in January, 1913, she took cold, and her symptoms gradually returned, so that early in February she returned to the hospital in much the same condition as in the previous July, but the hypaesthesia extended to 2 inches above the umbilicus. There was a good deal of pain in the back and the legs were weak and spastic. March 15 the wound was reopened by Dr. Hubbard and the spinous process above was removed. No adhesions were found, but the cord was tense and did not pulsate. The dura was opened and much cerebrospinal

fluid escaped. She made a good recovery and was discharged April 21. There was then a very slight hypaesthesia with some allocheiria in the right leg. The right leg was somewhat hypertonic, but she had good strength in both legs and could walk with crutches or with very slight support. The operations that had been done in Boston, fourteen of which had been already reported, had been collected, and showed the following results: Tumor removed 8, 6 improved, 2 died; tumor partly removed 7, 3 improved, 4 died; tumor found, not removed, 4, 2 improved, 2 died; lesion found, not tumor, 6, 3 improved, 3 died; nothing found 6, 3 improved, 2 died, 1 result uncertain. Shersberg collected 119 operations; of these 49 were benefited, 42 died.

A Peculiar and Undescribed Disease of the Nerves of the Cauda Equina.—Drs. Foster Kennedy and Charles A. Elsberg of New York said that during the last first years, in a large number of spinal operations, 84 of which were performed by one of the writers, they had met with five cases so alike in their histories, their clinical findings, and in the peculiar swelling and discoloration of the root of the cauda equina that they have been led to class them together in the belief that they form a definite clinical and pathological entity. Pain was present in the back of the thighs and legs in all of the patients; atrophy of the anterior muscles with loss of the power of dorsal flexion of the foot was present in 4; the objective sensory changes consisted of loss in the sacral and lowest lumbar nerves. The disorganization of the functions of the bladder and rectum was complete in 4 paticnts. The abdominal reflexes were regularly present, while the ankle jerks were lost in 4; the knee jerks became lost coincident with the upward progress of the disease. The conditions found at operation were mainly a swelling and reddish-blue discoloration of many or all of the roots of the cauda equina. A thorough search of the literature failed to reveal any proven cases like those described. A few cases had been reported in which a clinical diagnosis of neuritis of the cauda equina was made and the condition believed to be syphilitic, but in none of these was the diagnosis verified by operation or autopsy. A very similar disease has been described in the horse, and in these animals the post-mortem examination revealed a condition very like that found in the patients operated upon and reported in the paper. The Wassermann test both in the blood and cerebrospinal fluid was negative in all of the cases, therefore the condition is not luetic. Nor were there any signs of a meningeal lesion.

Giant Tumors of the Conus and Cauda Equina.—Drs. Joseph Collins and Charles A. Elsberg of New York presented this paper. They said that the patient began to complain of pain and stiffness in the back extending down the posterior aspect of one and then of the other thigh. The pain was intermittent at first, later it was continuous. After the expiration of one year or more the symptoms became worse, one or double drop foot appeared, the lower limbs became weaker and stiffer, knee and ankle jerks disappeared. Then followed difficulties in the functions of the bladder and rectum, irregular sensory loss, rigidity of the lumbar vertebral column, tenderness of the lumbar spines. Peroneal palsies were regularly found with electrical changes. The patients were often suspected of tabes, and had usually been treated for long periods for sciatica. The important features of the clinical histories were the following: A history of one or more years' duration, pain in the small of the back sooner or later extending down one and then the other extremity; stiffness of the back in the lumbar region; increasing weakness and stiffness of the lower extremities with loss of power of dorsal flexion of the foot; slight disturbances of the bladder and rectum. The important features of the clinical examination were the following: Rigidity of the lumbar vertebral column; weakness and stiffness of the lower limbs; paralysis of the peroneal groups of muscles and sometimes of the tibialis anticus group; dropped foot on one or both sides; absence of knee and ankle jerks; tenderness of the lower lumbar spines; irregular and unsymmetrical sensory disturbances; lumbar puncture usually negative. The typical findings at operation consisted of a large reddish-brown not vascular tumor within the dura, which filled up the entire lower part of the spinal canal, surrounded the roots of the cauda equina and extended upward on the conus with which it was not closely connected. The growth was not intimately connected with the inner surface of the dura, and could be easily freed from it, after which the inner surface of the dura was found to be smooth and glistening. The growths were well encapsulated above, but were closely connected with the nerve roots below. The peculiar features of the tumors were: Their large size; the late appearance of bladder and rectal disturbances; the relatively small amount of sensory loss in spite of the fact that the tumors fill up the entire lower part of the spinal canal; the benign course of the disease, without tendency to perforate the dura. Operative interference should be done in two stages by the "extrusion" method. If the cases were recognized early, radical removal of the growths should be possible.

The above three papers were discussed jointly.

Dr. Archibald Church of Chicago said that he was reminded by Dr. Knapp's paper of an experience of comparatively recent date, which, while it might not be edifying, might be interesting: that was, the recurrence of three tumors followed by three successful operations in the same patient. The first tumor made its appearance four years ago. At the end of a year the patient was entirely paraplegic. Dr. Patrick saw the case in consultation. Dr. Murphy operated. A tumor was removed from the cervical region. She made an uneventful recovery and in the course of six months recovered. At the end of two years she began to have the same symptoms of spinal tumor and within six months had developed the same symptoms. A second operation found another growth in connection with the pia about an inch lower than the first tumor. Whether this was a recurrence of the first growth was not known. It was supposed to be essentially an independent neoplasm. For nine months she had comparative freedom. Two weeks ago she came back to Chicago for recurrence. Early last week a third operation was done and a third tumor removed. So there was one on the right, one on the front, and one on the left. Dr. Church said he had had two cases of cauda equina. Some eight years ago a surgical friend had the typical manifestations of caudal lesion. This endotheliomatous growth filled the entire neural cavity and was supposed to be so intimately related to the cord that no attempt was made to remove it. The man perished from kidney trouble. About three years ago Dr. Church saw a young boy with terrible pains in the legs who had been treated for hysteria. After many months of observation he showed a little area of sensory loss corresponding to the cauda and upon this comparatively slight symptom, although the bladder was not materially affected, an operation was done and an infiltrating endotheliomatous neoplasm extending from the middle of the lumbar spine to the lower end of the sacral canal was uncovered. It was not considered feasible to remove it and safest to let the case take its course. The operation wound has remained perfectly solid. The symptoms have not increased, but a tremendous growth had invaded the abdomen so that he looked like a six-months pregnancy. Apparently the pressure had been relieved from the caudal region so that further neural symptoms were inhibited and the growth had gone in the anterior direction. This large caudal involvement may be more frequent than we suppose.

Dr. W. M. Leszynsky of New York stated that in regard to the difficulty of diagnosis in tumors of the cauda equina and inflammation of the roots, the mere fact that one can obtain no cerobrospinal fluid should lead one to make the differential diagnosis between the two conditions.

Dr. William G. Spiller of Philadelphia stated that this subject of the root neuritis confined to the lower portion of the cord was one of great interest. One could not help wondering whether in that case there was a meningitis of a certain degree, possibly of a considerable degree, and whether the root changes were not part of this meningitis. Dr. Elsberg stsated that the cord showed nothing to the naked eye. There might have been marked meningitis which would not have been detected by naked eye at all. Tumors varied very greatly as to whether they were in the upper part of the cord or in the lower. In the upper they were more of the type of fibroma and endothelioma, well defined tumors that might be readily removed in most cases. In the lower part of the cord they were very much more malignant, infiltrating, liable to be greater in size and offering much more unfavorable conditions for removal. In one case of inoperable tumor operated on for me by Dr. Edward Martin he cut the anterolateral columns to remove the pain. It was very successful. The patient lived two years after that operation. He died a few months ago, with an enormous tumor filling a large part of the abdomen.

Dr. Joseph Collins of New York said that it seemed to him so far as the patient's restoration to a degree of health and usefulness was concerned that operation on these caudal tumors as they were now being done did not give any considerable degree of life and did not restore them to any degree of health. The significance of this fact was that we must diagnosticate these cases earlier than we do now. If we relied upon the presence or absence of the cerebrospinal fluid in a case

that had the symptoms of caudal tumor in making the differential diagnosis we would go wrong very frequently. Dr. Collins made a plea for operation on caudal tumors in every instance at the time when suspicion entered the mind that these were present, and, second, for operation in tumors of the conus five, six, eight, ten years before the time they are now operated on.

A Contribution to the Pathology of Myasthenia Gravis.—Drs. SIDNEY KUH and MORRIS BRAUDE of Chicago presented this paper. They said that theirs was a typical case of myasthenia gravis in a physician 50 years of age, of a duration of about five years. Examination of the nervous system was made with the Weigert myelin sheath stain and Pal's modification of the same, Mallory's chloride of iron hematoxylin, Ford-Robertson's toluidin blue, thionin, Nissl's methylene blue, toluidin blue counterstained with erythrosin, uranium carmin, Van Giesen's stain, Weigert's fibrin stain and the same author's stain for elastic fibres were used on about 400 sections. Small areas of vascular sclerosis, recent (agonal?) hemorrhage, increase in glia tissue, corpora amylacea were found in the spinal cord. In the cervical region there was an aberrant bundle of fibres. In the higher levels of the cord capillary polymorphonuclear thrombi and chromatolysoc and pigmentary changes were seen in the nerve cells. The relative intensity of these latter findings remained approximately constant, i. e., where the thrombi were numerous the changes in the nerve cells were greater. The same applied to medulla and corpora quadrigemina. In the cortex there was but little of these changes to be seen; more in the optic thalami. The muscles showed nothing that had not previously been described. There was no trace of the thymus found.

Bilateral Oculomotorius Palsy from Softening in Each Oculomotorius Nucleus.—Dr. WILLIAM G. SPILLER of Philadelphia read this paper saying that bilateral oculomotorius palsy developing in an apoplectic attack, syphilitic in origin, implicating every muscle supplied by the oculomotorius in each eye, resulting from bilateral softening as two separate lesions confined to the nuclei of these nerves; without implication of other cranial nerves except the opticus, and without other symptoms except preceding mental disturbance, convulsions and some change in the patellar reflexes and succeeding extension of each big toe from plantar irritation were the chief features in the case reported in this paper. The author discussed the several symptom-complexes resulting from vascular occlusions he had studied, viz.: The occlusions of the posterior inferior cerebellar artery, of the uppermost portion of the anterior spinal and adjoining portion of the vertebral arteries, of the cervical anterior median spinal artery, of the vessels supplying the inner segment of each lenticular nucleus, and (in the case reported in this paper) of occlusion of the vessels to the oculomotorius nuclei. In the last mentioned condition there were symmetrical softening and paralysis of all branches of the oculomotorius, although the paralysis may not be complete in all the muscles innervated by the nerve; there were also involuntary incoördinate movements and great rigidity with unconsciousness at the onset of the attack.

Lesions of the Hypophysis and of the Uncinate Region, with the Records, Clinical and Pathological, of a Series of Cases.—Drs. CHARLES K. MILLS and WILLIAMS B. CADWALADER of Philadelphia presented this paper. The paper was based on a series of eight cases, two of which had been previously shown at another society, both before operation. Of the eight cases one had presented uncinate without pituitary symptoms, necropsy in that case showing a large tumor involving the uncinate convolution, but extending into other regions of the cortex and subcortex. Of the other seven cases three presented both pituitary and uncinate phenomena of a decided character. In the other four uncinate symptoms were absent, pituitary phenomena being pronounced. These phenomena, however, were of a mixed character, illustrating dyspituitarism rather than either hypo- or hyperpituitarism. In one of the cases with decided uncinate symptoms no lesion of the temporal lobe was discoverable. In one case, in which the patient died after operation, a necropsy showed a tumor involving the fundibulum and pineal gland adjoining structures. In three of the operated cases pathological conditions of the hypophysis were found at the operation and confirmed by microscopical examinations of parts of the tissue removed. The authors are favorable to the frontooperation of Dr. Frazier for the exposure of the hypophysis. They believe it has distinct advantages over that of approach by the nasal route. Only operation, however, gave successful results in a limited number of cases. The authors of the paper discussed the manner of the production of the conjoint pituitary-uncinate symptom-complex.

Dr. J. RAMSAY HUNT of New York asked whether Dr. Cushing had any cases of complete transitory blindness referred to him. Dr. Hunt said he had had quite recently, with Dr. Kinnicutt at the Presbyterian Hospital, a case of pituitary disease in which there were no changes in the sella turcica. The man was placed on extract for two or three weeks. He returned to the hospital saying that he had been seized quite suddenly in the engine room, where he was working, with blindness which had lasted for four hours at the time Dr. Hunt saw him. It seemed that the blindness had something to do with the acromegalic signs.

Dr. HARVEY CUSHING of Boston, in reply to Dr. Hunt's query, said that he had seen many cases of scotomata, and these scotomata, as de Schweinitz had pointed out, were very apt to occur in the upper outer quadrant. They were largely due to the fact that there was apt to be fluctuation of these symptoms. The gland swells against the chiasm which accounts for the loss of vision in the upper and outer quadrant. In cases which had passed beyond the stage to be cured by operation he would limit himself to a minor measure, such as the mere relief of pressure, rather than a large major operation, such as the exposure of these structures through the frontal region. Such a lesion as a cyst was, of course, easily approached from below. The duration of the stay of the patient in the hospital from operation by the transsphenoidal route is comparatively a few days. It is not much more than submucous resection of the septum, which the laryngologist not infrequently practices in the Out-Patient Department. There have been 104 patients in his series and there have been 75 surgical cases. In 46 of the 75 there had been the transsphenoidal operation; in 22 subtemporal decompression and eight have had transsphenoidal and temporal decompressions. So that there have been 93 operations. There have been nine fatalities, about 10 per cent. Most of these fatalities occurred in the early series. Thus of these fatalities most of them were cases which to-day we would recognize as inoperable or would adopt a simple measure. Two of them were simple subtemporal decompressions with very large tumors. He thought the operation merely took part of the growth. It was inconceivable that one could remove the entire growth. If the growth was accessible from below he thought it should be approached from below. What we want to do is to make room for enlargement of the growth. We could not remove it entirely. He felt that this measure to which Dr. Frazier had again called attention, and which was first advocated by Hartley and subsequently by Krause, was in Dr. Frazier's skilful hands a measure that very likely could often do good, but it was one which Dr. Cushing said he would feel very badly to have come into general use.

Huntington's Chorea: A Study in Heredity.—Drs. SMITH ELY JELLIFFE, ELIZABETH B. MUNCEY, and C. B. DAVENPORT of New York presented this paper. In the last ten or twelve years they had been able to get together enough information to show that one could group these cases of Huntington's chorea into four large groups. For the last four years Dr. Muncey has spent all the time working on this material, with the result that practically of the old family Huntington chorea in this country has come from five distinct families. The names of these families are now fairly well known. It has taken thirteen years to collect the material and it will take five or ten years more to present complete analyses of what the material shows. At the present time it confirms the statement frequently made that Huntington's chorea does not skip a generation. If any individual is free from the disease that individual's offspring will be free. Once the line of descent is free, always free. If one individual does not have the disease it means that he does not have it in his germ cells and hence cannot transmit it. The practical application of this rule to eugenics was diminished by the fact that Huntington's chorea does not come on until late in life. As to marrying, each member feels that he may escape and, if he considers the matter at all, runs the chance. In a person whose onset is relatively late in life it is to be expected that the parents will often die before the disease was due to develop in them. In certain of the families one would find the cropping out of the Huntington chorea, nothing in the antecedent heredity, and later it turns out that there was illegitimacy, so that occasionally comes into these charts to explain the law of Mendelian dominance.

The Perimetric Deviations Accompanying Pituitary Lesions.—Dr. HARVEY CUSHING of Boston read this paper stating that in a series of 104 examples of pituitary

disease, the greater number accompanied by manifestations of tumor, due either to an enlargement of the hypophysis itself or to a superimposed lesion, changes in the fields of vision have been present in a large proportion of the cases. Few physicians at the present time venture to make a diagnosis of an hypophyseal lesion in the absence of a bitemporal hemianopsia; and it has been Dr. Cushing's experience that the majority of the neurologists and ophthalmologists through whose hands these patients have passed have hesitated to make such a diagnosis—although there were obvious deviations from the normal in the perimetric outlines—for the reason that these deviations did not show the characteristic bitemporal defect with a more or less definitely vertical meridian separating blind from seeing fields. As a matter of fact, in a considerable number of these cases the field defect has been an homonymous one; for when the enlarging gland bursts through its dural capsule it may extend into the interpeduncular space to one side of the chiasm rather than in a median posterior position. The opportunity has been given in this series of cases, not only in many instances to follow the progressive changes in the visual fields as the defect advances, but also to follow the steps by which the normal peripheries become restored after a transsphenoidal operation when partial removal of the growth has afforded relief from pressure. These experiences have shown that in the majority of instances the defect advances in very characteristic fashion, usually beginning in the upper and outer temporal field and affecting color vision before vision for form. These minor changes are as typical of a retrochiasmal lesion as is the full-blown textbook picture of complete bitemporal hemianopsia. Furthermore the defect rarely advances with equal steps in the two eyes, and consequently for each individual eye it proves to be a matter of clinical convenience to divide the advancing process into stages, as follows: Stage I shows merely a notch, often quadrantal, in the upper temporal field for color, though there may be in addition some slanting off of the form field. This is due to the fact that the ventral crossed fasciculus is affected by the pressure at an earlier stage than is the dorsal crossed fasciculus, the transmission of color impulses suffering earlier than the transmission of form impulses. Stage II.—In this stage a beginning quadrantal constriction in the form field follows upon the quadrantal defect for colors. Stage III.—Here color vision is more or less completely lost in the entire temporal field, the form constriction remaining practically quadrantal, with beginning encroachment upon the lower temporal field. Stage IV.—In this stage hemianopsia is complete for form and colors, the macula still being spared by the otherwise practically vertical meridian. Stage V.—Hemianopsia remains complete for form and color, the macula now being included in the vertical meridian, there being in this stage often an actual complete macular blindness for colors. Stage VI.—Macular vision is lost for form as well as colors and the nasal field begins to shrink from the vertical meridian. Stage VII.—Color vision is entirely lost and a patch of vision for large objects remains, usually in the lower nasal quadrant. Stage VIII.—Blindness. The least affected eye progresses in the meantime along the same route; for it cannot be emphasized too strongly that the process rarely advances with equal steps in the two eyes. Indeed, commonly enough one eye may be completely blind, whereas the other may show a condition in Stage I, or indeed with no observable change whatsoever. Even after Stage VIII with blindness has been reached some vision may be regained by operative measures, which goes to show that the disturbance is brought about not only by an anatomical destruction of the fibers through a process of degeneration but also by a physiological block to the transmission of impulses superimposed on the actual atrophic changes. Though the prospect of a return of vision therefore is not utterly hopeless, even when blindness has supervened, it is nevertheless of great importance for us to recognize these evidences of chiasmal pressure in their early stages. Pituitary disease, as I must continue to emphasize, is a common malady, heretofore largely overlooked. One serious complication of the disorder is a so-called primary optic atrophy, and this is in many respects the most obvious of the neighborhood symptoms and one for which surgical measures are as definitely indicated as when dyspnea is produced by pressure against the trachea in cases of goitrous enlargement of the thyroid gland.

Tuesday, May 6—Second Day.

General Palsies Without Demonstrable Anatomical Findings.—Dr. John H. W. Rhein of Philadelphia read this paper. He said that cases of cerebral palsies without demonstrable lesion in the brain and without implication of the pyramidal tracts had been frequently reported. These palsies were usually of toxic origin, such as occur in nephritis, tuberculosis, lead poisoning, puerperal infection, and alcoholism. There was also a group of cases of hemiplegia without disease of the pyramidal tract in which was found in the basal ganglion a lesion consisting of lacunæ. There were besides these a large group of cases described as infantile cerebral palsy. In a number of these cases no true degeneration was found in the pyramidal tract but a fineness of the fiber, a scarcity of fiber, incomplete myelization, imperfect development of the pyramidal tracts or atrophy of the pyramidal tracts is found. What was the cause of the paralysis in the three cases Dr. Rhein reported of this type had been undetermined. Whether it was due to some deficiency of nerve cell which baffled present methods of study, to faulty connection between various layers of the cortical cells, whether the nerve fibers in the pyramidal tract had not developed in sufficient numbers in the lower levels of the cord, or whether the fineness of the fibers interfered with this perfect function by offering undue resistance to the transmission of the motor impulse from the cortex and thus preventing the full motor discharge to reach the periphery was still a matter for study in the future to determine.

The Value of X-Ray Analysis of the Gastrointestinal Tract in Some Types of So-Called Functional Nervous Disorders.—Drs. L. Pierce Clark and Archibald H. Busby of New York presented this paper. They said that in a careful and complete *x*-ray analysis of eight cases of idiopathic epilepsy associated with severe gastrointestinal disorder the authors found some form of abnormal position of the viscera (ptosis) which they judged to be pathological in each case and which they connected up with some of the clinical symptoms in the individual case. They outlined a system of physical therapeutics to overcome the gastrointestinal ptosis which had been of functional benefit. They advised a routine *x*-ray examination in every case of genuine epilepsy with severe indigestion as an aid in exact diagnosis and treatment of the indigestion and the convulsive disorder itself.

Dr. D. J. McCarthy of Philadelphia said that he could support what Dr. Clark had said in his paper from an extensive study of the past year on not only this group of cases, but the entire group of functional cases that come to the neurologist's office. Wherever there had been any suspicion of gastrointestinal involvement, he had *x*-ray tests made. The percentage of cases of what had been considered the purely functional neuroses in which one gets lesions not only equal to those shown in Dr. Clark's group of cases, but even more intense, was surprising. Among those cases operated on, where they had been well selected, uniformly excellent results had been obtained.

Dr. Herman H. Hoppe of Cincinnati said that he believed that, while the study of this condition was very interesting, before the profession could come to any conclusion as to the therapeutic results a larger number of cases must be studied. There was, on the part of a great many patients, an objection to having an operation of a serious character done for a primary condition that had existed for a long time. Some practitioners have found the straight front corset to answer nearly all purposes. One case of epilepsy occurred to him as presenting complete recovery following operation.

Dr. J. W. McConnell of Philadelphia said that he was not interested in the surgical side of these cases, believing, as he did, that the matter of internal therapeutics had not been sufficiently worked out. There was too much tendency to go ahead and carve up these patients. For several years he had been working very carefully at the condition of displacement of the abdominal organs with direct reference to their effect upon the nervous system and incidentally upon the general digestion. In the matter of treatment of these cases he had largely been depending upon abdominal supports made of very heavy adhesive plaster. Up to the present time he had certainly 300 or more cases in which there had been very distinct relief of the gastrointestinal symptoms and a very definite improvement of the peculiar toxic condition which those patients naturally get into.

Dr. C. A. L. Reed of Cincinnati said that he had had a number of these cases referred to him, notably by Dr. Hoppe and Dr. Langdon, and he had had some very satisfactory results following surgical restoration of these displacements. It was no more possible to reduce these displacements by medicines than it was to reduce a dislocated elbow with a dose of pills. He had not infre-

quently applied bandages, trusses, and so on with benefit, temporary or partial. But that that treatment can by any possibility restore the patient to normal condition was something not for a moment believable.

Dr. Edward B. Angell of Rochester, N. Y., said that as soon as you have corrected the intestinal fermentation that distends the bowel and causes the pressure permanent relief will be afforded the patient. He has many times had the pleasure of taking off the supports and leaving the patient much more comfortable.

Wednesday, May 7—Third Day.

Dr. Philip Zenner, Cincinnati, First Vice-President, in the Chair.

The Interpretation of Differences in Mammalian Brain Weight in Terms of the Structural Elements.—Dr. Henry H. Donaldson of Philadelphia read this paper. He said that among the different species of mammals of increasing size and increasing brain weight, present information justified the general conclusion that the larger brains were composed of the greater number of structural elements. Within a given species, however, the question arose whether the number of elements in the large brain was really greater than in the small brain, or whether we were to regard the large brain as composed of the same number of structural elements as the small brain—the size of the elements accounting for the difference in gross size. In man we found differences of 10 to 20 per cent. in the brain weights among the two sexes and at different ages after maturity. There was about the same range of difference in brain weight in the rat—the brain of the very large, wild Norway being about 20 per cent. heavier than that of the corresponding domesticated albino. Using the rat as the species for study, the following relations have been found: The brain weight was alike in the two forms (wild Norway and albino) during the first three weeks of life. The relative weights of the divisions of the brain are alike in the two forms, despite the difference in absolute weight. The percentages of water in the several subdivisions are similar in both forms. The observed number of medullated fibers in one peripheral nerve (nervus peroneus) is the same in both forms. The size of the cell bodies in several localities was found to be greater in the Norway than the albino. Finally, as the weight of the brain was closely correlated with the body size, it was possible to produce from the same litter by modifications of diet animals with brains of different absolute sizes. These brains presumptively contain the same number of neuroses. All this points to the general conclusion that in the case of the rat the differences in the size of the brain are due to differences in the size of the elements. If we apply these tests to man, we find that so far as the observations exist the results are similar. It was concluded, therefore, that within a given species of mammals—illustrated by man and the rat—the difference in the absolute weight of the brain either within the same sex, or when the two sexes are compared, was mainly due to differences in the size of the constituent elements.

Dr. E. E. Southard of Boston said that as to the question of agenesia versus aplasia connected with the dementia præcox brains which he had been studying he found that the various persons with whom he had talked felt that, for instance, in a small brain in dementia præcox patients there might well be agenesia. If these conclusions of Dr. Donaldson were correct, it might be that the small brain of dementia præcox, like the small heart or small aorta, was an instance of aplasia or hypoplasia rather than agenesia. Agenesia should mean a condition in which certain elements are lacking; while aplasia should mean an alteration in the negative direction, in the size or other qualities of the cells. There were no gradations in respect to agenesia: it was either genesis or agenesis. We should be careful how we speak of the brains as examples of agenesia. If we get used to employing the word agenesia, we will come to think that dementia præcox means an absence of certain elements; whereas, it may not at all mean such. In fact, the evidence would seem to the speaker to be rather that the dementia præcox brains were in possession, perhaps, of their normal quantity of elements. Many counts would have to be made to make this point good.

Dr. Henry H. Donaldson of Philadelphia said he had recently been over a short series of brains belonging to deficient and defective children from the Vineland (N. J.) Institution; and, separating them into their larger divisions of cerebral hemisphere involvement, etc., and taking the weights of these he was rather surprised to find that the weight relations were those of the normal brains, in most cases. His own interpretation, in fact, was in favor of the view that the elements composing these brains were small in size, rather than deficient in number.

Experimental Study of Intraneural Injections of Alcohol.—Dr. Alfred Gordon of Philadelphia read this paper. He said that the experiments were carried out on dogs with the object of determining the effect of alcohol on motor and sensory or mixed nerves. The facial, infra-orbital, and sciatic nerves were exposed by dissection during anesthetization with chloroform and 5 mm. of 80 per cent. alcohol were injected. The first series of dogs were kept alive nine days, the second series 29 days. Not only the periphery nerve-trunks, but also the nuclei (Gasserian and spinal) were examined microscopically. The facial nerve was traced through its course in the medulla. The histological and clinical findings were then given in detail. The conclusion to which the author arrived was that while very little or no damage was done to a motor nerve, the sensory and mixed nerves presented very little resistance to the effect of alcohol. Irreparable damage might be done in the latter case, but in the case of motor nerves restoration of function was almost the rule. Illustrations of the histological findings were appended.

Dr. Israel Strauss of New York said that he could in a way bear witness in confirmation of the author's results. Two years ago he saw a patient into whose sciatic nerve there had been an injection of alcohol, the result of which injection was a complete paralysis of the muscles of the leg. This paralysis lasted over one year; and, in addition to said paralysis, there developed trophic ulcers upon the foot, also a marked edema. There was at the end of a year almost no sign of restoration of the power of those muscles and the trophic ulcers, while they would heal, would appear in new regions. It was his opinion that probably the trophic condition of the foot put that patient in such jeopardy that amputation might eventually be necessary.

Dr. Edward B. Angell of Rochester, N. Y., asked Dr. Gordon whether he had examined the sciatic nerve after the injection of a saline, rather than alcohol. This would be rather interesting because such injections are now made by men who are using injections for the relief of neuralgias.

Dr. Peter Bassoe of Chicago said he considered it his rather painful duty to tell about an experience with an injection in a case of sciatica—not with alcohol—but with salt solution, a method which he had used a good deal, and which he was still using. In the summer of 1908 he injected a number of cases at the Cook County Hospital of Chicago, and a number of cases were injected by the internes, both in the speaker's service and in that of his colleagues. There was one typical case of sciatica injected by an interne; and within, say, half a minute, or at most within one minute, a complete sciatic paralysis was produced. The needle was introduced through the buttocks rather high up, using the landmarks advised by some French writers and drawing the line from the conjunction of the coccyx and sacrum over to the upper border of the trochanter. The patient was a nervous man; he did not like the feeling of the needle and jumped. Possibly that had something to do with it, but at any rate the paralysis and loss of sensation were instantaneous. I at once examined him and found there was complete paralysis of all the muscles below the knee and loss of all forms of sensation. The man's sciatica was cured and never returned. The patient still has a complete paralysis of those muscles.

Dr. Alfred Gordon, answering Dr. Angell's question regarding personal experience in injecting saline solution, said that he had had quite a number of cases that had been relieved, but not cured, by physiological salt solution. He had tried in two cases the injection of plain distilled water and had obtained equal results as with the saline solution. He had never observed such a danger as Dr. Bassoe had mentioned from injecting saline solution into the sciatic nerve.

The Rôle Which Heredity Plays in Inducing Epilepsy in Children Suffering from Infantile Palsy.—Dr. L. Pierce Clark of New York and Dr. Edward A. Sharp of Buffalo, N. Y., presented this paper. They stated that in a comparative analysis of some 886 cases of epilepsy, divided equally between those suffering from the idiopathic disease and hemiplegic epilepsy, the authors found that the heredity charts of the two classes were practically identical quantitatively and qualitatively. They therefore deduced the conclusions that the prognosis in any cerebral

hemiplegic child predisposed to epilepsy because of his palsy was enormously increased by the presence of a hereditary neuropathic constitution in a given case, and that the palsy *per se* played a secondary role and a much less important one than heretofore supposed.

Dr. E. E. Southard of Boston said that at the Psychopathic Hospital the chief of the out-patient department, Dr. Lucas, had been working upon heredity in epilepsy, and an interesting confirmation of Dr. Clark's conclusions was in process of being obtained. The worker had spent eight months upon the heredity in these cases, and had unfortunately been unable to establish what the speaker and his associates thought she might establish, namely, the difference in the heredity features in the organic and inorganic cases. Dr. Southard said that he would judge that an intensive work upon this small number of cases would entirely confirm Dr. Clark's results.

The Feeble-Minded in Massachusetts Outside of Institutions.—Dr. William Noyes of Boston read this paper. He stated that this inquiry was undertaken under the direction of the State Board of Insanity, which had the duty of recommending to the Legislature the provision that should be made each year for the institutional care of the feeble-minded. Heretofore no data have existed that would give an adequate idea of the extent of the provision needed because of the varying estimates of the number requiring institutional care. All the available sources of information were utilized and the data received were entered on cards, one for each individual. The cards were finally brought together in alphabetical order to prevent duplication, showing a listing of 5,007 individuals, 2,640 males and 2,367 females, who were considered by one or more persons as being feeble-minded. These totals do not include returns from the schools of the five large cities of Boston, Cambridge, Lowell, Fall River, and Salem. It is estimated that there are at least 628 institution cases in the schools of Boston. It is easily seen, therefore, that the institution cases in the schools of the four other cities would increase the totals in a very marked degree. On the other hand, it must not be assumed that the 5,007 individuals listed in the census are by any means all institution cases. Defective delinquents have been rejected when known to be such. For the purpose of comparison with the State census of 1905 a more intensive study of a given section, including 21 towns, was made; 105 feeble-minded individuals were found, while the State census gave but 37, a very marked difference. If the same proportion held throughout the State, the total number in the community would be 7,861. A committee has prepared tables estimating the cost to the State of three feeble-minded families—the W—— family and two branches of the B—— family. The tables are made on the estimated cost of caring for a feeble-minded child by the State Board of Charity at $180 a year until the average age of 33. The totals of these feeble-minded children are as follows: 9 members of the W—— family will cost the State $30,705; 7 members of the B——I family will cost the State $21,470; 3 members of the B——II family will cost the State $12,600.

Dr. L. Pierce Clark of New York considered the census which Dr. Noyes had made as highly important from many points of view. He was rather surprised to find from Dr. Noyes that the number of feeble-minded in Massachusetts was relatively small. In New York City alone there were over 7,000 uncared-for in the schools, even at a conservative estimate, without a definite census being made. In New York the profession had doubts as to whether the special classes for instruction could serve other than as a makeshift until segregation in colonies could be undertaken. It was the best thing that offered itself.

Dr. William Noyes of Boston said that segregation with them meant merely committing the subjects to the schools at Waverly and Wrentham, State institutions. Of 87 women under the charge of the State Board of Adult Poor, 68 were known to have had children—92 illegitimate and 17 legitimate, making a total of 109 children borne by 68 feeble-minded and borderline mothers. The statistics did not, as a rule, include the borderline cases because for various reasons authorities would not report a case unless pretty well marked. Dr. Noyes believes that all States having to deal with this problem will have to come to this, that there shall be a definite census made of them and of those the profession would look on as more dangerous, and that the State shall assume charge of all these and say they cannot have their liberty.

Dr. Dana of New York stated that the latest estimate of New York State had something like about 5,000 of this class, and so it seemed to him the estimates mentioned by Dr. Noyes rather confirmed the estimates made in New York.

Dr. Noyes said in conclusion that he was surprised and gratified when the inquiry into these special towns came out that it practically agreed with what was generally put out, about 1 in 500. He obtained the data himself in the summertime.

Lesions of the Hypophysis from the Viewpoint of the Surgeon.—Dr. Charles H. Frazier of Philadelphia read this paper, in which he presented four cases of hypophyseal disease in which the hypophysis had been approached by his transfrontal intracranial method. There were no operative fatalities. He called attention to the advantages of this over the transsphenoidal method, as indicated by his own experience and from a review of sixty-five operations by various surgeons who had used the extracranial approach. He called attention to the difficulty in determining before the operation what the nature or size of the lesion was. The same clinical picture would be present in all sorts of hypophyseal lesions, including hyperplasia, benign and malignant growths. Any one of these lesions might lead to evidences of hypo- or hyperpituitarism or to neither. The only evidence of pituitary disorder in many cases was revealed in the visual disturbances and the signs of intracranial tension without the least suggestion of the perversion of the metabolic processes. The confusion that had arisen in the minds of the experimentalist as to how vital the hypophysis was for the maintenance of life was called attention to, and Dr. Frazier was inclined to accept the opinion of those who had found in animals that complete removal was not incompatible with life. He referred to the further confusion in the minds of the pathologists as to the classification of pituitary tumors, and showed how comparatively benignant was the life history of certain malignant lesions, so that in the presence of malignancy the beneficial effects of operation would extend over a number of years. The author reviewed the indications for surgical therapy, the beneficial results of which were seen in the majority of instances in the relief of the visual disturbances, headache, psychic disorders, and to a less extent of the symptoms of acromegaly and dystrophy. He found it of advantage in his own cases to combine glandular feeding with surgical intervention and did not believe that operation should be resorted to, except in the presence of impending blindness, until glandular feeding had been given a trial. He was quite fully convinced that in the future the transfrontal method of approach would be adopted by the general surgeon, and, if the transsphenoidal method were used at all, it would be practised only by the specialist trained in the technique of intranasal procedure. Palliative procedures, such as temporal or sella decompression, were only of questionable value and only transitory in their influence upon the symptoms.

Dr. Cramer said that in 1911 there had been brought to him a patient who, in 1873, had become completely blind. This, of course, was before the days of pituitary agitation or much pituitary knowledge. In 1911 she appeared with the pituitary syndrome and died with inanition in the latter part of that year. Here was a patient who lived with pituitary tumor, blind, from 1873 until 1911. If operation could not influence or retard the development of compression symptoms, it made no difference how safe the operation might be, whereas, if the intracranial route would do this to a greater extent because, as Dr. Frazier had pointed out, the tumor most frequently grows upward, that operation would be the one that should be developed.

Dr. Alfred Reginald Allen of Philadelphia said that in the past year Dr. Frazier had sent him four specimens of scrapings or excisions from a part of the pituitary. The point of interest was the discrepancy of opinion of various men as to what these growths were. He had been greatly interested in the peculiarity of the process simply from a morphological standpoint, and whereas, the profession had a very complete idea, from the histological and histopathological aspect, of chronic interstitial nephritis, and many other things of that kind, yet when we came to the pituitary our knowledge was very slight. The speaker believed that one reason for knowing so little was that the surgeon would dig out a piece in the operating room and set it aside, and the piece would remain until after the operation, and in the meantime dry out and thus reach the pathologist's hands in bad condition for study. If surgeons would care better for these tissues we would soon know a great deal more about the histopathology of neoplasms of the pituitary body.

Dr. Herman H. Hoppe of Cincinnati said that he had in his possession a brain tumor that had been obtained before the days of the *x*-ray, and also before the days of

much knowledge of hypophyses. It was a hard fibroma, that was probably two inches in diameter. It never could have been removed by the transnasal route. To-day this case would have been diagnosed at once, and could have been removed very easily by the transfrontal route. This man's life would have been saved, absolutely, providing the surgical technique had been successful.

Dr. Charles H. Frazier of Philadelphia stated that in his paper he had tried merely to state the problem from the standpoint of the pathological features with which surgeons had to deal in order to open the way to some conclusion as to the best method of dealing with this problem. He had tried to be conservative, at least in his estimates of the usefulness and the limitations of surgery. The point he wished to emphasize, however, was that these so-called malignant lesions do run a very benign course, and when these tumors are large in proportion they grow up toward the hemispheres and not down, so that they were more readily approached from above; also that in most of the operations done through the endonasal methods, there had been a very incomplete removal of what in many instances was a very large tumor, and, lastly, that, in the hands of most surgeons discussing general surgical procedure, the intracranial method would prove to be the safer of the two. When one recalled to mind the anatomical features of these two operations, it would be observed that one could draw a line from the tip of the nose, or one approximately from the upper lip back through the sphenoid processes to the sella turcica, which line would be longer than a similar line through the supraorbital ridge to the sella turcica. If in the early stage of the operation, one would puncture the dura over the frontal lobe, so that during the subsequent stages the cerebrospinal fluid was allowed to escape as freely as it would in order to afford an opportunity for the displacement of the hemisphere from that portion, if one displaced the frontal lobe upward, with the patient's head in the so-called Rose position, if then, one had a suitable headlight, which in some instances is necessary and in some not, according to the character of the day, a very correct view could be had down to the optic foramen, or down to the point where the optic nerve passed through the optic foramen. It was not necessary to remove the rim of the foramen. When you were at the apex of the orbit you were really within a trifling distance of the pituitary body, and it remained then only to make a transverse or horizontal incision in the dura about a quarter of an inch above the floor of the base of the skull in order to avoid the sinus, it remained only to make this horizontal incision in the dura to expose the contents of the sella turcica. As thus described, this sounded like a very simple procedure, which it was. In most instances it was more simple than the exposure and removal of the Gasserian ganglion, this not because he was partial to the operation, but he thought there were other surgeons who had tried the method who would confirm what he had said. The speaker had had a conversation last night with Dr. Elsberg of New York, who had done the operation only once, and had been really surprised at the comparative simplicity of it and at the facility with which he had reached the sella turcica and exposed a large round growth, and subsequently removed it with most striking results. The matter was still subject to question and we could not come to any definite conclusion on one side or the other, but the speaker still felt that eventually we would find that, if the pituitary body be approached, and, if the lesions of the pituitary proved to be amenable to surgical therapy, the transfrontal approach would be the more desirable of the two.

Election of Officers.—The following officers were elected for the ensuing year: *President,* Dr. Henry Hun of Albany, N. Y.; *Secretary-Treasurer,* Dr. Alfred Reginald Allen of Philadelphia, Pa.

Case of Ossification in the Brachialis Anticus.—E. M. Corner reports the case of a young man who fell on his hand a few months ago, fracturing the lower end of his radius. There was no complaint of any injury or pain in the neighborhood of the elbow-joint. Later the patient discovered a painless lump in front of the elbow. A skiagram showed that this lump was due to some ossification in the brachialis anticus muscle. Presumably this was the result of a partial rupture of the muscle, done unconsciously at the same accident.—*Proceedings of the Royal Society of Medicine.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Publications of the Massachusetts General Hospital. Vol. IV, No. 1; 365 pages; paper; illustrated. Jamaica Printing Company, Boston.

Medical Union Number Six. By William Harvey King. Cloth; price 50 cents; 60 pages. Boericke & Tafel, Philadelphia, Pa.

Müller's Serodiagnostic Methods. By Ross C. Whitman, B.A., M.D. Illustrated; cloth; price $1.50 net; 146 pages. J. B. Lippincott Company, Philadelphia and London.

Vaccine and Serum Therapy. By Edwin Henry Schorer, B.S., M.D., D.P.H. Second revised edition; cloth; price $3.00; illustrated; 300 pages. C. V. Mosby Company, St. Louis.

Yearbook of the United States Department of Agriculture, 1912. Cloth; illustrated; 784 pages. Washington Government Printing Office.

Geschichte der Ohrenheilkunde. By Dr. Adam Politzer. Vol. II; paper; price 24 marks; illustrated; 484 pages. Ferdinand Enke, Stuttgart.

Technique Microscopique. By Etienne De Rouville. Cinquieme edition; cloth; illustrated; price 8 francs; 721 pages. Vigot Frères, Paris.

Le Mal Tête. By Dr. Seigmund Auerbach. Paper; price 3 francs, 50; 220 pages, Vigot Frères, Paris.

Bossuet. By M. le Prof. A.-F. Le Double, de Tours. Illustrated; paper; price 5 francs; 301 pages. Vigot Frères, Paris.

Medecins et Médecine en Ethiopie. By Docteur Merab. Paper; price 4 francs; 218 pages. Vigot Frères, Paris.

The Influence of Monarchs. By Frederick Adams Woods, M.D. Cloth, 422 pages; price $2.00 net. The Macmillan Company, New York.

Food and Feeding in Health and Disease. By Chalmers Watson, M.D., F.R.C.P.E. Second edition; revised; cloth, 638 pages; price $5.00 net. William Wood & Company, New York.

The Relations of the Lachrymal Organs to the Nose and Nasal Accessory Sinuses. By Prof. Dr. A. Onodi. Illustrated; cloth; price $4.25 net. William Wood & Company, New York.

Laboratory Methods. By B. G. R. Williams, M.D., assisted by E. G. C. Williams, M.D. Second edition; illustrated; cloth; price $2.50; 210 pages. C. V. Mosby Company, St. Louis.

Collected Papers from the Research Laboratory. Reprints Vol. I; paper; illustrated; 287 pages. Parke, Davis & Company, Detroit, Mich.

Summaries of Laws Relating to the Commitment and Care of the Insane in the United States. Prepared by John Koren for the National Committee for Mental Hygiene. Paper; 207 pages; price $1, postpaid. Published by The National Committee for Mental Hygiene, New York.

Eleventh Annual Report of the Bureau of Science. By Alvin J. Cox. For the year ending August 1, 1912; paper; illustrated; 81 pages. Bureau of Printing, Manila.

Diseases of the Rectum and Pelvic Colon. By Martin L. Bodkin, M.D. Cloth; illustrated; price $3.50; 416 pages. E. B. Treat & Company, New York.

Burdett's Hospitals and Charities, 1913. By Sir Henry Burdett, K.C.B., K.C.V.O. Cloth; 1047 pages; price 10/6 net. The Scientific Press, London.

Massage, Manual Treatment Remedial Movements. By Douglas Graham, M.D., with a chapter on Massage of the Eye. By Dr. A. Darier.. Fourth edition; illustrated; cloth; 574 pages. J. B. Lippincott Company, Philadelphia.

Acute Poliomyelitis. By Dr. Ivan Wickman. Illustrated; paper; 135 pages; price $3.00. The Journal of Nervous and Mental Disease Publishing Company, New York.

Medical and Surgical Reports of the Boston City Hospital. Sixteenth series; cloth; illustrated; 265 pages. Published by the Trustees, Boston.

Preventive Medicine and Hygiene. By Milton J. Rosenau. Cloth; illustrated; 1074 pages. D. Appleton & Company, New York and London.

Formulas for Infant Feeding. Mellen's Food Company, Boston.

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Original Articles.

IS APPENDICITIS EVER CATARRHAL?

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MORRIS, ILL.

The caption, catarrhal appendicitis, is one which is found in all classifications of disease of the appendix and is used to designate clinically those cases which show only slight but long-continued or persistently recurrent symptoms. Clinically the meaning of this term is clear and may suffice, but when the cases come to be classified upon the basis of the pathology present we find the widest divergences of opinion and description, each author using the title, feeling called upon to explain just what he means in a pathological sense by the heading, and these explanations run a certain gamut of meaning or uncertainty of meaning, which varies directly with the familiarity of the writer with the microscopical pictures which occur in the sections of appendices removed at the operating table. Those with the least familiarity of the kind describe the most typical picture and are more nearly at one as to the nature of the conditions described, while, strangely enough, those who have made a special study of this complicated little corner of microscopical pathology are much less concise in their description of catarrhal appendicitis and vary most among themselves in regard to the physical appearances which occur in this form of inflammation. All of this leads one to suspect that there is something wrong with the caption and that there is perhaps something of a handicap imposed thereby in the preconceived ideas which the classification involves.

Of the older descriptions of catarrhal appendicitis the following is perhaps a fair average example, being contained in the "American Text Book of Surgery," second edition, page 742. The italics are mine. *"If we could see such an appendix* we would undoubtedly find swelling and congestion, hypersecretion, nerve irritation. It seems theoretically unreasonable to suppose that in every such case there is necrosis of epithelium, or infection even of low grade. It is probable, however, that there is even in the mildest cases an exudate under pressure in the submucous and muscular coats of the wall of the appendix and a slight adhesive peritonitis of very moderate extent." The above is followed by a description of a moderate attack of appendicitis under the heading of "the usual symptoms of such a case as we are considering." This is frankly theoretical and is plainly an attempt to carry over to the appendix by analogy a type of catarrhal inflammation which is very definite and of very familiar aspect in other organs. It was chosen for citation here because it accurately expresses what we would expect to find in an appendix which we had already made up our minds was the seat of a catarrhal inflammation and because I believe it very closely approximates the picture of a mild and inoccuous type of inflammation which all of us hold up before our mind's eye when in the presence of a mild case of appendicitis. And lastly, it is cited here because this is the picture toward which all the less informed writers tend in their description of the pathology of catarrhal appendicitis, their description varying the more widely from it, the more extensive their actual observation of sectioned appendices.

Those who have studied these appearances extensively under the microscope and have then attempted to make the pathological phenomena, which they have actually observed, correspond to the classification and phraseology which they inherited from the older writers, have found themselves put to some difficulty, as is evinced by the two following quotations, to which I shall limit myself: The first is from Wm. C. McCarty (*J. A. M. A.*, Vol. IV, p. 488) who, perhaps, has done more extensive microscopical investigation of the appendix than any other American observer. He says: "To the pathologist the classification of the conditions found is similar to that made for the surgeon, but includes the acute catarrhal condition, which is rarely if ever seen in the strictest sense. It is difficult to obtain a specimen in which the term acute catarrh can be correctly used unless the term be extended beyond its real meaning and be allowed to include the extension of the process in the mucosa to the underlying submucosa, lymph follicles, and even through the lymphatics to the subserosa. The extension of the condition is so rapid when the process in the mucosa is acute that it is difficult to conceive of its being confined to the mucosa, as the name signifies. It may be well, however, since the name has become so well established in our nomenclature, to continue its usage with the modification that although the process has its origin in the mucosa, the submucosa and follicles share very early in the reaction." All of this would constitute a wide modification indeed from the accepted type of a catarrhal inflammation. Any severe inflammation of the appendix originating in the mucosa would come within the sphere of this definition. A little further along he says: "Appendicitis catarrhalis chronica arises as a result of repeated mild and severe acute catarrhal conditions and is marked by an increase of scar tissue and distortion of the normal regularity of the coats and glands." All of this is an evident attempt to fit the findings to a preconceived classification, rather than making a classification to fit the findings.

Note the differences in the following quotation based on the microscopical study of a series embracing two thousand cases, reported by Moschcowitz and Moschcowitz from the Mt. Sinai Hospital

in New York (*Archiv f. klin. Chir.*, Vol. 82, p. 683): "The appendix is usually flaccid; the surface is more or less reddened; in more than one-half of the cases adhesions are present with the parietal peritoneum or the surrounding organs. The individual layers are thickened; the mucosa is more or less hyperemic, and the lymph follicles are swollen. The lumen contains mucus or muco-pus, or, perhaps, feces. Frequently fecal concretions are found." They speak also of catarrhal appendicitis *with abscess!*

Evidently these two observers are speaking of entirely different groups of pathological phenomena under the same name in their efforts to make their findings fit an erroneous classification. I think these quotations will serve to bring forcibly to the attention the confusion which obtains in the classification of the lesser forms of appendiceal inflammation and the urgent need of a classification which will lead our observers less astray. Also these considerations serve to rouse the suspicion that the clinical cases which we call catarrhal appendicitis, and in which we picture to ourselves an appendix affected by a comparatively harmless inflammation of the mucous coat, may be affected by some other form of inflammation which is not so innocent. To answer these questions and quiet these surmises I took the appendices of eight cases of chronic appendicitis, who had never had an acute attack, but from whom the appendices had been removed for long-continued tenderness, or recurrent slight attacks of pain. No one of these cases had ever been sick in bed a day from their appendices. Each of these were sectioned extensively. In all nearly three thousand sections were examined. In no one of these appendices did I find a condition which could in any proper sense be designated a catarrhal appendicitis. In every case the findings plainly spelled out a past or present purulent inflammation, differing in no way except in degree from the severe inflammations of the appendix, which we hold in such wholesome respect. And practically every appendix contained conditions which subjected the patient to grave danger of being the victim of a severe purulent inflammation in the future. Two cases showed healed perforations of the appendix. One showed a perforation in which the healing process was not yet complete. Another showed a peculiar and interesting condition which could be interpreted only as the result of an abscess having formed in the appendiceal wall, with a final emptying of its contents, which fortunately ruptured into the lumen of that organ instead of into the peritoneal cavity. A detailed study of the various cases is appended at the close of the article together with microphotographs of the more interesting conditions.

Let me emphasize two points. First, none of these cases, all of which were picked because the symptomatology would most certainly classify them as chronic catarrhal cases, showed a pathology which could by any stretch of the imagination be designated as catarrhal, unless that term here means something very different than it does in any other part of the body; second, that all of these grave pathological changes in the appendix had taken place without causing general disturbance enough to put the patient in bed for a single day. All but one of them contained conditions which I should have considered as incompatible with the clinical histories. A search of the literature, however, showed me that these observations were not without ample support and convinced me that the term catarrhal appendicitis is not only meaningless but so gravely misleading that our ideas of chronic appendicitis must undergo some rather far-reaching modifications. To this end I wish to gather together here various clinical and pathological observations which stand in the literature.

First, it has been frequently pointed out and is the experience of all who do a considerable amount of appendiceal work, as who does not, that neither the clinical histories nor the clinical conditions are any guide to the extent of the pathological phenomena which may be present within the abdomen. Many observers have commented on the singular lack of correspondence between the findings and the clinical histories, both as to the surprising lack of pathological changes in cases with severe clinical manifestations, and in regard to the ofttimes astonishingly extensive changes involving unexpectedly severe and dangerous operations after the mildest of clinical histories. Moschcowitz and Moschcowitz (cited above) say "Acute catarrhal appendicitis. The course is usually milder than the destructive variety. The onset is not so stormy, there is usually no chill, etc., etc.—*As we know from experience, however, that these symptoms are deceptive and that cases like those above described can hide a gangrenous or even a perforated appendix, we have found it advisable to operate on many of these at once.*" The italics are mine. W. Hagen, in the *Beiträge zur klinische Chirurgie*, Vol. XLVI, p. 177, reports several severe interval cases without marked physical findings. Such references could be multiplied indefinitely. Moreover, there is a very considerable number of cases in the literature in which severe inflammations of the appendix have been demonstrated that have caused no symptoms that could in any way be reasonably ascribed to the appendix, prior to the operation or post-mortem. Of these I would here refer to those which have been reported by von Haberer at the Naturforscherversammlung in Dresden, referred to by Goedecke, which embrace a series of seven cases of advanced age who were afflicted with the severest obstipation, with great emaciation, in whom there were no abnormal findings over the abdomen, no tenderness over McBurney's point, nor any previous history of appendicitis, nor any point or jot upon which to hang a diagnosis of appendicitis. And yet at the performance of an exploratory laparotomy there was found in each extensive adhesions on and about the appendix with thickening and kinking of this organ, and scars in the mesenteriolum. No malignant growth of any nature was present anywhere in the abdominal cavity. All recovered after removal of the pathology about the appendix. Haberer considered these symptomless cases of appendicitis to be peculiar to advanced age, but Goedecke, in a communication from the clinic of Sonnenberg of Berlin (*Deutsche Zeitschrift, für Chirurgie*, Vol. 95, p. 320), reports six cases in young individuals, all of whom were operated on for acute ileus, in whom the cause of the ileus was found to be adhesions and scar contractions of the appendix and mesenteriolum, due to past and present inflammations of the appendix. He declares that not one of these patients had either in his history nor in his clinical findings a single symptom which ought to have led to a suspicion of an appendiceal process. Ewald, Sonnen-

berg, and Sprengel have described a type of appendicitis which they have variously designated an appendicitis larvata, or latent appendicitis, in which the diagnosis is very difficult because symptoms referable to other organs occupy the foreground of the picture. These symptoms may direct suspicion to the stomach, liver, gall-bladder, bladder, or female adnexa, or may show such general nervousness and debility as to appear under the picture of a neurasthenia or a hysteria. They even mention cases in which disturbance of the heart function was the dominating feature of the clinical picture. On the other hand, although not so often commented upon in the literature, the symptoms may be unusually severe and the alterations in the appendix found at the operating table surprisingly slight. I think all of us have at times felt a sense of disappointment upon finding in a case with severe symptoms, an appendix little, if any, altered in its gross appearance, only to observe a very satisfactory restoration to health after the removal of the inoffensive appearing organ. A most striking case of this kind came within my own experience a short time ago. A young married woman, the mother of one child, had been the victim of two very severe attacks of what appeared to be acute appendicitis. After the second attack she did not recover her general good health, but remained in a condition of prostration. Although her temperature did not run above 99°, she complained of recurrent colicky pains over the entire abdomen, with a constant tenderness and soreness over the right side. The pains extended into the right limb to such a degree that she was unable to walk or straighten the affected leg and she was practically confined to her bed. This condition had continued for a couple of months and was slowly growing worse. There was a definite area of greatest tenderness over McBurney's point. At the operation we found at the site of the appendix a tiny tag of mesenteriolum, and upon it a tiny appendix of the diameter of the lead of a lead pencil and about one-quarter of an inch long, the nature of which could not be certainly determined until it was under the microscope. It was adherent to nothing and showed no signs of present inflammation. A thorough exploration of the abdominal cavity failed to show any other diseased condition and the abdomen was reluctantly closed with a distinct sense of failure. To our surprise her recovery was as rapid as it was complete.

Wherein lies the explanation of this complete lack of correspondence between the symptoms and the pathological findings which so often obtains in appendiceal cases? The observations of Lennander upon the sensibility of the various portions of the abdominal cavity, which have been painstakingly established and amply corroborated, furnish a full and complete explanation of the variations which have been described. Lennander, in his articles on the sensibility of the abdominal structures (*Centralblatt f. Chirurgie*, 1901, S. 2, *Mitteilungen a. d. Grenzgebiete d. Med. u. Chirurgie*, Bd. X, 1903, S. 3, 1906, Bd. XV, und XVI, *Deutsche Zeitschrift für Chirurgie*, Bd. 73-4) shows from observations made at the operating table under local anesthesia, of which he makes the most extensive use, that all the organs which are supplied only by the sympathetic and the vagus below the origin of the recurrent, have no sensation for pain, pressure, heat, or cold. All pain in the abdomen arises from irritation of the nerves in the parietal peritoneum, derived from the intercostal, lumbar, sacral, and phrenic nerves. His work has been sustained by Bier, Propping, Hain, and others, and I may say that in three laparotomies performed under local anesthesia I have taken occasion to corroborate to my own satisfaction the main points of Lennander's observations.

In this paper we must of necessity ignore all of the far-reaching conclusions of import to surgery which arise out of Lennander's observations, and neither can we enter into the interesting contention which has arisen as a corollary concerning the origin of the pain of intestinal colic, but must confine ourselves to those considerations which have a direct bearing upon the interpretation of the processes which have their seat in the appendix. Lennander has shown that the entire intestine, including the appendix, is without sensation. It may be handled, pinched, cut, or torn, without exciting sensation of pain. Only when the trauma is so applied as to make traction upon the mesentery and bring into play the branches of the spinal nerves which run in the posterior parietal peritoneum, is pain produced. So in inflammatory conditions we may conclude that as long as the inflammatory process is confined to the appendix alone we have no pain produced and only when it extends by contiguity to the anterior or lateral peritoneum, or more commonly by continuity along the lymphatics of the mesenteriolum to the posterior parietal peritoneum is pain appreciated by the patient. Lennander has already pointed out that McBurney's point, the seat of tenderness in chronic appendicitis and the diagnostic point of tenderness in all forms, corresponds not to the location of the appendix but to the location of that point where the lymphatics of the mesenteriolum first meet the sensory branches of the spinal nerves at the root of the mesenteriolum. (*Mitteilungen a. d. Grenzgebiete der Medizin und Chir.*, Vol. XV, p. 475.)

With these considerations in view one can now easily explain to himself all the many variations which occur in the appendiceal picture. It is now plain how even perforations of the appendix might occur in processes sharply limited to the appendix proper without the production of great pain or disability. On the other hand, one can understand that if the greater part of the chronic process which had its origin in the appendix, were played out in the derived lymphatics in direct contiguity with the posterior peritoneal subserous sensory nerve fibers, the sensory disturbance might well be entirely out of proportion to the gross findings present in the appendix. These considerations will also explain the perplexing findings with which we have all met in cases who have been subject to a sudden severe attack without any evidence of a previous appendiceal inflammation, and yet in whom the appendiceal region shows dense adhesions and inflammatory conditions which we cannot conceive of as having been produced within the few hours or days of the acute attack which preceded the operation.

Knowing as we do that the entire intestinal tract is subject to catarrhal conditions, *i.e.* to mild inflammatory conditions involving only the parenchymatous layer and accompanied by a hypersecretion of mucus, it would be absurd to contend that the appendix, in every way part and parcel of that intestine and identical in structure and function,

alone was immune from such a condition. On the other hand, it is equally absurd on sober second thought to assume that so small an area of intestinal surface as the appendix constitutes could produce such surprising symptoms as to stand out from the rest of the picture of intestinal catarrh unless we should assume that the mucus were in some way obstructed from free outflow from the appendiceal canal. That this does occur in high grades of occlusion the occurrence of mucocele is evidence, but if it occurs in lesser grades of stenosis sufficiently to produce appendiceal colic it is strange that we do not more often meet with appendices distended with mucus at the operating table. In fact, in view of the predominance of lymphoid elements in the appendix and the types of inflammation usually found upon microscopical examination of appendices, it is my opinion that the primary inflammation of the appendix is rather lymphoid than catarrhal in nature. In fact Aschoff, in an article not accessible to me, is said to have demonstrated that the primary seat of inflammation in the appendix is the lymph follicle.

In view of all the assembled facts it is easiest to believe that although the appendix in common with the rest of the intestinal canal may be subject to catarrhal inflammations the symptoms arising from it are not sufficient to make themselves evident from a clinical viewpoint unless there is a complete stenosis of the appendiceal canal, and that the low grades of appendicitis that we see clinically are not due to a catarrhal inflammation at all, but to ordinary inflammatory processes caused by the pus organisms, differing in no way from inflammatory processes as known elsewhere in the body, either in their nature or in their capacity for exacerbation and destructive action. In view of what has been said the inquiry naturally arises as to how frequently inflammatory conditions of the appendix exist which have caused few or no symptoms. There is evidence available that it is very frequent. Kümmel, in the *Archiv für klinisch Chir.*, Bd. 92, p. 371, quotes Aschoff, the great German pathologist, as stating upon the basis of his enormous post-mortem work that four-fifths of all adult mankind show disease of the appendix at post-mortem. Siegfried Oberdorfer (*Mitteilungen a. d. Grenzgebiete*, Vol. XV, p. 653), in a report based upon 600 autopsies in which he subjected the appendices to exact and largely microscopical examination, says that in the large majority of cases he found that the appendix had passed through a previous inflammation, "so that," he says, "completely normal appendices belong among the greatest rarities." Ribbert, who was the father of the now exploded idea of physiological obliteration of the appendix, said that "inflammation of the appendix must be extraordinarily more frequent than supposed, because obliteration occurred so frequently." Oberndorfer, commenting on the above remark, says: "We come to the conclusion, from our observation, that this extraordinarily frequent occurrence is actually a fact and that not only obliterative appendices, but nearly all appendices show alterations which are to be referred to inflammatory processes." Much more authority will be readily found upon search among the special writings of those who have devoted themselves to the study of pathology only, which will substantiate this idea, which, indeed, has been well recognized among the pathologists proper for a long time, and, indeed, has been the nub about which have been waged some very pretty controversies, upon one of which we will shortly touch. But I think the weight of authority of the names and work above quoted suffice to enable even those to whom the idea is new to accept it as a fact that the appendices of at least the large majority of adult humanity are at some time during life the seat of inflammatory changes. That these inflammations did not in the majority of cases produce symptoms which were recognizable of course goes without saying.

However, all of the men above mentioned, with the single exception of Aschoff, felt themselves obliged to assume that the inflammatory changes discovered at post-mortem were caused by a chronic inflammation, in order to account for the lack of symptoms which accompanied it, an acute inflammation in the abdominal cavity, of the grade necessary to explain the findings which they observed, that did not produce pain and other recognizable symptoms, being to their minds unthinkable, in the light of the knowledge which they then possessed. To explain this anomalous situation they assumed a form of chronic inflammation not known elsewhere in the bowel and which, moreover, had and has never been observed in the actual process of transpiration. No such subterfuge was possible to the masterly mind of Aschoff, and, though he had at that time no explanation to offer of the difficulties mentioned, he baldly states that the inflammatory changes observed in these cases must have been caused by acute processes. In the light of Lennander's studies upon the sensitiveness of the various abdominal structures, it is easy for us to clear away the difficulties which confused these older writers and account for the symptomless course of these processes without assuming a hypothetical form of chronic inflammation.

The question of the frequency of such perforations as I have described arises. There are a large number of healed perforations reported in the literature, although usually the history of the cases does not accompany the report. Most of these have been reported under the heading of diverticula or false diverticula of the appendix. While this misleading title has been adhered to by pathologists as well as clinicians, many of the former have recognized the true nature of these abnormalities. Indeed, there are in the literature a number of cases which are direct parallels to the cases which I have reported in this paper, in which the perforations were found in cases which did not present corresponding histories. Max von Brunn, in *Beiträge zur klinische Chir.*, Vol. XLVI, p. 67, reports a number of cases of diverticula of the appendix and publishes a number of most beautiful and instructive plates of the microscopical pictures found. He says: "If we now turn to the question of the origin of the diverticula, it is easy to demonstrate that they arise upon an inflammatory basis and have apparently all been preceded by a perforative appendicitis." He quotes a number of cases from various authors, among them several from Mundt. One of these is a diverticulum which was due to perforation in a man who died of acute heart trouble, and who had never had an attack of appendicitis. Mundt explains this "most peculiar case, which," he says, "stands isolated in the literature," upon the basis of a chronic inflammation. Von Brunn also cites three cases from Lejars and Menetier, who found such diverticula with slight clinical histories. Upcott, in *Sur-*

gery, Gynecology, and Obstetrics, Vol. VI, p. 454, reports a similar case. And George Ben Johnson, in the same volume, on page 614, reports a perforation in a case where the patient's history was "absolutely negative as to previous attacks of abdominal pain." Thus we may conclude that inflammation of the appendix is so very common that four-fifths of all mankind show that they have passed through it before death overtakes them, and we may conclude that these inflammatory processes, whether they produce symptoms or not, are of the same nature and sort, differing only in degree, as the more severe inflammations with which we are accustomed to associate thoughts of danger and death. Shall we wonder, then, that as our knowledge of appendicitis grows the number of cases which seem to demand operation grows? Certainly the ravages of appendicitis in the face of the progress of surgery are still frightful. Kümmel, in an address before the German Surgical Association in 1910 (reported in *Archiv für klinische Chir.*, Bd. 92, p. 371), states that upon the basis of Prussian statistics the greatest mortality from appendicitis occurs between the ages of ten and twenty-five, and that at this age more people die of appendicitis than of all other diseases put together. I regret that no reliable American statistics are available upon this point. Undoubtedly our mortality is a little lower than that of Prussia, for the American profession is a little less conservative than the German profession—a little quicker to operate. Yet one has only to look about him, only to search his individual memory, to realize that the death rate from this disease is still enormous even in this country. A diminution of this mortality seems to be possible only through, first, the abandonment of the idea that there are any innocuous forms of appendicitis, especially the abandonment of the term and the idea of catarrhal appendicitis, the recognition that all recognizable forms of appendicitis, no matter how slight the phenomenon, bear great possibilities of danger, and secondly, through a strenuous effort to so increase our diagnostic resources in this disease that we will eventually be able to recognize those latent forms which at present escape our diagnostic acumen until the patient has already been overtaken by a condition of grave immediate danger.

The following conclusions seem warranted from the above researches and argument. First, the gross appearance of the appendix is never a sufficient criterion of the severity of the pathology present. Second, absolutely no idea of the nature or severity of the inflammation of the appendix can be formed from the clinical symptoms. Third, appendicitis may run its course through perforation of the appendix and subsequent healing without symptoms which will admit of its recognition, nor, indeed, of severe symptoms of any kind. Fourth, the clinical condition designated as catarrhal appendicitis does not have a catarrhal inflammation of the appendiceal mucosa as a pathological basis and is, therefore, a misnomer which is dangerously misleading to the general profession. Fifth, no catarrhal inflammation truly speaking has ever been described as a pathological finding in appendicitis. The term should for all these reasons be definitely abandoned. Lastly, appendicitis is much more frequent than usually assumed or than is indicated by our present means of diagnosis. The mortality of this disease is still of grave proportions and the only measure which offers any prospect of immediate reduction of this mortality is early operation upon all recognizable cases.

Case I.—Miss M. R.—Appendix, 12 cm. long. Diameter at tip, .7 cm.; middle, .8 cm; cecal end, .5 cm. Total number of sections, 690. Block I.—Tip. Some sections were made from extreme tip so as to include just so much mucosa as to simulate an obliteration of the lumen. These sections are distinctly characterized by the presence of longitudinal bundles intruding upon and even within the circle of the circular bundles. The bundles of the two layers seem to run more or less together, to anastomose. Normal lumen containing detritus. Epithelium perfect. Glands rather few. Follicles increased in number, 9 in section saved. Intrusion of connective tissue upon mucosa. Round cell infiltration of submucosa. Muscularis normal. Number of sections from this block 82. Saved, 5. Block II.—Near tip. Lumen large, containing polymorphonuclear cells. Glandular layer atrophic. Lymph follicles increased, 8 to 10. Submucosa normal. Muscularis normal, except pierced by good sized blood vessel almost opposite mesenteriolum. Peritoneal coat dilated capillaries or adhesions with peritoneal cysts (which?). Number of sections from this block, 185. Saved, 2 sections. Block III.—Middle. Lumen normal or a little large. Epithelium low. Glands few. Lymphoid tissue much increased. Submucosa sparse, and round cell infiltration. Muscular coat normal. Peritoneal coat dilated capillaries containing polymorphonuclears. Number of sections from this block, 87. Saved, 1. Block IV.—Near cecal end. Lumen small, .2 cm. in diameter, containing fecal matter. Epithelium low but complete. Glands few and short. Lymphoid tissue shows great hypertrophy, 10 to 12 nodes. Very large and much lymphoid tissue between. Muscular coat normal. Some sections show fresh hemorrhage into lymphoid tissue. One section shows a blood vessel piercing muscular coat away from the mesenteriolum. Number of sections from this block, 91. One section saved. Block V.—Cecal end. Lumen completely blocked by an egg or seed (round cells) with small spines all about the capsule. Polymorphonuclears within the capsule and a few outside in the lumen of the appendix. Epithelium very low. No marked reaction of the presence of the foreign body. Moderate number of polymorphonuclears under the epithelium. Glands decreased in number. Lymphoid tissue decreased in amount. Submucosa increased. Muscularis normal. Number of sections from this block, 67.

Case II.—Miss G. G.—Appendix, 7 cm. long. Diameter at tip, .5 cm.; diameter 5mm. from tip, .8 cm.; middle, .5 cm.; cecal end, .7 cm. Injected surface and appearance of

Fig. 1—Perforation. Case II.

concretion at .5 cm. from tip. Block I.—Tip. Shows obliteration of lumen by connective tissue. No epithelium seen, few remnants of lymphoid tissue. Fat invading obliterating connective tissue to some extent. No sections saved. Number of sections examined from this block, 47. Block II.—Proximal from block I. Lumen wide, contains

concretion. Glandular layer rich. Follicles many, 8 or 9. Moderate distortion of mucous tube. Submucosa rich and fat. Muscular layer normal, and peritoneal coat normal. Small fresh hemorrhages throughout tissues. Number of sections examined, 140. None saved. Block III.—Proximal from block II. Two types of section. One type has a lumen of 2 by 3 mm. in diameter. Epithelium low but perfect. Little fecal matter in lumen. Glands many, but short. Lymph nodes many, 10 to 12. Mucous tube evidently distorted, as there are glands cut longitudinally and transversely, and the lumen is usually eccentric. Type 2. Lumen large, 5 mm. in diameter, filled with fecal matter containing vegetable fibres and a seed. Epithelium low, missing in spots, but no inflammatory reaction. Lymph nodes, 5 or 6, small. Submucosa, and muscularis, and peritoneum normal. Number of sections examined from this block, 81. No sections saved. Block IV.—Proximal from III, and middle of appendix. Lumen wide, contains fecal concretion. Mucous tube distorted, drawn close to muscular layer on one side, and at a considerable distance from it on the other side, interval being occupied by connective tissue and fat. The epithelial layer shows glands in transverse and longitudinal sections. Lymph follicles are large and plentiful on side, on which there is a considerable interval between mucosa and muscularis. They are small and scant on the other side. Number of sections examined from this block, 46. No sections saved. Blocks V. and VI.—Proximal from IV. Lumen wide, Y shaped. Considerable distortion of the mucous tube. Little hemorrhage. Number of sections, 56. None saved. Block VII. —Cecal end. Some sections are incomplete on one side, the lumen standing open so as to make a horseshoe. The opening of the horseshoe and the lumen are blocked with a large fragment of mucosa. There is hemorrhage about the fragments, and there are round and polymorphonuclear cells in the hemorrhage. Some sections show a direct continuity between the legs of the horseshoe and the large fragment blocking the opening. There is a fine fibrinous clot covering all exposed surfaces. There is hemorrhage into the mucosa at various points about the lumen, containing polymorphonuclears. Fresh perforation. Number of sections examined of this block, 142. Three sections saved. (See Figure 1.)

Case III.—Miss R. M.—Appendix about 11 cm. long. Irregular in diameter, contains concretion near tip. Tip, .5 cm.; middle, .5 cm.; cecal end, .6 cm. Total number of sections, 208. Block I.—Tip. Concretion in lumen. Lumen large, epithelium low, glands few, and atrophic. Follicles, only traces. Epithelium shows areas of ulceration. Muscular layer thin but complete. Number of sections of

Fig. 2—Extreme distortion of the mucous tube, showing two lumens. Case III.

this block, 25. Saved, 2. Block II.—Near tip. Large lumen, empty (concretion lost). Glandular layer thin, but many glands short. Few nodes. Connective tissue layer thick, much fat. Muscularis thin but perfect. Sixty-four sections. None saved. Block III.—Middle. Large, perfect lumen, collapsed in middle of section. Lumen contains many pus cells. Epithelium perfect, except two areas of ulceration. Glands well developed. Ten to 11 follicles present. Mucous tube much distorted. *A second lumen* lined with epithelium and lined with glands, is present just under the muscularis, opposite to the mesenteric attachment, extending in a crescent one-half to three-fourths

Fig. 3—A peculiar healed perforation with prolapse of considerable mucous membrane. Case V.

of the circumference of the appendix. Muscularis thin but perfect. Three sections saved. Total number sections in this block, 51. Block IV.—Cecal end. Obliteration of lumen. In some sections remnants of mucosa, few glands, and a follicle. In others, no trace of mucosa but its place taken by a young connective tissue, in solid mass, whose lymphatics are filled with polymorphonuclear cells. Submucous connective tissue layer increased, filled with fat, and containing large blood vessels which contain polymorphonuclears. Muscular coat complete, but at mesenteric border a peculiar small pseudo-diverticulum. Adhesion on periphery. Number of sections examined of this block, 32. Three sections saved. (See Figure 2.)

Case IV.—Miss M. M.—Appendix, 12 cm. long, .7 cm. at tip, .8 cm. at middle, .5 at cecal end. Total number of sections made, 690. Block I.—Tip. Some sections made from extreme tip, where just so much of the mucosa was included as to simulate an obliteration of the lumen. These sections are distinctly characterized by the presence of longitudinal bundles intruding upon and even within the circle of the circular bundles. The bundles of the two layers seem to run more or less together, to anastomose. Normal lumen containing detritus. Epithelium perfect. Glands rather few. Follicles increased in number, 9 in section saved. Intrusion of C. T. upon mucosa, i. e., distortion of mucous tube. Round cell infiltration of submucosa. Muscularis normal. Number of sections of this block, 82. Five sections saved. Block II.—Near tip lumen, large, containing polymorphonuclears. Glandular layer atrophic. Lymph follicles increased, 8 to 10. Submucosa normal. Muscularis normal, except pierced by good sized blood vessel almost opposite mesenteriolum. Peritoneal coat shows dilated capillaries, or adhesions with cavities somewhat like peritoneal cysts (which?). Block III.—Near tip. Lumen small, 2 mm. in diameter, containing fecal matter. Epithelium low but complete. Glands few and short. Lymphoid tissue shows great hypertrophy, 10 to 12 nodes, very large and much lymphoid tissue between. Muscular coat normal. Some sections show fresh hemorrhage into lymphoid tissue. One section shows a blood vessel piercing muscular coat away from mesentery. This one section saved. Block IV.—Middle. Lumen normal, or a little large. Epithelium low. Glands few. Lymphoid tissue much increased. Submucosa sparse and round cell infiltration. Muscular coat normal. Peritoneal coat dilated capillaries containing polymorphonuclears. Number of sections of this block, 87. Saved, 1 section. Block V.—Near cecal end. Lumen irregular, 2 mm. in diameter. Epithelium intact. Glands rich. Follicles 8 to 9. Submucosa muscularis peritoneum normal. No sections saved.

Number of sections this block, 91. Block VI.—Cecal end. Lumen completely occluded by an egg or seed (round cells) with small spines all about the capsule. Polymorphonuclears within the capsule and a few in the lumen of the appendix. Epithelium very low. No marked reaction against the presence of foreign body. Moderate number of

Fig. 4—Distortion of the appendix due to the formation of an abscess between the mucous and muscular coats. Case VI.

polymorphonuclears under epithelium. Glands decreased in number. Lymphoid tissue decreased in amount. Submucosa increased, muscularis normal.

Case V.—Miss E. M.—Appendix about 7½ cm. long. Irregular in diameter. Contains three large concretions. Tip blunt hook shaped. Total number of sections, 184. Block I.—Tip. Cross section through protrusion of blunt hook shows it to be caused by an old healed perforation of the appendix, through which a portion of the mucosa has prolapsed and then the perforation has closed again. (See Microphotograph). Number of sections from this block, 83. Block II.—Middle. Very large lumen, irregular shape, columnar, epithelium low, and in places missing, glandular epithelium present in large quantities, most of glands cut transversely as rings, therefore section is not exactly trans-

Fig. 5—Pseudo-diverticulum. A condition simulating a healed perforation. Case VII.

verse of mucous tube. Seven to 8 follicles to section. Muscular layers thick, both circular and longitudinal layers are hypertrophied. Number of sections to this block, 34. Block III.—Cecal end. Complete obliteration. Some sections from this block show a lumen of varying sizes, others show obliteration with a little lymphoid tissue marking the former site of the lumen, others show obliteration in which a connective tissue string has replaced the mucous tube, leaving not a trace of parenchymatous tissue. Number of sections examined from this block, 67. Saved, (See Figure 3.)

Case VI.—M. B.—Appendix about 7 cm. long. Tip, .4

Fig. 6—Old healed perforation with obliteration. Case VIII.

cm. in diameter; middle, .5 cm.; cecal end, .5 cm. Total number of sections, 174. Block I.—Obliteration. Tip. Number of sections examined, 73. One section saved. Block II.—Middle. Lumen, .2 cm. Contains fecal matter and pus. Glands normal. Follicles, 6. Muscular coat normal. Number of sections from this block, 35. None saved. Block III.—Cecal end. Muscular coat not thickened Lymphatic follicles, 6 and 7. Lumen almost entirely occupied by double fold of mucosa which projects into lumen from a broad base on one side. From the same point the muscularis is folded outward into a tit-like projection from the appendix wall, so that the fold of mucosa and the fold of muscularis lie base to base. Evidently a small abscess has formed in the appendix wall, which has raised the mucosa away from the muscularis and stretched out both layers. When the abscess broke through the mucosa, as shown in one section, the cavity so collapsed as to project the fold of mucosa into the lumen and a fold of muscularis in an opposite direction. Pus cells are present in the lumen beyond the mucous fold and in the fold itself, and in the blood vessels at the base of the fold, also a collection in the base of the fold in one section. Number of sections from this block, 66. Nine sections saved. (See Figure 4.)

Case VII.—Mrs. J. S.—Appendix 12 cm. long, .7 cm. in diameter at tip, .8 at middle, .5 at cecal end. Total number of sections, 321. Block I.—Tip. Lumen, wide, contains inspissated fecal matter. Epithelium in places low and free from glands. In places epithelium absent, and infiltration of polymorphonuclears. Polymorphonuclears in masses in places between concretion and epithelium in lumen of the appendix. Number of sections from this block, 79. One section saved. Shows a blood vessel piercing the muscularis, *not* at the mesenteriolum. Block II.—Middle. Lumen small, contains masses of polymorphonuclear cells. Epithelium fairly intact. Some polymorphonuclears under epithelium in lymphoid tissue. Lymphoid tissue rich. Five to 7 follicles. On mesenteric border break in muscularis, and lymph follicle protruding through the break. Lymph follicle distorted into a goblet shape, with the small point in the break. Diverticulum is along a blood vessel with thickened walls. Normal. Number of sections from this block, 119. Saved, 9 sections. Block III.—Cecal end. Through poor preparation the muscularis is lost in specimens saved. Intact epithelial layer. Lymphoid layer rich. Lumen contains polyp composed of lymphoid tissue surrounded by normal epithelial layer, thrown into many convolutions which are variously cut across. It is a portion of the mucosa protruding into the lumen as a polyp. Two sections saved. One shows base of polyp, the other shows

tip hanging free in lumen of appendix. In places there are breaks in the epithelial covering of the polyp, and a slight polymorphonuclear infiltration. Number of sections from this block, 64. Two sections saved. (See Figure 5.)

Case VIII.—Mrs. I. L.—Appendix about 5½ cm. long. Diameter at tip, .5 cm.; middle, .6, and cecal end, .5. Total number of sections examined, 176. Block I.—Tip. Obliteration of lumen a short distance below tip, with extreme distortion of relations. Some sections show a protruding loop of muscularis opposite the mesenteric border, with only a thin string of circular fibres completing the circle within. The lumen is obliterated at this level and such remnants of mucosa as are present are drawn close up against this weakened spot in the muscularis. Diagnosis, healed perforation. Total number of sections from this block, 102. Saved 8 sections. Block II.—Middle. Lumen large, epithelium low, incomplete in places, with continuous strings of polymorphonuclears beginning in lymph follicles and extending into lumen. Glands much decreased in number. In section saved a lymph follicle seemingly emptying into lumen. Fat of submucosa increased in amount. Muscular layers normal. Sections from this block, 45. One section saved. Block III.—Cecal end. Lumen large. Thin walled mucous tube composed mostly of glandular elements. Lymphoid tissue decreased. Submucosa increased. Muscularis much distorted. Number of sections from this block, 29. None saved. (See Figure 6.)

BACTERIOLOGICAL STUDY OF A CASE OF HEMORRHAGIC MYELOMALACIA.*

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The organism here described has been studied and reported upon on account of certain points in its biology, which seem to separate it from the *Micrococcus intracellularis* of Weichselbaum and because of the peculiar destructive lesion with which it was found associated in the spinal cord of man. The history of the patient was as follows:

H. S., Hungarian, 50 years of age, married, tailor, in St. Francis Hospital from October 27 to November 4, 1910, in the service of Dr. John Rogers. *Family history:* Parents dead. No tuberculosis or cancer in the family. *Previous history:* He had some of the diseases common to childhood, and had gonorrhea when a youth. Two years ago he noticed a change in his voice, and this condition became permanent. He used alcohol very moderately. His wife had three abortions and gave birth to one living child. She suffered from a slight cough off and on but was well otherwise. *Status:* Three weeks before admission he came from work complaining of general malaise, abdominal pain, and aneuresis. The bowels had not moved for several days. He entered St. Francis Hospital on the advice of his physician. While on the way to the hospital in an elevated train he was suddenly taken with weakness in the legs and prostration. He was transferred to an ambulance and brought to St. Francis Hospital where he was admitted to the surgical division. *Chief complaint on admission:* Retention of urine, pain in the abdomen, especially in the hypogastric region, and asthenia.

Physical examination, October 28, 1910.—Height, 5 feet, 6 inches; weight, about 135 pounds; poorly nourished; the eyes react sluggishly to light. There is no clinical report of the examination of lungs and heart. Urine, October 28, 1910, dark amber, cloudy, acid, trace of albumin, no sugar. Many red blood cells, few hyaline and granular casts, few white cells, some débris. There is a band of hyperesthesia over the abdomen, a fecal impaction of four days standing and retention of urine. The right leg is paralyzed. There is bilateral loss of knee-jerks. Sensation is retained in both legs.

October 29, 1910. The left leg is now paralyzed. There is a loss of sensation to pain and temperature in both legs. The line of hyperesthesia on the abdomen is extending further up.

October 30, 1910. Same as above.

November 1 and 2, 1910. Patient is very weak and eats little. There is a loss of sensation up to his breast and hyperesthesia above a line drawn through both nipples.

November, 4, 1910. Exitus.

*From the Department of Bacteriology, College of Physicians and Surgeons, Columbia University. (The publication of this paper has been delayed by the illness and death of Dr. P. H. Hiss.)

Clinical diagnoses: Acute Landry's paralysis. (Dr. John Rogers.) Acute infectious disease of unknown bacteriological origin of the spinal cord. (Dr. J. J. MacPhee.)

Autopsy by Dr. John H. Larkin, November 4, 1910. Anatomical diagnosis: (1) Chronic pulmonary tuberculosis. (2) Lobar pneumonia. (3) Fibrinopurulent meningitis and hemorrhagic myelomalacia. (Large segments of the spinal cord being entirely liquefied.)

Bacteriological Examination.—Although the autopsy revealed chronic pulmonary tuberculosis and lobar pneumonia, a bacteriological examination of the lung was not made and it was therefore not determined whether the organism described below was present in the lung and the possible cause of the pneumonia.

Cultures of the spinal cord were taken under sterile conditions. About 3 c.c. of the slightly turbid cerebrospinal fluid was aspirated and transferred to agar slants and into meat infusion bouillon in test tubes. The next day the fluid on agar slant was centrifugalized. In the smears made from the sediment a micrococcus was found similar in its morphology to the micrococcus of epidemic cerebrospinal meningitis. The culture appeared to be made up largely of one type of organism. Only a few rods were present. They had the same diameter as the micrococcus and disappeared entirely after several transplantations. This disappearance was at first thought to be due to the more vigorous growth of the coccus, but later it was found that the rods were "bacillary forms" of the coccus.

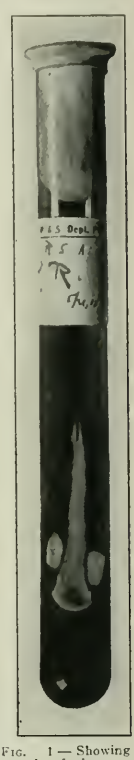

Fig. 1.—Showing growth of the new organism on slanted rabbit-serum agar.

Morphology.—Smears of the exudate and cultures were made. The organism was found to be a micrococcus of the size of *Micrococcus intracellularis* of Weichselbaum. It appeared as a diplococcus, single, as tetrads, and in short chains of four. The ratio of length to breadth was 1:1. The juxtaposed surface of the diplococcus was flat. It appeared extra- and intracellularly. In smears from the twenty-four-hour cultures a few "bacillary forms" were present and in the beginning a contamination was suspected, but these bacillary forms disappeared from time to time after careful plating and the organism was known to be in pure culture.* A year after the isolation of the organism this part of the morphology was taken up again. The "bacillary forms" and even a few long filaments appeared in smears made from twenty-four-hour cultures. After forty-eight hours, when the cocci had degenerated and stained faintly, the bacillary forms and filaments were found to be single cocci arranged in chains and held in position possibly by a common membrane. In all other respects the organism resembled the micrococcus of Weichselbaum. It had no capsule, no spores, and was also negative to Gram's method of staining. The surface colonies on blood-agar plates, when seen with the lower power, were finely granular and

*Verderame, in 1910, and others since have described micrococci which develop bacillary forms.

some of these were radiating from the center like a rosette, the red background shining through the colonies.

Growth on Various Media.—To complete the cultural study of this organism its growth on the various media was compared with that of strains of the allied species of meningococcus. A strain Fraymann (F.) of the micrococcus of epidemic cerebrospinal meningitis was obtained from Dr. Flexner of the Rockefeller Institute, and six meningococcus strains from Dr. Park of the Department of Health. Of these latter six organisms, Nos. 24 and 23 were fresh, 1, 20, 3, and 14 older cultures. The organism to be identified grew luxuriantly on all the media. The meningococcus of Weichselbaum was less vigorous and could be grown only with difficulty on ordinary meat-infusion-agar; on potatoes it did not grow at all. On neutral glucose (1 per cent.) meat-infusion-agar it seemed to thrive exceedingly well, forming a luxuriant mucous growth along the streak which resembled that of the meningococcus and of *B. mucosus capsulatus* of Friedlander. When touched with the platinum needle a long thread could be drawn out and when water was added the growth could be rolled up from the medium and moved in the water by the platinum needle just like a mass of mucus.

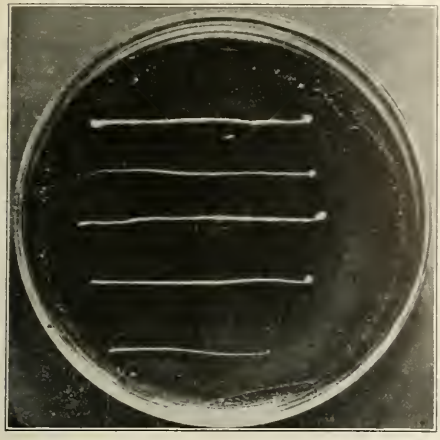

Fig. 2—Showing growth of *Micrococcus intracellularis* of Weichselbaum on plated agar

Meat-infusion-bouillon was turned slightly turbid within twenty-four hours by the unknown organism and meningococcus and there was no pellicle or sediment seen. After forty-eight hours the meningococcus had no pellicle, but a scanty grayish sediment. The broth containing the organism to be identified was, after forty-eight hours, very turbid, had a white pellicle and a grayish sediment. No change in the color of the medium was observed.

On Loeffler's coagulated serum-medium there was a luxuriant growth but no liquefaction of the medium. In glucose-meat-infusion broth in fermentation tubes there was no gas formation. The broth was turbid in the open and clear in the closed arm. After forty-eight hours a white pellicle appeared on the surface of the medium in the open arm and a grayish white sediment at the bend of the tube.

Stab cultures in gelatin tubes did not grow at room temperature.

In gelatin plates cultures developed without liquefaction of the medium.

Litmus milk was not coagulated, nor changed in its reaction, although a growth took place.

No indol was formed in Dunham's peptone broth.

Fermentation of Sugars.—In order to test the fermentation of this organism in different sugars lactose-litmus-agar and freshly prepared Hiss' serum water media were used. For comparison the seven strains of meningococcus mentioned above and one strain of *Micrococcus catarrhalis* were studied.

The unknown organism R. turned lactose-litmus agar very slightly acid at and near the streak six days after the inoculation. The different meningococcus strains and *Micrococcus catarrhalis* produced no change in this medium. The cultures in Hiss' media were kept at +37° C. Readings were made every twenty-four hours. In making the inoculation of the sugar series a heaped loopful of moist bacteria of an eighteen-hour growth on glucose agar was transferred to each tube. That the organisms were still alive in the sugar-media after seven days of incubation at 37° C. was proven by transfers to rabbit-serum-agar and glucose-meat-infusion-agar.

The experiment with Hiss' media brought out the following facts: The unknown organism R. fermented and coagulated dextrose and galactose completely in five days the first time it was tested and also five months later. Flexner's "strain Fraymann," after having been grown on artificial media for a long time, fermented dextrose and maltose much weaker in the last experiment than five months ago, the reaction becoming visible only after five days. In two tests levulose was fermented.

One organism (24) which was especially virulent and had been recently isolated, fermented dextrose, maltose, and levulose vigorously. Acid was formed in two days and coagulation was complete after four days. Three other forms of this species (23, 1, 20) fermented these three sugars weakly. Another (14) fermented and coagulated dextrose and maltose vigorously and levulose very faintly, whereas still another strain (3) had completely lost its power of fermentation of these sugars.

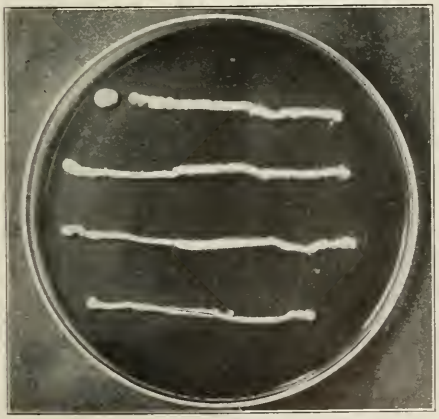

Fig. 3—Showing growth of the new organism on plated agar.

The *Micrococcus catarrhalis* tested did not ferment any of these sugars.

Thus seven cultures previously identified as typical meningococci fermented dextrose, maltose, and levulose, and one culture (3) none of the sugars tested.

The unknown micrococcus R. fermented dextrose and galactose and not maltose and levulose, and is, therefore, in this respect different from all these organisms, although it required, like them, several days to ferment its sugars.

Viability.—As the determination of viability has been found helpful in the differentiation of the *Meningococcus intracellularis* Weichselbaum from other organisms, the unknown organism R. and the seven meningococcus strains were grown at different temperatures. Micrococcus R. lived at room temperature, 20° to 21° C., in the thermostat at 37° C., and at 12° to 16° C. as long as the media were moist. The specimen kept in the ice box at 0° to 2° C. was alive after eighteen months. The other seven organisms were each transferred to four tubes of glucose-agar and, after having been in the thermostat at 37° C. for twenty-four hours they were placed in the ice box. In transferring, the loop of the platinum wire was drawn over the entire length of the surface of the culture medium so as not to miss any organisms still living, for organisms at the lower end, in the water of condensation, might have been killed by products of previous growth and, some at the upper end might have died on account of want of moisture. This is the result: One organism (23) lived in the ice box for five days. Two organisms (20 and 3) lived in the ice box for six days. Two organisms (1 and 14) lived in the ice box for seven days. One organism (F.) lived in the ice box for nine days. One organism (24) lived in the ice box for nearly six months.*

Then the eight organisms were each transferred to three tubes of glucose-agar and kept for 24 hours, one tube at room temperature, one at 40° to 41° C., and one at 12° to 16° C. The result was as follows: One organism (24) grew at all three temperatures. Four organisms (23, 20, 1 and 14) grew at room temperature and at 40° to 41° C. Two organisms (3 and F.) could thrive only at 40° to 41° C. Organism F. seemed to have lost its ability to grow at a temperature other than near to 37° C., for it behaved differently about four months previous to this experiment.†

The organisms R. and F. only were compared as to their viability in the dry state. For this purpose twenty-four hour cultures on glucose-agar were used. Several small smears were made on the bottom of each of several sterile petri-dishes which were kept in the dark at room temperature. Every day a drop of normal saline was added to a smear. A suspension of the dry bacteria was made and a loopful of this was transferred to slanted-glucose-agar tubes which were placed in the thermostat for twenty-four hours. Under these conditions organism R. lived eleven days, organism F. five days.

The Thermal Death Point.—Bettercourt and Franca, quoted by Kutscher, give the thermal death point of the micrococcus of epidemic cerebrospinal meningitis as follows: It is killed by moist heat at 60° C. in 1 minute.

Von Lingelsheim, quoted by Kutscher, states that the *meningococcus intracellularis* of Weichselbaum is killed by moist heat at 60° C. in 10 minutes.

Flexner states that suspensions of the diplococcus of epidemic cerebrospinal meningitis are killed when heated for 30 minutes to the temperature of 60° C.

The organism R. is killed by moist heat at a temperature of 60° C. in 75 minutes and at 64° C. in 10 minutes.

Agglutination.—In order to make the agglutination test three rabbits were immunized, one with "strain Fraymann" of epidemic cerebrospinal meningitis, the second with *Micrococcus catarrhalis*, and the third with the unknown organism R. A fourth serum was that from a rabbit immunized to a culture of the *Micrococcus mucosus capsulatus* obtained from Dr. Wadsworth. In testing the agglutinating power of the sera of these rabbits agglutination was noticed in the control of the normal rabbit serum and in normal saline also. This was due to the percentage of saline used, and a 0.5% saline solution was therefore substituted for the one containing 0.85% NaCl. Equal parts of the diluted sera and of the suspensions of the organisms to be tested were mixed in agglutination tubes and kept in the thermostat at 37° C. for two hours and then placed in the ice box for 18 hours.

The serum F. agglutinated its own organism in the dilution of 1:100, but did not act on organism R. or *Micrococcus mucosus capsulatus*.

The serum of organism R. agglutinated its own organism in the dilution of 1:4000 within one hour. It was therefore very active but it agglutinated organism F. only partially in dilutions up to 100 within 24 hours, forming a slight sediment and leaving the supernatant fluid turbid. *Micrococcus catarrhalis* was "salted out" and had to be excluded. The serum did not agglutinate a suspension of *Micrococcus mucosus capsulatus*.

The serum of the rabbit immunized with micrococcus catarrhalis agglutinated its own organism in dilutions up to 1 to 400 or was salted out by the ½ per cent. saline solution. No sediment was seen in the dilutions of 1:1000 and 1:4000. The liquid appeared clear after twenty-four hours, the organism having undergone autolysis. This serum did not act on organism R. F. or *Micrococcus mucosus capsulatus*.

Although it did not ferment any sugars the *Micrococcus catarrhalis* was tested because it was otherwise similar to organism R. in its morphological and cultural appearance.

Micrococcus mucosus capsulatus also failed to ferment the sugars, but its growth and morphology apart from capsule formation was strikingly similar to micrococcus R., especially in its ability to produce a mucous material on glucose-agar.

A polyvalent antimeningococcus horse-serum was obtained from Dr. Flexner and organism R. and the seven strains of the micrococcus of cerebrospinal meningitis were tested as to their agglutinative action. (A polyvalent serum prevents the in-

*Organism 24 from the Department of Health seems, according to this experiment, not to be a true meningococcus of Weichselbaum.

†December 7, 1910. F. was transferred to glucose-agar. At room temperature (21° C.) it showed after 24 hours a week but distinctly visible growth, like a yellowish white veil. The surface of the medium, kept at 16° C., was roughened along the streak and near the water of condensation. With transmitted light and a dark background the growth appeared of a slightly lighter color than the medium. There were three colonies slightly raised and easily visible near the water of condensation. The rest of the growth could only be noticed on careful examination, and was similar to that of a pneumococcus after having been cultivated for a long time on meat-infusion-agar. In the water bath, at 41.4° C. it grew well.

dividual characteristics of the different organisms from becoming prominent.)

This serum did not agglutinate organism R. at all. The others were agglutinated in dilutions of 1:40 and 1:100.

Organisms 14 and 24 formed a group by themselves, as they were even agglutinated by a ½% saline solution. According to these tests organism R. is not a strain of *Micrococcus intracellularis* of Weichselbaum.*

The pathogenicity of this organism was only tried on rabbits. Quantities of 2 c.c. of a 24-hour growth in bouillon injected intravenously killed rabbits weighing 1200 grams in 18 hours. The organism was recovered from the heart blood. Quantities less than 2 c.c. injected intravenously failed to kill, the animal invariably recovering. Attempts to exalt the virulence of this organism in rabbits were not successful. Intraspinous inoculations with 1/5 of a 24 hour agar culture suspended in 1 c.c. saline killed a rabbit of 1500 to 1800 grams within 18 hours. There was apparently no difference in the action of washed or unwashed organisms. In

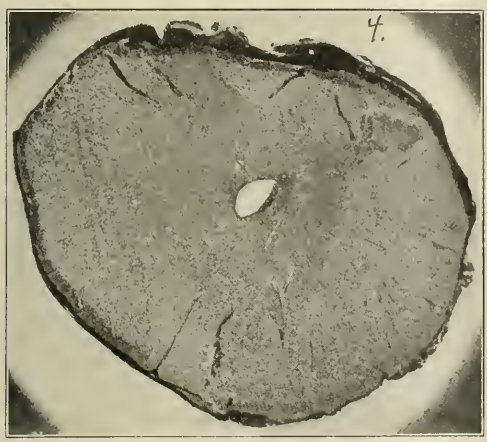

Fig. 4—Section of spinal cord in lumbar region of rabbit No. 7 (low power).

order to determine whether the effect of these inoculations was due to the development of the organisms as parasites or to the toxic action of the culture introduced I inoculated rabbits intravenously with 24-hour broth culture filtrates free from bacteria. Four c.c. of the filtrate would kill a rabbit weighing 1200 grams in 16 hours. The organism was not recovered from the heart blood in these cases.

These experiments prove that the cells of the micrococcus R. contain poison and also are in a degree parasitic.

Intraspinous Inoculation of Animals.—For purposes of control I inoculated one rabbit with the meningococcus (strain Fraymann). One-fifth of a 24-hour agar culture suspended in 1 c.c. salt solution was injected under the dura of the spinal cord by lumbar puncture. The following day the rabbit was sick, nervous, and excitable; the hind legs were paralyzed. These symptoms increased, the paralysis extending upward and the temperature falling below normal until the animal died the sixth day after inoculation. At autopsy a few of the organisms were found in the cord but they were numerous in the heart's blood. The cultures were pure. This rabbit gave symptoms and lesions of ascending paralysis seen in man. There were no lesions of cerebrospinal meningitis, simply a degeneration of nerve cells and their processes of brain and cord.

Then six normal rabbits weighing from 1500 to 1800 grams were each inoculated intraspinously with a suspension in 1 c.c. saline of the fifth part of washed micrococci R. of a 24-hour growth on agar. Immediately after the inoculation the animals showed no signs of illness and their appetite was good. Four to six hours later they began to appear sick, were lying on their belly, did not like to be disturbed, and had no appetite. No symptoms of paralysis were noticed. All these animals died within 18 hours.

At autopsy pure cultures of the organism were obtained from the cerebrospinal fluid, the substance of cord and brain, the heart blood, liver, spleen, pleural and peritoneal fluids and the urine but not from the bile. In one instance, rabbit No. 7, I was able to trace by means of cultures the passage of this organism from the cranial cavity, through the cribriform plate into the upper chamber of the nose. On microscopic examination a more or less pronounced fibrinopurulent meningitis and necrosis of brain and cord were noticed. The destruction was moderate in the substance of the brain and greatest in the lateral columns of the cord where areas of liquefaction could be seen. Sections of the cord of rabbit No. 12 showed round-cell infiltrations of the cord along the posterior horns. The central canal of the cord was not dilated. Free hemorrhage into the cord was not observed. The sections of the kidneys revealed acute parenchymatous nephritis followed by necrosis. The liver was necrotic and had areas of liquefaction and free hemorrhage. Spleen and bladder were congested. The lung was congested. In rabbits Nos. 11 and 12 lobar pneumonia had developed.

Five other rabbits inoculated intraspinously by lumbar puncture with ¼, ½, ¾ and 1 c.c. of a suspension of micrococcus R. recovered from the first inoculation and were consequently partially immunized when 7 to 21 days later they were inoculated with 1 c.c., and in one case with 2 c.c. of the suspension of micrococcus R. described above. After the second inoculation they acted like the six rabbits of the first group and died within 18 hours. One rabbit, No. 2, lived 2½ days and developed symptoms of ascending paralysis. Spasms of single or groups of muscles were not observed. One rabbit, No. 9, died during the second inoculation from the unskilled administration of ether which was used to induce general anesthesia. Pure cultures of the organism were obtained from the cerebrospinal fluid, the meninges, the substance of cord and brain and the heart blood of these five rabbits. The fibrinopurulent meningitis was more pronounced in the five rabbits of this series than in the six rabbits which died rapidly after the first inoculation. In the meninges there was a proliferation of fixed cells and more exudate over the posterior portion of the external surface of the pia. There was no surface exudate of the meninges of one rabbit of this group, No. 4. The degeneration

*Dr. Hiss has found that normal horse-serum acts on the meningococci. Normal saline may also do this. But in these tests normal horse-serum was not studied. The results were so sharply contrasted that further studies of this appeared unnecessary.

of brain and cord was similar to that of the first six rabbits, but there was in addition a dilatation of the central canal of the cord (a condition of hydromyelia). The viscera showed parenchymatous degeneration and necrosis.

To complete the study of the action of this organism in animals and in the hope of securing lesions of the type found in the cord of man, a monkey, macacus rhesus, was inoculated intraspinously with 3 c.c. of a 24-hour broth culture of micrococcus R. After inoculation the animal recovered immediately and sat quietly on the floor of its cage until five hours later when motor spasms, twitchings of the legs, were noticed. The next day the monkey had anorexia, fever, and was in stupor. The spinal fluid withdrawn by lumbar puncture was slightly turbid and the culture yielded a pure

FIG. 5—Section of spinal cord in lumbar region of rabbit No. 7 (high power). Fibrinopurulent meningitis; congested meningeal vessels with perivascular infiltration. *Lateral columns:* Destruction and liquefaction of nerve tissue. Reticulum of neuroglia is fragmentary in many places and in others liquefied. *Gray matter:* The structural character of the large motor cells is preserved. They are somewhat shrunken and show a decrease in the amount of chromatin. The lymphatic space around the anterior horn cells is markedly distended. *The central canal* is markedly dilated and shows a slight exfoliation of its lining.

growth of micrococcus R. In the stained smears the diplococcus was both intra- and extracellular. The following two days the monkey was sick, but there were no muscular twitchings. Five days after the first inoculation another lumbar puncture was made and ½ c.c. of cerebrospinal fluid withdrawn. From this only one colony of micrococcus R. was recovered. Then 7½ c.c. of a 24-hour broth culture of micrococcus R. were injected intraspinously. The monkey was prostrated after this injection, respiration was slow and labored, then rapid and shallow. It was lying on the floor of the cage with the neck stiff and retracted and the legs stretched away from the body. The monkey died 16½ hours after this second injection. No cerebrospinal fluid could be obtained by lumbar puncture Cultures taken with the platinum needle from the cauda equina during the autopsy gave a luxuriant and pure growth of the Gram negative micrococcus. The cord, which was congested, was prepared for celloidin sections.

Microscopical Examination of the Cord.—The meninges, pia, and arachnoid, were thickened posteriorly only by a proliferation of connective tissue. There was little fibrinopurulent exudate on the surface. The blood vessels were congested. The larger motor cells of the anterior horns appeared pale. Their nuclei were eccentric and some of them showed advanced chromotolysis. There was no increase of neurogliar tissue, nor was there any diminution in the number of cells. Some large cells were swollen and pale. The central canal was not dilated and its lining was intact. In the lateral columns small, white, round areas were found, especially toward the periphery. These were liquefied axis cylinders. The acute inflammatory changes were apparently due to the second inoculation and the thickening of the meninges from fixed cell proliferation to the first. Both organisms produced degenerative changes in the cord and brain but differed in regard to their action on the meninges. In rabbits micrococcus R. induced lesions similar to those of cerebrospinal meningitis in man; *Micrococcus intracellularis* of Weichselbaum did not give rise to these lesions in rabbits.*

Conclusion.—This organism isolated from the cord of a man who died of hemorrhagic myelomalacia is a micrococcus of a morphology similar to that of the *Micrococcus intracellularis* of Weichselbaum, save that under certain conditions it produces bacillary forms. It stains with ordinary dyes and is Gram-negative. It has no demonstrable capsule and forms no spores. It grows luxuriantly on all ordinary media whereas the growth of meningococcus of Weichselbaum is often scanty. On glucose-agar its growth is more slimy and vivid than that of *Micrococcus intracellularis* of Weichselbaum. Like the meningococcus it produces no gas, no indol, is aërobic and does not liquefy gelatin. It ferments and coagulates dextrose and galactose blood-serum-litmus-water. The meningococcus of Weichselbaum ferments dextrose and maltose and sometimes levulose without coagulation. It grows at room temperature and has been kept alive in the ice box for 1½ years. The "strain Fraymann" of meningococcus of Weichselbaum grows also at room temperature but lives in the ice box only nine days. In the dry state it was kept alive for eleven days, while the meningococcus lived only five days. Its thermal death point is 64° C. in 10 minutes and 60° C. in 75 minutes. Flexner states that the meningococcus of Weichselbaum is killed in 60° C. in 30 minutes. It is not agglutinated by a monovalent nor polyvalent antimeningococcus serum, nor by the serum of *Micrococcus catarrhalis* and of *Micrococcus mucosus capsulatus.* It thrives exceedingly well on the cerebrospinal fluid and in the substance of brain and cord, giving rise to an exudative inflammation of the meninges and an acute and very rapid degeneration, and necrosis of the nerve cells and their processes in man and laboratory animals. *Micrococcus intracellularis* of Weichselbaum produces degenerative changes in cord and brain of man and laboratory animals and a fibrinopurulent meningitis in man and monkeys but not in rabbits.

*Flexner and others, except Petterson, also failed to secure lesions experimentally in rabbits with the meningococcus of Weichselbaum.

I desire to acknowledge my indebtedness to Dr. P. H. Hiss and to Dr. Augustus Wadsworth for their advice and help in preparing this paper.

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THE RELATION OF BACTERIAL METABOLISM TO CERTAIN FOODS.*

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CHICAGO, ILLS.

The inauguration of the Pure Food and Drugs Act provided the American people with a mechanism for regulating, in theory at least, the production and sale of wholesome food. The law, as it is interpreted at the present time, however, appears to regard sophistication and adulteration rather than the purely health side of the problem as its chief province. The wholesomeness of foods is judged rather by the absence of adulterants and substitutes than by the recognition of those factors which make foods actually dangerous to health. This interpretation has been satisfactory in the great majority of cases so far, but a group of foods has recently been brought into prominence (and instances of this sort will undoubtedly occur with increasing frequence in the future) in which the somewhat arbitrary chemical and bacteriological standards in use at the present time will fail to establish the correct interpretation of the situation and the spirit and the letter of the law will come in to apparently open conflict. So far as the purely chemical aspect of the subject is concerned this is unlikely to happen unless unusual substances, difficult to recognize by the methods customarily employed, escape detection for brief periods. Chemical sophistication and adulteration do not, as a a rule, result in progressive changes in the composition of foods and the detection of chemically unfit foods does not involve the time factor.

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Bacteriologically the case is somewhat different. Perfectly wholesome foods may be prepared and sold in an apparently sound condition, and yet contain within themselves the elements of their own destruction in the form of included bacteria. The development of these bacteria may bring into play an entirely new set of factors; factors which in time may modify profoundly the fitness of foods from the public health viewpoint, without altering the legal status of the case as it is interpreted according to present-day standards. The question of bacterial metabolism, particularly as it is related to the proteins and carbohydrates, enters largely into the solution of problems of this nature, since proteins and carbohydrates or their derivatives are the most common and important constituents of food stuffs in which bacterial development plays a part. The nature of the products formed by bacteria, even of the same variety of bacterium, is influenced profoundly by the presence or absence of utilizable carbohydrate. It is possible, for example, for a purely protein food to be so changed through the growth of bacteria in it as to be not only disagreeable to the senses, but actually unfit for human consumption. The very simple expedient of adding certain sugars to this same food may so modify the action of the bacteria upon it that the protein constituent is not measurably changed, even after considerable bacterial development. The products formed by this bacterial development may now be quite innocuous and inoffensive, and such food could be eaten with impunity. In other words the changes which take place in such foods are usually due to the results of bacterial growth, not to forces inherent in the foods themselves. Inasmuch as bacterial growth is the essential factor in the process, it is imperative that a knowledge of the nature of bacterial metabolism be considered in the interpretation of the phenomena involved. A few well-known experiments illustrative of bacterial metabolism, as it is related to the utilization of protein and carbohydrate will make clear at least the underlying principles; the actual problems to be solved in practice will vary in complexity with the kinds and number of bacteria involved and the composition of the food stuffs.

It is a well known fact that *B. coli* grown in media containing only protein or protein derivatives will produce indol, phenol, hydrogen sulphide, ammonia, and other products indicative of protein decomposition. The action of the organisms is of necessity restricted wholly to the utilization of protein substances. The reaction of the medium becomes progressively alkaline, foul odors develop, and the resulting products are not only disagreeable to the senses—they quite unfit such material for food. This is bacterial putrefaction. The same organism in the same protein medium, containing in addition sugar which the colon bacillus can utilize now produces an entirely different kind of decomposition; in place of indol, phenol, and hydrogen sulphide, there now appear lactic acid, smaller amounts of other fatty acids, as well as carbon dioxide and hydrogen, which are characteristic of the breakdown of carbohydrate by *B. coli*. The reaction now becomes permanently and progressively acid; the odor not unappetizing rather than otherwise, and the products formed are innocuous and inoffensive. This is bacterial fermentation. It will be remembered that the protein content is the same in the two experiments; the addition of sugar to the medium has brought about this vast difference in

the end products of bacterial growth. The sugar has been attacked by *B. coli* in preference to the protein, and in this sense has shielded the protein from bacterial action. Similarly, physiologists have long known that carbohydrate shields body protein in man.[1]

Examples illustrative of this shielding action of carbohydrate for protein might be cited from many fields of bacterial activity.[2] One of the most remarkable of these is that exhibited by the diphtheria bacillus. In sugar-free media this organism produces a powerful extracellular toxin; the same organism does not produce toxin in the same broth containing dextrose.[3]

Returning again to *B. coli*, this very preference which the organism exhibits for sugars is unconsciously but invariably taken advantage of in the cultural identification of the organism, and it might be added that this is a very general bacteriological procedure, applicable to the cultural identification of many bacteria. Bacteria are examined for their "fermenting" power in precisely this same manner, and the principle underlying this mode of cultural diagnosis is the sparing action which utilizable carbohydrate exhibits for protein when both are simultaneously present in the same medium. That is to say, bacteria as we know them appear to prefer carbohydrate to protein and this is simply a question of economy in the last analysis; carbohydrates are more easily metabolized than protein. This is not the whole story, however. Notwithstanding the fact that bacteria prefer utilizable carbohydrate to protein, some protein is broken down even when carbohydrates are being thus utilized by them. This follows directly from the fact that bacteria in common with all known living things, contains nitrogen in their bodies, consequently they must have some nitrogen in their dietary. There is no nitrogen in carbohydrate. This leads to a very important distiction which must be made between two entirely distinct factors of life processes in general, the structural (anabolic) and the vegetative (catabolic). These may be illustrated somewhat crudely by likening the requirement of living things (bacteria in this intsance) to those of a locomotive. A locomotive is built of iron and steel; it is run on coal and water. The structural requirement (and the waste incidental to loss of parts which must be replaced) can be satisfied only in terms of iron and steel. The fuel requirement, on the contrary, can be satisfied only in terms of water and coal. Furthermore, the fuel requirement is not fixed, but continues during the life of the locomotive as a steady and continuous drain which must be continually replaced so long as the engine runs. The structural requirement, it will be seen, is relatively small and the fuel requirement relatively great.

Similarly, the structural requirement of bacteria must be obtained, in part at least, from material containing nitrogen, and precisely as the structural requirement of the locomotive is complete aside from wear and tear when the machine is completed, so the bacterial structural rquirement is complete, aside from losses incidental to the excretion of ferments, etc., when the organism is formed. In both instances the structural requirement is very small in comparison to the fuel requirements. The structural requirement of bacteria, therefore, presupposes at last minimal amounts of nitrogen in utilizable form, which they usually obtain from protein or protein derivatives. The fuel requirement, however, can be presented to them either as nitrogenous compounds (protein or protein derivatives) or as utilizable sugars. Whenever bacteria are presented simultaneously with protein and utilizable carbohydrate in the same medium, the structural needs are largely derived from protein, the fuel requirements from the sugars. The actual structural requirement of bacteria is very little. *B. coli* is an average sized bacillus. It is about 1 micron (0.001 millimetre) in diameter, and about 2 microns long. Its volume, assuming that the organism is a rectangular prism of the dimensions given instead of a cylinder, would be 0.001 x 0.001 x 0.002 millimetres, or 0.000,000,002 cubic millimetres. The weight of the organism similarly, assuming that its specific gravity is that of water (it is estimated to be 1.38), is 0.000,000,002 milligrams. At least 85 per cent. of this weight is water, hence the actual amount of material other than water in a single colon bacillus is very little. Five thousand million colon bacilli would weigh about one milligram. It is practically possible to measure with considerable accuracy the relative amounts of protein broken down to satisfy both the structural and the fuel needs of bacteria growing in ordinary media. It is also possible to measure by similar procedures the extent of the sparing action which utilizable carbohydrate exercises for protein. This is best accomplished by determining the increase in ammonia content of media incidental to the growth of bacteria in them. For this purpose broths with and without sugar, but otherwise of exactly the same composition, are used. The ammonia content is measured conveniently and accurately according to the methods recently elaborated by Folin and his co-workers.[4] Analyses made in accordanace with these methods show that *B. coli* produces about 2 milligrams of ammonia above that of uninoculated controls in 100 cubic centimetres of broth containing dextrose and protein.[5] *B. coli* produces about 20 milligrams of ammonia above the inoculated controls *in the same protein broth, but without the dextrose;* in sugar-free broth in other words. By actual count the sugar-free broth contained about 2,000,000,000 living organisms per cubic centimeter at the end of six days, while the sugar broth contained 1,200,000,000 living colon bacilli under the same conditions. It is obvious that the observed differences in ammonia production (protein decomposition) are not attributable to unequal development of bacteria, but rather to an actual change in the nature of the metabolism of the bacteria themselves. The bacteria have acted upon sugar in preference to the protein, deriving their fuel from the sugar. That is to say, the addition of the sugar has prevented 90 per cent. of the protein breakdown as measured by the ammonia standard in the experiments quoted. It is worthy of note that the sugar broth was decidedly acid in reaction at the end of the experiment (six days) and that the dextrose had been more than half used up. The sugar broth, furthermore, contained no indol, hydrogen sulphide, or other products of protein breakdown, at least in detectible amounts. The small amount of ammonia produced in this sugar broth is a fairly reliable index of protein breakdown for structural purposes. The plain, sugar-free broth, on the contrary, was alkaline in reaction, and contained ten times as much ammonia, indicating a much more extensive and deep-seated protein breakdown. Indol, hydrogen sulphide, and phenols were present in large amounts.

A situation which involved these same general

principles has recently been brought to the public attention. This is the so-called Trenton egg case. The facts brought out at the trial were essentially as follows: Certain cases of frozen eggs containing 10 per cent. of sugar (sucrose) were seized by the government because they contained from ten thousand to ten million *B. coli* per gram egg. These eggs were pronounced decomposed because they were heavily infected with bacteria. These bacteria, furthermore, were stated to be colon bacilli, which are characteristic of the excrement of man and the higher animals. The case appears to have been tried purely on the grounds that the eggs were "decomposed" and because of this decomposition they were seized under the Pure Food and Drug Act. No other bacteria than *B. coli,* either pathogenic or otherwise, were specifically designated as possible agents of decomposition, nor was the added sugar mentioned (prominently at least) as an adulterant; the whole issue appears to have hinged on the question of decomposition in these sugared eggs, brought about apparently by the extensive development in them of large numbers of bacteria of fecal origin, specifically *B. coli.*

The regular standard for eggs as adopted by the government stated that eggs shall contain no more than one million bacteria per gram egg, of which not more than one thousand shall be colon bacilli. A bacterial content in excess of this standard constitutes a legal basis for seizure. It should be stated that considerable latitude in the number of bacteria is allowed in cases of this kind, because the unavoidable error of sampling and counting renders bacterial determinations somewhat inaccurate.

It might appear at first sight that fresh eggs should be quite sterile, for their contents are protected by a shell which is lined internally by a definite membrane. Many years ago Schottelius and others noticed that sterile eggs were extremely difficult to obtain, and certain testimony presented at the Trenton trial indicated that the anatomy of the hen was such that bacteria may be included in the egg contents before the shell is secreted around it; among these bacteria colon bacilli may be found at times in moderate numbers.

The eggs concerned in this controversy exceeded greatly the legal limit in bacterial content, and at first sight this seizure might seem warranted, particularly in the light of the large number of fecal organisms of the colon type. Certain other features, however, complicated the situation. These eggs appear to have contained no frankly pathogenic bacteria (colon bacilli are habitually present in the intestinal tract of man and no evidence was produced to show that these colon bacilli differ from the human type), hence their seizure was made on the grounds that they were "decomposed," implying thereby that either the included bacteria or some other unspecified factor had so changed them that they were no longer fit for human consumption.

The question of the fitness of the eggs for human consumption was apparently eliminated from the discussion, for they were actually introduced in court, cooked in cake and pastry and eaten there without the slightest objectional taste or odor being demonstrable. The culinary products, of which they formed a part, were undistinguishable in taste and odor from similar products prepared from eggs of known freshness. At a hearing subsequent to the trial, the whole issue was finally reduced to the question—are these sugared eggs decomposed? The health side of the problem was eliminated by the district attorney before whom the hearing was presented; he ruled that the defendants could attempt to show that the eggs were not decomposed, they could not show that the eggs in question were fit for human consumption. At the trial it was shown chemically that the eggs in question were not decomposed when judged by either qualitative or quantitative standards, in spite or the high bacterial content. They contained no indol, hydrogen sulphide, or phenol (which are indicative of protein breakdown by colon bacilli), and no more ammonia than eggs of known freshness.

Strictly fresh eggs contain no indol, hydrogen sulphide, phenols, and but little ammonia; the amount of ammonia in strictly fresh eggs according to the testimony submitted varies from two to four milligrams per one hundred grams egg. The "sugared eggs" contained 3.18 milligrams of ammonia per one hundred grams egg according to the following table:

Bacteria per gram egg.	Ammonia per 100 grams egg.
26,000,000	2.88
31,000,000	3.39
23,000,000	3.18
10,000,000	2.86
22,000,000	3.60
30,000,000	3.47

This leads to a somewhat paradoxical situation. Certain cans of frozen eggs containing 10 per cent. of sugar greatly exceed the legal permissible bacterial content. They are seized because they are said to be decomposed. The most refined chemical methods available at the present time failed to detect either quantitatively or qualitatively any measurable decomposition in spite of this large bacterial content.

How, then, reconcile these very widely divergent results, undoubted immense bacterial content on the one hand and negative chemical evidence on the other hand, indicating apparently the absence of bacterial decomposition of these eggs; in other words, how explain an extensive bacterial growth and no measurable chemical evidence of this growth? Everyone is familiar with the fact that at times unsugared eggs contain undoubted qualitative evidence of bacterial decomposition!

Confining this discussion strictly to the evidence produced at the trial, two features are very apparent. The chemical evidence, so far as it went, was very direct and convincing; the bacterial evidence was correct so far as the number of bacteria were concerned, but it failed utterly to take into account the real factor involved, the shifting of the metabolism of *B. coli* through the action of the added sugar; these organisms apparently were of the sucrose-fermenting type (which is somewhat surprising, for the non-sucrose-fermenting type is the one commonly met with); they acted upon the sugar in preference to the protein (nitrogen-containing) constituents. As a matter of fact these eggs were shown to be more acid in reaction than fresh eggs; this acidity is not only easily accounted for, it actually would of necessity be present if colon bacilli (in the absence of other bacteria) were utilizing it for catabolic needs. In the light of the studies mentioned above on the metabolism of *B. coli,* then, the facts brought out at this Trenton egg case trial are simply and directly explained; a large overgrowth of colon bacilli has taken place in sugared eggs which do not show a measurable amount of proteolysis to correspond to this excessive bac-

terial development. The slight increase in acidity together with the negative chemical evidence of proteolysis are in harmony with the observed facts. These colon bacilli have derived their "fuel energy," which is the conspicuous factor in bacterial decomposition, from the sucrose; producing thereby lactic acid, which is not found in strictly normal eggs. They have derived their "structural" requirements from nitrogenous products, as all living things must do. The waste from this structural requirement is inconspicuous and may be so slight as to escape detection, as appears to have been the case in this controversy.

It must be stated that as clean cut a case as this Trenton egg case should be regarded as an exception rather than the rule; ordinarily a varied bacterial population would be predicted in as cosmopolitan a medium as these eggs must have been. A varied bacterial flora would introduce additional complications, which would in turn involve bacterial symbiotic activity, a field but little touched upon at the present time.

There is an economic side to problems involving bacterial metabolism as an issue; in the Trenton egg case it is almost certain that the evidence presented at the trial would warrant the utilization of the sugared eggs for food, provided they were used as they were supposed to be, in culinary products cooked before being eaten. This presupposes that no additional contamination be introduced by the baker, a point beyond the control of the producer or the government.

The practice of adding sugar to these second grade eggs, freezing them, and shipping them in a frozen condition to bakers, appears to have been practised for some years. It theoretically makes a certain amount of material available which otherwise would have to be replaced by eggs of greater value, thus adding to the cost of the finished product of which they are an integral part. Just how important economically this process is cannot be stated by the writer.

It did not appear at the trial just why the sucrose was added to these eggs; if the preservative action of carbohydrate is the desired end, the sugar being introduced to restrict nitrogenous breakdown by bacteria, dextrose would be the sugar indicated, for the majority of bacteria utilize dextrose, while only a very few act upon sucrose.

It should be stated that cane sugar is used very largely in certain classes of preserves, usually fruits, usually in 10 per cent. concentration. The physical factor of osmotic pressure plays a part here for the sugar is dissolved in practically an aqueous medium and sugar of this concentration plasmolyzes many forms of bacteria, preventing, or at least, tending to inhibit their development. Spores do not germinate readily in such a medium. The addition of 10 per cent. sucrose to eggs would not prevent bacterial development to any degree, for the osmotic pressure of sugar in a colloidal egg solution is comparatively little.

If, on the contrary, sugar is added and sold at "egg prices," the procedure is a pernicious one; the relatively slight gain in preservative properties is far outweighed by the increase in cost of the mixture.

It is a remarkable fact that freezing does not decrease markedly the bacterial content of these eggs; the relative absence of water probably accounts for this phenomenon. Bacteria frozen in water die out rapidly; in colloidal solutions, such as egg, survive. The mechanical factor of ice crystal formation may well play a part in reducing the number of surviving organisms.

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THE BENEFICIAL EFFECT OF DUODENAL ALIMENTATION IN CIRRHOSIS OF THE LIVER.*

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At first sight it appears rather surprising that duodenal alimentation should be used in diseases of the liver. If we, however, consider the intimate connection of this organ with the digestive apparatus, we may expect that the rest given to the stomach may have some bearing upon its neighboring organ, the liver. The reason of this plan of treatment lies in the following consideration:

The function of the liver consists principally in keeping control over all the substances introduced by the act of digestion, excepting that part taken up by the lymphatics, before they reach the general

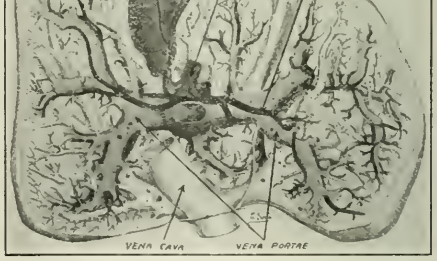

Diagram of liver showing blood vessels and bile ducts (after Bourgery, Poirier, Charpy et Cunéo, Abrégé d'Anatomie, 1909, p. 1308): Hepatic Artery, black; Portal Vein, light gray; Bile Passages, dark gray; Vena Cava, white. Note the enormous disproportion between the volume of the Hepatic Artery and that of the liver, the Portal Vein serving as a functional vessel.

blood stream. This is accomplished by the great network of the portal vein (see Illustration) which collects the outflowing blood from the entire digestive system and diffuses it for its elaboration in the liver. If the latter organ is diseased, its function of working up the portal blood and making it fit for the vena cava is slackened. What now happens is either the entrance of faulty metabolic products into the circulation, or, if the supervision of the liver is still efficient but slow, an accumulation of blood in the liver, i. e., this organ becomes unable to work up all the blood flowing in during the act of digestion. The organ becomes temporarily swollen. In some instances both factors coexist.

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In cirrhosis of the liver this difficulty of its function is always present. It leads to an enlargement of the organ and ultimately to ascites. In duodenal alimentation the upper part of the digestive system is not working and kept at rest. The venous circulation there is not very active. The portal vein is thus freed of part of its blood supply and the entire amount of work of the liver is thus made easier.

Duodenal alimentation was applied in six cases of beginning cirrhosis. In five there were gastric ulcers present; in one pure cirrhosis with dilatation of the heart. I shall describe three of these cases which may serve as illustrations:

Case I.—January 7, 1913. Mr. P. D., Jr., 31 years old, had inflammation of the bowels when eleven years old, then felt well until three years ago. At that time he began to suffer from pains in the upper part of the abdomen, which at times were severe, but usually mild in character. About four months ago patient was seized with pains in the ileocoecal region, accompanied by chilly sensations and fever. Several physicians advised an operation for the removal of the appendix, which was refused by patient. These pains in the abdomen, with slight rises in temperature, practically continued until patient consulted me. Patient complains of severe pains over the entire abdomen. The pains have no distinct relation to food. He occasionally vomits, particularly after a large meal or after the ingestion of eggs. There was no blood in the vomited matter. He feels bloated and frequently brings up gas. The bowels are very irregular and inclined toward diarrhea. Patient has lost considerably in strength and flesh. Patient admits of having indulged to a high degree in alcohol and tobacco. The physical examination reveals tenderness over the gastric region and all along the colon. The slightest pressure over the epigastrium elicits considerable pain. The liver is greatly enlarged. It can be discovered by palpation and percussion in the right mammillary line three fingers below the border of the ribs. The urine contains over 1 per cent. sugar, no albumin or bile. Temperature 100½ by mouth. There exist general malaise, extreme nausea, and pains in the abdomen after eating. The gastric contents after a test breakfast examination showed: HCl + acidity = 48; much mucus present; blood present. The duodenal bucket showed a permeable pylorus and a probable ulcer along the lesser curvature of the stomach (blood stain 17-19 inches, bile stain 24-31 inches). The blood count was: Red blood cells, 4,350,000; white blood cells, 13,800.

The diagnosis of gastric catarrh with ulceration and hypertrophic cirrhosis of the liver with probable involvement of the pancreas was made and duodenal feeding was instituted on January 13, 1913. The duodenal contents showed the presence of all pancreatic ferments: amylopsin, + 4 mm.; trypsin, + 3 mm.; steapsin, + 10 mm. Patient felt very comfortable during the period of duodenal alimentation. The pains subsided and there was normal temperature. One week after this treatment the liver was only one finger below the margin of the ribs, and after two weeks' treatment the liver could not be palpated. The sugar likewise disappeared from the urine. Patient made a good recovery and his liver has remained in good condition up to the present.

Case II.—Thomas J., 47 years old, admitted to the Post-Graduate Hospital March 15, 1913. Family history: Mother died of cancer of the stomach. Personal history: Works as laborer; heavy smoker for many years; up to three months ago has taken regularly two to three glasses of beer daily, whisky once or twice a week. History of bronchial asthma for past 18 years. Has had more or less disturbance of stomach for last five years, though he has not sought medical aid for it. In September, 1912, had sudden attack of pain and vomiting, in which a large quantity (one quart) of bright blood was vomited. Following this he was removed to a hospital and treated for four weeks, and discharged improved. His condition remained satisfactory for about one month, when he had a return of gastric disturbances. Since November, 1912, he has complained of distress in stomach almost constantly, with belching and feeling of nausea. Food aggravates the condition and brings on nausea: has vomited once a week; vomitus consisting of mucus, with no food remnants. In February, 1913, vomitus contained blood on two or three occasions, and he sought medical attention. Since then he has complained of severe distress in the stomach, belching, constipation, and general weakness. Since November, 1912, he has lost 22 pounds in weight.

Examination on admission to the Post-Graduate Hospital March 15, 1913: Chest: prolonged breathing and sibilant and sonorous râles on both sides. Heart: no murmurs present. Abdomen: upper border of liver begins at fifth rib in mammillary line; lower border two inches above umbilicus, edge blunt and free. Blood examination: red cells, 4,160,000; white cells, 4,000; hemoglobin, 90 per cent. Urine examination: S. G. 1.016; reaction acid; albumin negative; sugar negative. Examination of duodenal contents: contents alkaline; bile present; steapsin absent; trypsin present, 2 mm.; amylopsin present, 4 mm. Examination with duodenal bucket: no blood stain. Duodenal feeding was begun March 16, 1913. Patient is given every two hours milk, lactose, and one egg. Medication: atropine sulphate, grain 1/80, b.i.d.; magnesia usta and bismuth subnitrate. Patient was in bed from March 15 until March 21, when he was allowed to be up and feed himself. Examination of the liver March 28, 1913, shows upper border normal, lower border in mammillary line one inch below ribs, lower border in median line not palpable. Weight on discharge, 143¾ pounds. April 11, 1913: patient has gained six pounds in weight since leaving the hospital. Liver shows normal conditions, not being palpable nor discoverable by percussion in the right mammillary line below the margin of the ribs.

Case III.—February 18, 1913. John W., 57 years old, clerk, had scarlet fever when a child, rheumatism in Mexico about 22 years ago, also at same time malaria and dysentery. There is no syphilitic history. Since two and one-half years he complains of attacks of shortness of breath, not dependent upon exertion. He noticed at times edema of legs; there is no pain. Patient has been for years in the habit of taking a good quantity of beer daily, except for the last two years, when he did not drink anything.

Status præsens: Patient well nourished. Lungs negative. Heart: Apex beat felt in mammillary line in sixth interspace. Heart somewhat enlarged to the left. Systolic murmur present at apex, transmitted upward. Neither pulmonary nor aortic sound accentuated. Liver reaches in median line to within one and one-half fingers' width above navel and is easily palpable. It extends to the left mammillary line. Otherwise abdomen is negative. The urine shows a specific gravity of 1.014, the presence of albumin (0.025 per cent.) with occasional granular casts. Blood pressure 195 mm. Examination of stomach contents shows subacidity (HCl = 8; total acidity = 30) and presence of blood. February 19, 1913: Duodenal pump was given in the afternoon and left in for two weeks for duodenal alimentation. At the end of the first week of this mode of treatment the liver shrank so that it reached only to three inches above the umbilicus. The shortness of breath has entirely disappeared. Blood pressure was 185 mm.; then patient ate several hearty meals and his liver again returned to the size that it was on admission.

Summary: During duodenal alimentation in all the six patients the liver became markedly smaller (already after two to three days), assuming a size almost normal. In four patients the result was lasting. In one, however, a few days after the termination of the feeding the liver began to grow larger, while in another patient (J. W.) with pure cirrhosis and dilated heart the size of the liver quickly assumed its original large proportions. The influence of duodenal feeding was in this case very marked but not lasting.

My experience up to the present time justifies me in the conclusion that duodenal alimentation contributes greatly toward diminution of the functional work of the liver. This rest treatment of the latter organ is of benefit whenever it is considerably impaired. The cirrhoses of the liver and allied conditions, accompanied principally by swelling of the hepatic tissues, form a field in which duodenal alimentation may be applied apparently to great advantage.

THE DIAGNOSIS AND PROGNOSIS OF DUODENAL ULCER.*

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Reports of recent society proceedings and various periodicals have contained so many communications upon this subject that one might imagine it by now quite devoid of other than historical interest, yet the writer believes that a more careful consideration will show that thus far only a few of the more salient facts relevant to the disease have been outlined.

The history of an uncomplicated duodenal ulcer, as obtained from some two hundred cases personally observed, has in the great majority of them elicited four pre-eminent factors: First, the *chronicity* of the complaint; second, the *periodicity* of the exacerbations of epigastric distress; third, the occurrence of *pain* of a peculiar character with precise time of onset; and fourth, the *control* of this discomfort by the ingestion of food or alkalies.

The average duration of the complaint in the earlier cases was well over ten years, while it is encouraging to note that lately this long period has been markedly reduced, owing without doubt to our growing familiarity with the condition and its symptomatology.

Indeed, one should seldom, with our present knowledge of duodenal ulcer, be led astray in the diagnosis of the patient, usually male, who remarks that in the beginning of his trouble he noticed the onset of pain or burning in the pit of the stomach accompanied by sour eructations, belching and possibly regurgitation at times of small quantities of acrid material, frequently termed *water brash*, which condition at first lasted from a few days to several weeks, when suddenly, whether without medication or in spite of it, his distress ceased, and was followed by a varying interval of complete health, when the same syndrome was repeated. In many cases probably the interval of relief was not so complete and he merely had his good and bad days, with exacerbations at varying intervals of time. Either of these phases may continue for years, but finally the periods of remission become shorter and those of distress longer, until a stage is reached when there may not be complete relief at any time. Such an anamnesis is in itself sufficient to warrant the examiner in forming a tentative diagnosis, at least, of a duodenal ulceration. It typifies well the factors of chronicity and periodicity previously referred to.

Possibly, however, the most corroborative subjective symptom to be elicited is the peculiar effect that ingestion of food has on the epigastric distress, which act will almost without exception be found to give immediate relief, at least in the earlier stages of the condition before complications have arisen. We have been able to show experimentally that the reason for this phenomenon is because the mechanical stimulus thus given to the stomach excites a reflex flow of the alkaline duodenal secretion which thus neutralizes the irritating hydrochloric acid present in the duodenum.

The pain complained of is usually characterized as a burning or gnawing, frequntly as an intense hunger, amounting to an actual ache. One also hears it described as an "all gone" sensation.

Its character remains fairly constant until the chronic thickening has produced a moderate stenosis or crippling adhesions have formed involving the gall-bladder or other adjacent structures. The most important point regarding the pain, however, is to ascertain the time of its occurrence, which averages usually between two and one-half to four hours after meals. This time element recurs with the most remarkable precision and exactitude; and while differing in different patients, practically never changes in an individual case until other processes are engrafted on the original lesion. We have noted that the nearer the pylorus the ulceration is the earlier seems to be the onset of the distress.

We must also realize that we have in the duodenum two distinct pathological processes to deal with. It is to be noted that ulcers on the anterior superior surface differ very markedly in character from those on the posterior wall, in that the former as a rule have a very slight defect of the mucous membrane, in no way corresponding to the area of infiltration felt from the outside, the orifice seldom exceeding the size of a B.B. shot, frequently being recognized as a mere slit; while those on the posterior wall approach in character the typical punched-out round gastric ulcer. The latter seem to perforate rapidly through the several coats of the intestine and are usually found to have their base formed by the pancreas which is frequently deeply invaded by them. The surgical significance which these different pathological processes offer has been lately pointed out admirably by W. J. Mayo.

The variation in the symptomatology evidenced by these two types of duodenal ulceration offers also to the diagnostician further data for differential diagnosis, since in analyzing carefully the series forming the basis of these remarks it was noted that those cases showing the callous round posterior ulcer gave much longer histories, were not so acute in the differentiation of the cardinal diagnostic factors, did not suffer so much acute distress, but complained of a more continued discomfort which in turn was not affected so definitely by the intake of food and usually caused the maximum of duodenal deformity, and, consequently, the greater degrees of stenosis. Further, they are much more easily demonstrable in a radiograph, while the anterior small ulcerations evidenced the more typical syndrome, seldom caused much deformity or stenosis, usually bled more easily, continuously and freely, and were seldom diagnosticated by *x*-ray.

There have been many accessory aids to the diagnosis of duodenal ulcer heralded from time to time. Of these the *x*-ray is undoubtedly the most important, and when plates are obtained showing constant and unchanging deformity of the pyloric cap, one is safe in assuming that there must be present some factor causing a disturbance of the muscular functions of the parts, and this, if adhesions can be excluded, is in most probability an ulcer. But the writer feels that the greater one's experience is with *x*-ray examinations the less he believes the examiner will be apt to base too positive a diagnosis on the findings thus procured, other than in a corroborative sense.

Gastric analysis shows us that there exists in a great majority of cases a definite hyperacidity. This, however, is found in many other intraabdominal conditions other than duodenal ulcer, which likewise reflexly stimulate the gastric secretion. Its presence is very suggestive however, particularly

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if an analysis is also made during an interval free from distress, at which time we have repeatedly noted that the acidity of the stomach is usually normal and frequently subnormal.

Blood in the stools is another corroborative finding, but the factor of error, which is particularly unavoidable in ambulatory cases, is so great as to practically remove it from a position of any real diagnostic importance.

Corroborative evidence may also be obtained from the use of the string impregnation test, as to both the presence and cure of an ulceration. When one sees the various and bizarre forms and positions of these stomachs as portrayed by the radiographer, the more exact location of an ulcer by the aid of such a definite localizing procedure is always important.

Thus, one would think that, taking everything into consideration, the diagnosis of a duodenal ulceration should prove a relatively easy task, and it is in many cases. But the really important factor has as yet not been mentioned, viz., What has caused the ulceration?

In referring to the ulceration may we not at the same time classify it by prefixing a surname indicative of its etiological factor, suggestive likewise of an accessory symptomatology and the method to be employed to relieve the condition, whether treated medically or surgically? Thus the terminology, jejunal duodenal, ileocecal, appendical, colonic, membranous pericolitic, static, or ptotic duodenal ulcer might prove advantageous as well as instructive.

Many people undoubtedly carry about potential factors of an impending abdominal catastrophe without their ever being recognized, the symptoms being so mild that they have long since been disregarded by both themselves and their physicians. But in many of these cases we must feel that it is only the limitations of our diagnostic acumen, or possibly the defects in the proper examination, which allow them to slip by unrecognized, unsuspected, and improperly treated.

The prognosis in many instances is, of course, a relative question. Yet personal experiences with some fifteen acutely perforated ulcers of the duodenum and observations on a great many more chronically perforated cases certainly lead one to think that the consideration of repairing these conditions, either surgically or medically, is surely one of great importance.

The anterior ulcers are the ones that perforate most frequently. Such perforations are usually of the blown-out character. They are unfortunately the most frequent in occurrence and therefore lead one to make a rather unfavorable prognosis if such ulcers are allowed to continue their course. The posterior ulcers, on the other hand, seldom perforate into the abdominal cavity; but are prone to inaugurate complications which in the end may prove quite as dangerous as an acute perforation, namely, pancreatitis, common-duct obstruction, and duodenal stenosis.

The engrafting of carcinoma on the base of a duodenal ulcer is of so relatively rare occurrence that it may be disregarded.

In many instances the prognosis has to be determined by that of the etiological condition, as in death from a ruptured appendix in which a duodenal ulcer is found post-mortem.

Many patients enter into a state of chronic invalidism, if untreated, although the local condition remains unchanged. Notwithstanding the fact that the recurrent attacks have become more frequent and increased in their severity, the patient usually experiences a progressively lessening degree of relief from the measures previously employed with benefit.

Others, and this must represent a large class, suffer but slight discomfort, or none at all.

In our experience cases properly chosen for medical or surgical treatment appear to have remained fairly comfortable. Using them and reports from other clinics of cases similarly treated as criteria, one may be justified in saying that the prognosis in the very great majority of cases is good.

145 Gates Avenue.

THE TREATMENT OF PERSISTENT OTORRHEA IN INFANTS AND YOUNG CHILDREN BY THE ESTABLISHMENT OF POSTAURICULAR DRAINAGE.*

A PRELIMINARY REPORT.

By WENDELL C. PHILLIPS, M.D.,

NEW YORK.

The term persistent otorrhea in infants and young children as herein employed, applies to those cases in which an acute purulent inflammatory process invades the middle ear spaces, and continues without abatement for an indeterminate period after the usual five to thirty days, which ordinarily may be considered as its normal course. This type of purulent otitis media should be differentiated from that other and rather common class, which may be termed recurrent, in which recovery may take place from each attack only to be followed by recurrence at varying intervals, usually as a result of an acute rhinitis. Children of the latter class are invariably the victims of hypertrophied tonsils and adenoids and their attacks usually cease upon the removal of these offending tissues. The recurrent type, therefore, is to be eliminated from this discussion, unless the otorrhea finally becomes persistent and chronic. A typical case of persistent otorrhea of the type under consideration presents a history somewhat as follows: Following some form of infection, which involves the upper air passages such as grip, the examthemata or pneumonia, an acute middle ear suppuration appears. Weakened by the primary general infection, the child's resistance is lowered and in many instances some underlying dyscrasia, known or unknown, adds its quota to the lowered resistance. From the outset, the discharge is profuse, persistent, and of a character which plainly bespeaks a severe type of infection. The usual diminution in quantity which in ordinary cases appears at from the third to the seventh day, does not take place, but the temperature becomes normal, or nearly so, pain is not present thereafter and there may be no marked drooping of the postero-superior canal wall. The usual local measures of treatment consisting of paracentesis, cleansing, cathartics and rest in bed may have been carried out in full, although in many instances, clinic patients have received no treatment at all.

It soon becomes evident that the small tympanic

*Read before the American Laryngological, Rhinological and Otological Society, Washington, D. C., May 8, 9, 10, 1913.

cavity proper could not secrete the amount of pus which flows from the ear, and one is forced to the conclusion that the additus and mastoid antrum at least must be involved. It is evident that such a discharge continued beyond about the third week furnishes evidence that the case is rapidly becoming chronic and calls for a different form of treatment.

It is true that proportionately a large number of persistent otorrheas are found among the poor and ill nourished which apply for hospital or dispensary treatment.

Of the underlying dyscrasias which almost invariably prevent nature's efforts, aided by efficient local treatment, from affecting a cure of acute purulent otitis media, tuberculosis and syphilis are the most stubborn to deal with and all writers agree that a considerable proportion of the chronic otorrheas are tuberculous in character. In these, local drainage from the membrana tympani does not seem to avail, and the disease progresses for long periods, and often with serious and fatal complications. Inanition from other causes is also a common cause of delayed cure. Severe types of infection, such as diphtheria, measles, pneumonia and grip are obstacles difficult to overcome. In many of the latter cases, however, there is a more or less rapid development of positive mastoid symptoms, hence, they are not to be considered in this discussion.

Treatment: Regarding the treatment, we do not advise any operative interference until all reasonable local measures have been faithfully carried out, this to include free drainage by paracentesis, a clean regimé of local treatment and attention to hygiene and the general health. In certain patients who are the victims of markedly hypertrophied tonsils and adenoids and the purulent otitis has progressed beyond the temperature stage, it may be wise to delay postauricular drainage for a short time and remove the tonsillar and adenoid masses. All these measures having failed, the question of surgical interference must be considered, and in the writer's opinion, the quickest, safest and most rational measure to pursue is to establish postauricular and, hence, through and through drainage by means of the simple mastoid operation.

The reasons are as follows: (1) It quickly terminates an otherwise persistent otorrhea. (2) It insures against an extension of local bone necrosis. (3) It prevents the case from becoming a chronic purulent otitis media, with all that the name implies regarding a chronic offensive discharge, loss of hearing, bone necrosis and possible serious and fatal complications. (4) Finally, the most important reason is, the restoration and retention of the hearing function.

It need not be added in this presence, that this operation is not a dangerous one, neither is its slight seriousness to be compared with the dangers and discomforts attending a chronic aural discharge.

In the considerable number of operations which have been performed by myself and assistants, I have been surprised at the frequency with which the pus escapes under pressure through the opening made into the mastoid antrum. Granulation tissue is also present, and in several cases an exposed sinus or dura has been found. These cases operated upon have complained of discharge for from six weeks to five years. In the more chronic ones, the simple mastoid operation has sometimes proven insufficient and the radical mastoid operation has become necessary. In a few cases, a similar procedure has been employed in adult patients, and one or two reports of these may come out in the discussion.

It may be stated, however, that in young children, when performed any time between four weeks and three months, that the results have been most favorable.

In a subsequent paper, I hope to give definite statistics of value. Others of our members no doubt hold the views herein outlined, and it is hoped that these somewhat desultory remarks may bring out a valuable discussion.

49 West Forty-seventh Street.

A CASE OF EXPLODED URETHRASCOPIC LAMP; REMOVAL OF FRAGMENTS WITHOUT OPERATION OR SUBSEQUENT SYMPTOMS OR SEQUELS.*

By VICTOR COX PEDERSEN, A.M., M.D.,

NEW YORK.

Prior to making a urethral application through a Chetwood urethrascope the lamp received a slight blow in falling, but on inspection showed no break of either wire or glass. The treatment was, therefore, instituted after testing the lamp satisfactorily. In a moment or two the light was extinguished,

Showing fragmented base of bulb and filament attached to the wire coiled in a circular form and having the three main fragments of the bulb in its center. The dark spots on the wire and each fragment are heavy furniture glue for attaching them to the paper.

and as no loose terminals could be detected it was assumed that the trouble was in the lamp itself. The lamp was therefore withdrawn from the telescope for inspection and to my surprise and alarm was found to consist only of the base of the glass bulb and part of the filament incorporated therein (as shown in the illustration) just distal to the black drop of glue behind the wire employed to attach it and the fragments of the bulb to the paper.

The question now arose as to how to find and remove the fragments without offense to the mucous membrane of the urethra or to the patient's sensibility. The telescope was fortunately a short one, so that I was enabled to proceed as follows: The lamp of the full length telescope was taken, illuminated, tested, and passed down the tube. It was noted that the fragments that seemed at first to be against the mucous membrane were really

*Report presented before the West Side Clinical Society of New York, June 12, 1913.

distal to it in the tube. Of this the proof was that as the second lamp reached and passed them they changed from illumination to occultation because they really lay about 1 c.m. from the mucous membrane. It was an easy matter to rotate the instrument so that the mucous membrane could everywhere be inspected for other fragments. When the absence of these was demonstrated the telescope was withdrawn and the fragments shaken from it, as shown in the picture within the circle made by the wire. When fitted together these three fragments completed the bulb with full accuracy so that no thought was given to any other pieces of importance. It is almost needless to add that no sequels whatever followed this accident.

The reason for publishing the case is to show the facility with which the diagnosis was in this case established that the fragments were not in the urethra but in the tube away from its surface. If one had passed instruments down the tube in the hope of recovering the fragments he might easily have failed and have poked them out of its mouth into the canal.

45 West Ninth Street.

THE TREATMENT OF PROGRESSIVE CASES OF PULMONARY TUBERCULOSIS.*

By MARY E. LAPHAM, M.D.,

HIGHLANDS CAMP SANATORIUM, HIGHLANDS, N. C.

When a case of pulmonary tuberculosis does not recover even under the most favorable circumstances, we say that it is because the case is progressive. We know that all cases cannot recover even with the best climate, nursing, and medical advice, and we say that these failures are progressive cases. The progressive nature of a case may be recognized almost at the very start, but more often it is only after repeated recoveries and relapses that the hopelessness is admitted, and then we free ourselves from all responsibility by saying that a progressive case cannot be cured; that no stigma of incompetency can be ascribed to our efforts, because the failure was entirely due to the inability of the patient to fight.

This fatalistic, non-responsible attitude universally prevailed until Brauer[1] came to the rescue of this class of patients by using the method of artificial pneumothorax advocated by Forlanini in 1882. By filling the pleural cavity with nitrogen and compressing the lung until it could not expand, Brauer and his followers succeeded in reporting 40 per cent. of recoveries of the cases treated by this method. The 60 per cent. failures were somewhat due to inability to compress the lung because of pleural adhesions, which either made the injection of nitrogen impossible, or else held the surface of the lung out so that it could not be compressed. For these cases of inability to compress the lung by means of an artificial pneumothorax, Brauer considered whether the lung might not be kept from expanding by resecting portions of the ribs. He argued that if enough of the chest wall could be made to sink in and nullify the action of the inspiratory muscles, two results would be accomplished: first, there would be functional rest because the lung could not expand; second, when the pull on the surface of the lung did not exist, then the natural elasticity of the tissues would cause their retraction, they would draw close together and up toward the hilum, thus shrinking and reducing the size of all open spaces, whether normal or pathological. Into this shrunken lung air does not easily enter; there is stasis of the lymph and blood currents, the conditions are unfavorable for the development of tubercle bacilli; there is less production and absorption of toxins, the temperature drops, tubercle bacilli disappear; in short, the results are analogous to those obtained by an artificial pneumothorax.

Brauer was not the first to advise resection of the ribs. Quincke[2] in 1888 and Spengler[3] in 1890, and Turban[4] and Landerer[5] and others have resected portions of the ribs situated directly over cavities. Brauer was the first to see what a complete retraction of the lung would accomplish and that it could not be obtained unless the pull of the chest wall upon the surface of the lung was sufficiently destroyed. Brauer's ideas were carried out with great vigor by his colleague Friedrich,[6] who adopting the method used by Quénu and Tietz for empyemas, made a vertical incision in front and behind and resected the ribs between. This heroic operation obtains a collapse of the lung equal to that of an artificial pneumothorax, but its great severity and dangers make it impracticable. When well borne, the results were so astonishingly favorable that many efforts were made to obtain these results without the dangers.

Boiffin[7] simplified the undertaking immensely by making a paravertebral resection of three or four cm. of the first six or eight ribs. The sternal ends of the resected ribs fall in and press upon the surface of the lung, and the chest wall collapses and brings the sternal ends close up to and in under the vertebral stumps, thus lessening the size of the thorax and favoring the retraction of the lung.

Wilms[8] further improved this method by sectioning the costal cartilages at a later operation.

Sauerbruch[9] of Zürich was then an associate of Brauer's at Marburg. Comprehending Brauer's ideas for the necessity for functional rest and complete retraction of the lung, he extended the paravertebral resection to the tenth and eleventh ribs and by removing larger portions of the lower ribs gave the incision in its lowest part something the shape of a fishhook, so that this incision might be regarded as the posterior part of a Schede incision.

Sauerbruch's operation is the best yet proposed because while almost devoid of danger it obtains the most complete functional rest of the lung and its greatest retraction. It can be performed under local anesthesia in from 17 to 40 minutes, and if the patient's condition demands it the operation may be concluded at a later time, thus avoiding any overstrain upon the patient's endurance. We may advise resection of the ribs whenever the progressive nature of a case is admitted, and the lung cannot be compressed by an artificial pneumothorax. The advantages of an artificial pneumothorax give it the preference over resection of the ribs, but if it fails, then resection is our only recourse. Practically all of the resections made have been done for this reason, but there is one condition which in the future may lead to the choice of resection. When there is a cavity surrounded by a thick wall of adhesions, we cannot compress this cavity unless these adhesions are broken up. In attempting to force the separation of the pleural layers, there

*Read at the ninth annual meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, May 7, 1913.

is danger of tearing the surface of the lung and causing an open pneumothorax, or of rupturing the walls of the cavity and causing empyema.

Volhard's report[10] well illustrates this danger. In these cases, a resection of the ribs would be safer than an artificial pneumothorax. In cases of incomplete artificial pneumothorax, when a portion of the lung is held out by adhesions and cannot be compressed, the force of the adhesions may be destroyed by resecting the ribs over them, and the rest of the lung compressed by nitrogen. In cavities of the lower lobe, when an artificial pneumothorax fails, a thorough resection of the lower ribs succeeds. In cases that have no money and cannot afford the time and expense of an artificial pneumothorax, the patient can get back to work more quickly.

The condition of the other lung, and the intestines and the larynx must be estimated just as we would for an artificial pneumothorax. The general condition must be better, and the heart stronger. The obliteration of an empyemic cavity is best accomplished by resecting the ribs first and then draining. In this way, the falling in of the chest wall abolishes the box-like cavity, approximates its walls, favors synechiæ, and forces out all secretions. Sauerbruch reports a brilliant success in a case of desperate pyopneumothorax.

In all, 90 progressive cases of pulmonary tuberculosis have been treated by resecting the ribs. Sauerbruch 43, Freidrich 29, Wilms 12, Landerer 6, Bang 3,[11] Delageniere 3,[12] Poppert 3, Turban, Spengler, Lenhartz,[13] Wolff,[14] Bier, and v. Mikuliz each 1. Out of 40 cases, Sauerbruch obtained 8 recoveries; 7 were markedly improved, and 4 of these will, in all probability, completely recover; 13 were improved, 6 of these 13 will probably improve more and possibly recover; 3 were unaffected, 4 declined rapidly, 1 died as a result of the operation.

Taking the deaths that occurred in a year after operating there was a mortality of 17.3 per cent. The recoveries were 20 per cent. By recovery is meant the persistency of working capacity for over a year after the operation, with no fever, no sputum, and absence of tubercle bacilli. Think of this: first, 40 per cent. of recoveries in progressive cases have been obtained by an artificial pneumothorax, and out of the 60 per cent. of failures 20 per cent. have been saved by resecting the ribs, under local anesthesia and through a single incision. Does this look as if the future of progressive cases was altogether hopeless? It may be that hereafter the recognition of the progressive nature of a case will be an essential, cardinal point in the treatment of pulmonary tuberculosis; that when a case does not improve under what the Germans call symptomatic treatment, we shall feel bound to make an effort to determine whether this inability to make or hold a recovery demands radical efforts. It may be that we shall hold a physician who allows his patient to drift on and on until he is past the help of operative influence, as equally culpable and responsible for the death of this patient, as we now hold the internist who does not recognize appendicitis or typhoid perforation, or mastoid abscess, or any other surgical condition demanding surgical aid. The recognition of the progressive nature of a case far from releasing us from responsibility, will add another burden, that of deciding what must be done and when.

We must first of all be able to realize when a patient is unable to make his own fight and then come to his relief; first, by attempting an artificial pneumothorax, and, if this fails, then by resecting the ribs.

Moreover, as Rochelt says,[11] it is not only the patient that will be benefited. When we remember that these hopeless cases nearly always have cavities, and that they produce and excrete an incalculable number of tubercle bacilli hourly, we can appreciate the value to the community of a relatively harmless and simple operation that destroys the production of these bacilli and converts a most dangerous source of infection into harmless sterility.

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THE THYROID GLAND IN INFANCY.

PERHAPS there is nothing in medicine that is more interesting or that better shows how our knowledge has been brought together little by little than the history of our knowledge of the thyroid gland. Much that was learned became lost and had to be rediscovered. Conjecture upon conjecture was overturned to give way to beliefs a little nearer the truth. It shows that medicine has progressed aside from the laboratories which have to do with germs and parasites, and brings forth evidence very disconcerting to the antivivisectionist. As long ago as 1857 our scientific knowledge of the thyroid began when Schiff discovered the results which followed its removal and learned how to prevent these results by transplanting another thyroid gland into the peritoneal cavity of the animal. His work was soon forgotten and books continued to give for the existence of the gland explanations which now appear ridiculous. It was not until the late 70's that the "cretinoid state supervening in adults," as described by Gull, was discovered to be associated with atrophy of the thyroid gland. A few years later the surgeons recognized the chain of symptoms following total extirpation of the gland for goiter. Then it was that Sir Felix Semon pointed out that cretinism and myxedema of adults are identical and probably due to the same cause. This suggestion of Semon's was taken up in an organized investigation by the Clinical Society of London with Sir Victor Horsley in charge of the experimental work. He, quite independent of Schiff's long-forgotten work, recommended the grafting of thyroid as a method of treating myxedema in man. His suggestion was followed up by some surgeons and it was noted that the patients' condition improved immediately. It was this immediate occurrence of the improvement that led Murray to treat a myxedematous patient by hypodermic injections of an extract of the thyroid gland of a sheep. This proved to be a remarkable discovery and was soon enhanced by the further discovery by others that just as good results followed the administration of the extract by mouth.

At the same time that this good work was going on Gley rediscovered the parathyroid bodies which had been described ten years before by Sandström. It was because of ignorance of the physiology of these bodies that the surgery of the thyroid was unsuccessful for many years. From the results of experimental extirpation of the thyroid gland in animals it was held for a time that the thyroid was of less importance to herbivorous animals than to carnivorous animals. This was because one pair of the parathyroids in herbivorous animals is situated much lower and hence escaped removal. A wonderful amount of experimental work was carried on to learn more about the thyroid and parathyroids. All experimental work was soon somewhat checked, however, by the discovery of accessory thyroid gland tissue and accessory parathyroid bodies whose presence or absence could not be ascertained without an almost illimitable amount of work.

There is a recent contribution which may be turned to some practical advantage. S. Simpson (*Jour. of Exp. Physiol.* Vol. VI No. 2) has shown that age is an important factor in the effects which follow thyroidectomy and parathyroidectomy in the sheep. Simpson found that cretinism followed extirpation of the glands only in very young sheep. The practical bearing of this is that the thyroid is of the greatest importance during infancy and that if cretinism is to be properly treated it must be recognized early and treated immediately. His success in causing such well-marked cretinism is no doubt partly due to using lambs born of thyroidectomized ewes. There are many things which point to the relation of the thyroid to the reproductive system. In fact, in some of the lower forms of animals the probable analogue of the thyroid discharges its secretion directly into the uterus. Cretins are sterile. The reason why thyroidectomized animals may become pregnant is because of the accessory gland tissue or the well-known compensatory hypertrophy of similar tissue in the pituitary gland. The production of cretins of these lambs from thyroidectomized ewes recalls the heredity factor noted in Switzerland where goitrous parents are apt to beget cretins. This should serve to put us on our guard in observing the infants born of mothers with diseased thyroid glands. Cretins are rare, but if they are to be prevented treatment must be begun very early.

CRANIAL SURGERY, ANCIENT AND MODERN.

THE recent death of Dr. Hartley of New York deprived this country of one of the few surgeons who have helped to make America pre-eminent in the development of brain surgery. England, which has also made signal advances in this field, apparently acknowledges this supremacy. In the preface to his recent work on the surgery of the skull and brain, L. Bathe Rawling* states that he has been able to present the most modern aspects of the subject as the result of a visit to some of the leading surgical clinics of the United States. In

*"The Surgery of the Skull and Brain," by L. Bathe Rawling, F.R.C.S., Surgeon, with charge of Out-Patients, Senior Demoustrator of Practical Surgery, Demonstrator of Operative Surgery, St. Bartholomew's Hospital; late Hunterian Professor, etc. Price $6.00. Loudon: Henry Frowde, Oxford University Press: Hodder & Stoughton, 1912.

acknowledging this graceful compliment one must at the same time pay a tribute to the author's comprehensive grasp of his subject matter and to his skill in writing a work that bears the double imprint of scholarship and originality. The appearance of this work is timely, for the phenomenal achievements in the surgery of the brain and skull have mostly been made within recent years, and the literature recording them has been widely scattered in special journals.

Those who have kept in touch with this literature are probably familiar with the modern conceptions of craniocerebral topography, and with the newer technique and indications of operations on the skull and brain. It may suffice to recall that this progress has resulted in widening the scope and increasing the indications of these operations. A policy of inaction is no longer justified in the case of fractures of the skull, intracranial injuries, tumors of the brain, and infective diseases of the skull and brain.

The reproach has gone forth that many of those who have essayed operative work on the skull and brain have not been adept in surgical technique. Possibly this reproach has been justified so far as it concerned the activities of those who in their special work about the ear and to a less extent about the nose and its accessory sinuses have been compelled to deal with intracranial complications but who have not brought to bear upon this phase of their work the rigid demands of modern surgical asepsis and the newest technique. There can be no excuse nowadays for the inefficient preparation of the patient or the unskilful administration of the anesthetic. Rapidity of operation is no longer considered essential. It is surprising to note that Rawling prefers chloroform as the anesthetic, alleging that since it lowers the blood pressure there is less venous oozing, and that there is less liability to postoperative vomiting. American surgeons are not likely to substitute chloroform for ether, even though the risks of the former are diminished by expert administration.

Surgical maneuvers on the skull and brain have within recent years been greatly facilitated by the introduction of more efficient methods of hemostasis. The use of Cushing's or Rawling's scalp tourniquet, of Kredel's hemostatic sutures, or of Vorschütz's safety-pins fully controls hemorrhage from the scalp. Bleeding from the bone is likewise adequately arrested by means of wooden or bone pegs, plugs of cotton wool, and Horsley's wax. Hemorrhage from the dural vessels is stayed by means of gentle pressure with gauze, the application of a flattened bit of muscle to the bleeding point, underrunning the latter with a fine silk ligature, or the use of Cushing's silver wire clips. The troublesome bleeding from the superficial vessels of the brain is controlled by means of pressure with dry gauze or gauze wrung out in hot saline, or, if this fails, by the use of fine silk ligatures. All these are mentioned in order to show how the management of small details has greatly broadened the scope of cranial surgery.

It is impossible to enumerate in this place more than a few of the modern advances in this field of surgery. One of the most important of these is the recognition of the value of decompression in the relief of many cerebral conditions. Rawling prefers the musculotemporal decompression operation of Harvey Cushing to that of cerebellar decompression. He regards venesection as a valuable means of reducing the minor grades of increased intracranial pressure and finds that lumbar puncture is of little use in reducing the general intracranial pressure. Operative interference is invoked in the early stages of severe cerebral injuries, and in such remote effects of the latter as neurasthenia, cephalalgia, epilepsy, and insanity. In discussing the results of operations on brain tumors, Rawling states that with the improved technique of brain surgery and with more exact localization the mortality has diminished from 40 to 20 per cent., and that the great secret in operating lies in knowing when to give up the attempt at removal and when to be satisfied with a mere decompression operation.

It is curious to note that trephining is a branch of surgery that was widely practised even in prehistoric times. The neolithic skulls unearthed in France and the skulls of the pre-Columbian period discovered in Peru, bear ample evidence of the widespread use of this operation. The perfection with which square and round openings, small and large, single and multiple, were made by means of stone or flint implements, the site of election of these trephine holes upon the parietal region of the skull, at a safe distance from the venous sinuses—all indicate that the prehistoric surgeons had considerable knowledge of cranial anatomy and performed this operation with definite indications in view. Thirty-five years ago the distinguished French surgeon Lucas-Championnière published an exhaustive historical and clinical study of trephining, a work which first drew attention to the surgical possibilities of this operation. Today the same writer* returns to his early theme and shows that many of the older theories as to the purpose of the prehistoric trephining are erroneous. Broca was one of those who advanced the view that the primitive operation was performed on individuals in order, as the ancients thought, to permit of the escape of demons that were the cause of mental alienation or malefaction. The operation is performed at the present day among savage and semicivilized races, notably among the Kabyles of Algeria and the mountaineers of Montenegro, just as it was practised by the ancient Peruvians. Among the Kabyles the art is transmitted from father to son, and one instance is recorded in which the operation was performed on an individual, himself an expert operator, a dozen times. The purpose of the tribal surgeon is to relieve persistent headaches. He has no conception of the efficacy of this operation in the treatment of cranial fractures or other trau-

*"Les Origines de la trepanation décompressive, trépanation néolithique, trépanation pré-Colombienne, trépanation des Kabyles, trépanation traditionelle." Par le Dr. Lucas-Championnière, Membre de l'Institut (Académie des Sciences); Chirurgien Honoraire de l'Hôtel-Dieu; Membre de l'Académie de Médecine; Ancien Président de la Société Internationale de Chirurgie. Avec 32 figures. Prix 5 fr. Paris: G. Steinheil, 1912.

matisms. In fact, fractures of the skull among the Kabyles are practically unknown. None of the prehistoric trephined skulls shows any evidence of a fracture. Unless the entire fractured area was wholly removed in every instance, which is regarded as improbable, Lucas-Championnière concludes that the purpose of neolithic and pre-Columbian trephining was the same as that of semi-civilized races to-day, namely, the relief of headache. In other words, the primitive surgeon, with his sharpened flint, had practised cerebral decompression just as it is advocated in modern cranial surgery.

The Anti-alcohol Physicians in Munich.

The personnel and point of view of medical men who practise where the per capita consumption of alcoholics reaches a high point should be of interest to physicians of the United States. It is somewhat unfortunate that many of the latter, when they pronounce against alcohol speak simply as asylum physicians or proprietors of sanatoria for alcoholics and drug addicts and seem to be incapable of forming an unbiased judgment regarding the moderate use of alcohol by sane individuals. The men of Munich who are opposed to the use of alcohol appear to be those who are naturally concerned with children and youth and with those who, if intoxicated, are actually a direct menace to the common welfare. At the annual meeting of the German Medical Temperance Society (*Münchener medizinische Wochenschrift*, June 17, 1913), Engel said he had been endeavoring to convince chauffeurs and owners of automobiles of their peculiar dangers from alcohol. His leaflets were mostly accepted in the proper spirit, although one club refused them. Hecker, representing the school physicians, spoke of enlightening the growing child as to what alcohol may do to him, and we can well imagine that in a community where children receive beer at home, often from infancy, such instruction is bestowed to some purpose. Bayr showed by psychological tests the mental inferiority of school children who had become alcoholized. The percentage of child teetotalers is increasing, and all who have any supervision of youth, including athletic instructors, are asked to see that as far as possible children grow to manhood without alcohol. There is no suggestion here of antagonism toward adults who are not abstainers, and even dealers are not abused. The harm exerted by alcohol upon children seems to be a matter of proof, although the documents by Zieben, Kraepelin, and others based on the effects of alcohol on adults are not applicable to children who require proofs adapted to themselves alone. The psychological studies of Bayr already mentioned, upon children who have already become addicted to alcoholics, gives us the desired method, which has been corroborated over and over and in different countries.

Primary Tuberculosis of the Gums.

Benign or semibenign tuberculosis of the gums in a healthy subject is not of very common occurrence, and the description of a case given by Van Tappeiner at the Greifswalder Medizinischer Verein (*Deutsche medizinische Wochenschrift*) will serve to call the attention of doctors and dentists anew to the subject. The patient was a boy aged 16. For two years past he had suffered from a chronic affection of the upper gum, characterized by increased swelling and frequent hemorrhage and pain. That part of the gum actually involved was the anterior aspect of the alveolar processes of the upper jaw, and the tissues between the right and left canine teeth were relaxed, swollen, and hemorrhagic. This area was sharply marked off from the sound adjoining mucosa of the upper lip, and also projected considerably above it. Processes of the inflamed gum extended between the teeth, and even into the carious cavities. The mucosa of the gum in this area seemed to have vanished. All the regional lymph nodes were swollen. In treating this case all the inflamed gum was extirpated, and the Paquelin cautery applied to the raw surface. The tissues so removed showed to the microscope typical tuberculous nodules; also the fragments from curettage of the teeth cavities gave positive finds. Some teeth which had become loosened were made fast. The lymph nodes were treated with the *x*-rays.

News of the Week.

Safety Exposition.—The First International Exposition of Safety ever held in America will, as previously announced, be held in New York from December 11 to 20, 1913. The exposition will be unlimited in its scope, embracing everything devoted to safety, health, sanitation, accident prevention, and the advancement of the science of industry.

Treatment of Poliomyelitis.—The Hospital of the Rockefeller Institute for Medical Research announces that, beginning on July 15, cases of poliomyelitis will be received for treatment in the hospital during the summer, as during the two previous summers. Physicians desiring to secure hospital treatment for patients ill with this disease are invited to telephone to the Rockefeller Institute (Plaza 6800), when the hospital officials will arrange for the sending of an ambulance for the case.

Historical Medical Museum.—The ceremony of opening the Historical Medical Museum of London, organized by Mr. Henry S. Wellcome, was performed on June 24 by Dr. Norman Moore, in the presence of Sir Thomas Barlow, president of the Royal College of Physicians, Sir Frederick Treves, Sir Rickman Godlee, president of the Royal College of Surgeons, and Sir Francis Champneys, president of the Royal Society of Medicine. The museum contains a remarkable collection of rare and curious objects of historical interest connected with medicine, surgery, and the allied sciences from all parts of the world, and will be an important addition to the studies of the International Medical Congress. The present collection is to form the nucleus of a permanent Historical Medical Museum in London. This is distinct from the general medical museum referred to below.

Medical Congress Museum.—Arrangements for the organization of a museum in connection with the International Congress of Medicine to be held in London next month have been entrusted to a committee headed by Prof. A. Keith of the Royal College of Surgeons, London. Exhibits illustrative of subjects to be discussed in the different sections of the Congress will be contained in the Museum, and it is believed that such a central collection will have many advantages over the exhibits of former years, which have been arranged and exhibited by each section separately. Accommodation has been se-

cured at the Imperial College of Science, South Kensington, and the committee appeals for exhibits, which it will insure against damage and loss. It will also pay all costs of transit. Communications in regard to exhibits may be addressed to the Honorable Secretary of the Museum Committee, H. W. Armit, Ravenhurst, Talbot Road, Wembley. It is expected that the museum will be kept open for a few days after the Congress has ended.

The International Association of Medical Museums will hold its second triennial meeting at the Museum of the Royal College of Surgeons and at the Museum of the XVII International Medical Congress, London, on August 5-7, 1913. The address of the president, Dr. Aldred Scott Warthin of Ann Arbor, Mich., will be on "The Ideals and Functions of the International Association of Medical Museums." There will be a symposium on replies received to the "experience circular," giving various details of preferred methods of preparing and preserving specimens, and also a number of set papers and demonstrations on museum technique both macroscopic and microscopic.

Radium Supply.—It is reported that German agents have bought up all the available radium in England, which amounted to only one-eighth of the quantity desired, and that the price paid was at the rate of $2,400,000 an ounce, cash down.

Dole for Blind.—The blind poor of the Borough of Manhattan, New York City, received, their semi-annual allowance from the Department of Charities on July 18. The sum of $25 each was given to 555 blind persons, the requirements being that the person must be a citizen over twenty-one years of age, an inhabitant of the city for more than two years, and without near relatives competent to support him.

County Tuberculosis Hospitals.—The Boards of Supervisors of New York State have recently provided for the erection in their respective counties of hospitals for the treatment of tuberculosis. In Cattaraugus County the Board appropriated $18,000 to build such a hospital and appointed a committee to acquire a site. In Onondaga County plans calling for an expenditure of $154,000 for the building of a tuberculosis hospital were approved, and an appropriation of $37,000 additional for a site was made. In Schenectady County $10,000 was appropriated for a twenty-bed addition to the present County Tuberculosis Hospital. Finally, in Saratoga County the Board voted to increase its former appropriation of $8,000 to $30,000, and let contracts for the construction of the hospital.

Hospital Site Sold.—The Governors of St. George's Hospital, London, have accepted a proposal for the sale of their present site for $2,350,000, and will probably amalgamate with the Westminster Hospital in the erection of new buildings in a suburb of the city. It is reported that a large hotel will be erected on the hospital site which is directly opposite the Piccadilly entrance to Hyde Park and has long been regarded as one of the finest sites in London. The hospital by the term of the contract will remain in possession for two years longer, by which time the new buildings will be ready.

Dr. Burdette L. Arms, formerly director of the Boston Bacteriological Laboratory, has been appointed State Superintendent of Bacteriology of Oregon.

Dr. James F. Donnelly, formerly of this city, has removed to Highlands, N. C., where he is one of the physicians in charge of the Highlands Camp Sanatorium.

Professor Carl von Noorden has decided to resign his professorship in the University of Vienna and return to Frankfort. Professor His of Berlin is mentioned as his successor, but it is doubtful whether he would be willing to leave Berlin to go to Vienna.

Centenarian Dead.—Mrs. Freda Bidietzky of Philadelphia, said to be 109 years old and the oldest inhabitant of the city, was found dead in her bed on July 15.

Congress on School Hygiene.—Mayor Gaynor has appointed the following persons to represent the City of New York at the Fourth International Congress on School Hygiene in Buffalo next month: Dr. Luther H. Gulick, Dr. L. Pierce Clark, Miss Lillian D. Wald, Howard Bradstreet, Lawrence Veiller, Owen Lovejoy, Mgr. Lavelle, Dr. L. Emmett Holt, Miss Eleanor H. Johnson, Health Commissioner Lederle, and Frank H. Mann.

State Statistics.—For the month of May, 1913, statistics show that 12,261 deaths occurred in New York State, and that for the same period the births numbered 18,260. The number of deaths was 250 greater than that for the same month of 1912. Pulmonary tuberculosis caused 1,309 deaths, other forms of tuberculosis, 216; cancer, 699; Bright's disease, 885; pneumonia, 826. There were 128 suicides; 117 persons were drowned; 43 murdered, and 5 killed by electricity. Old age was the cause of death in 155 cases, and railroad accidents were responsible in 125.

Infant Mortality Low.—During the week ending July 12, there occurred in New York City 272 deaths of infants under one year of age, as against 309 in the corresponding week of 1912.

Bequests to Charities.—The German Hospital of Philadelphia receives a bequest of $1,000 under the will of the late Otto Bacmeister of Philadelphia, and a bequest amounting to one-ninth of the estate of Barbara Tresch, who died recently in Switzerland.

By the will of the late Isaac Blum of Philadelphia the sum of $250 each is bequeathed to the Jewish Hospital and the Mount Sinai Hospital, the sum of $200 to the Philadelphia Jewish Sanitarium for Consumptives and the sum of $150 to the Jewish Maternity Hospital.

Reciprocity in Oklahoma.—The State Medical License Board of Oklahoma now reciprocates with New Mexico, Texas, Nebraska, Nevada, South Dakota, Michigan, Wisconsin, Arkansas, Mississippi, Kentucky, Tennessee, North Carolina, and West Virginia.

California Medical Practice Law.—A new Medical Practice Act for the State of California becomes effective August 11, 1913. It makes provisions for the indorsement of the licenses of applicants from other states if their qualifications prove acceptable. It also provides for the granting of a license without examination to applicants who have served in the regular U. S. Army or Navy Medical Corps. The new Secretary of the Board is Dr. Charles B. Pinkham, 929 Butler Building, San Francisco.

Medical Society Elections.—AMERICAN INSTITUTE OF HOMEOPATHY.—At the sixty-ninth annual convention of the American Institute of Homeopathy, held last week in Denver, the following officers were elected: *President,* Dr. Dewitt G. Wilcox of Boston; *First Vice-President,* Dr. Grant S. Peck of Denver; *Second Vice-President,* Dr. Anna B. Varner of Pittsburg; *Treasurer,* Dr. Thomas Franklin Smith of New York; *Secretary,* Dr. J. Richey Horner of Cleveland.

Maine Medical Society.—At the conclusion of the annual meeting held in Portland on July 3, the following officers were elected: *President,* Dr. William C. Peters, Bangor; *Vice-Presidents,* Dr. Eben J. Marston, Bath, and Dr. Caleb J. Emery, Biddeford; *Secretary,* Dr. John B. Thompson, Bangor; *Treasurer,* Dr. E. W. Gehring, Portland.

Dallas Medical and Surgical Society.—The following officers were elected at a meeting held in Dallas, Tex., on June 28; *President,* Dr. John M. Neel; *Vice-Presidents,* Dr. S. E. Milliken and Dr. R. B. McBride; *Secretary,* Dr. F. A. Pierce; *Treasurer,* Dr. A. M. Gantt.

Iowa and Illinois Central District Medical Association.—At the annual meeting of this society, held in Davenport, Ia., on July 10, the following officers were elected: *President,* Dr. Peter A. Bendixen, Davenport; *Vice-President,* Dr. Frank H. Gardner, Moline, Ill.; *Secretary,* Dr. Lawrence W. Littig, Davenport; *Treasurer,* Dr. F. H. First, Rock Island, Ill.

Lehigh Valley (Pa.) Medical Society.—At the annual meeting held at Buckwood Inn, Shawnee on the Delaware, on July 17, the following officers were elected for the ensuing year: *President,* G. S. Seiberling, Allentown; Vice-Presidents, J. G. Sern, Lehighton; J. E. Williams, Wilkesbarre; H. D. Keller, Bangor; J. H. Sterns, Delaware Water Gap; *Treasurer,* A. A. Seem, Bangor; *Secretary,* J. W. Luther, Palmerton. *Executive Committee,* F. B. Lydle, Birdsboro; J. N. Richards, Falsington; J. N. Best, Rosemond; J. B. Corser, Scranton; I. R. Bucher, Lebanon; J. Hornbeck, Catasauqua; U. E. Beckman, Wilkesbarre; E. H. Kistler, Lansford; W. L. Angle, East Stroudsburg; J. G. Mensch, Pennsburg; A. L. Kotz, Easton; Mary Dekay, Sunbury; David Taggart, Frackville; C. M. Williams, Washington, N. J.

Obituary Notes.—Dr. George W. Terriberry of Paterson, N. J., a graduate of the Bellevue Hospital Medical College, New York, in 1886, a member of the New Jersey State and Passaic County Medical Societies, a veteran of the Civil War, and formerly surgeon-general in the New Jersey National Guard, died at his home from heart disease, suddenly, on July 14, aged 73 years.

Dr. Charles Plummer Morrill of North Andover, Mass., a graduate of the Georgetown University School of Medicine, Washington, in 1866, a veteran of the Civil War, and a member of the Massachusetts State and Essex County Medical Societies, died at his home on June 27, aged 73 years.

Dr. William Henry McFadden died at Philadelphia on July 2 at the age of 85 years. He was graduated from the college department of the University of Pennsylvania in the class of 1849 and from the medical department of Pennsylvania College at Gettysburg in 1852. In 1873 he became chief engineer in the Philadelphia Water Bureau and he continued in this position until 1883. Later he was connected with the Camden Gas Works and the American Gas Meter Company.

Dr. Ferdinand N. Sauer of Jersey City, N. J., a graduate of the College of Physicians and Surgeons of Baltimore in 1901, a member of the American Medical Association and the New Jersey State and Hudson County Medical Societies, and formerly chief inspector of the Jersey City Board of Health and credited with the organization of pasteurized milk depots and clinics for the poor of the city, died at his home on July 8, aged 39 years.

Dr. Ruth A. French of San Diego, Cal., a graduate of the Woman's Medical College of Pennsylvania in 1867 and at one time professor of anatomy in that institution, died at her home on June 23, aged 74 years.

Dr. David Howland Cannon of Mattapoisett, Mass., a graduate of the Harvard Medical School, Boston, in 1873, and for many years chairman of the Mattapoisett Board of Health, died at his home on July 2, aged 69 years.

Dr. Soloman A. Metty of Topeka, Kan., died at his home in that city on June 30, aged 77 years.

Dr. William Joseph Glinnen of Brooklyn, a graduate of the Bellevue Hospital Medical College, New York, in 1897, died in St. Catherine's Hospital, Brooklyn, following an operation for appendicitis, on July 13.

Dr. Warren Nichols Horton of Los Angeles, Cal., a graduate of Washington University Medical Department, St. Louis, in 1903, professor of genitourinary diseases in the College of Physicians and Surgeons of Los Angeles, formerly city bacteriologist, and a member of the American Medical Association and the California State and Los Angeles County Medical Societies, died suddenly at the Angelus Hospital after an operation for appendicitis on July 5, aged 32 years.

Dr. Clinton H. Catherwood of Denver, Col., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1895, died at his home from tuberculosis on July 1, aged 40 years.

Dr. Jethro G. Bohannon of Greenville, Ky., a graduate of the University of Louisville, Medical Department, in 1874, a member of the Kentucky State and Muhlenberg County Medical Societies, and for many years a member of the Muhlenberg County Board of Health, died at his home on July 4, aged 62 years.

Dr. Wallace B. Deffenbaugh of St. Joseph, Mo., a graduate of the Starling Medical College, Columbus, O., in 1885, professor of obstetrics in the Ensworth Medical College of St. Joseph, and a member of the American Medical Association, the Missouri State and Buchanan County Medical Societies, and the St. Joseph Surgical Society, died suddenly in his office on July 2, aged 52 years.

Dr. Charles O. McCune of Unionville Center, O., a graduate of the College of Physicians and Surgeons of Baltimore in 1879, and a member of the Ohio State and Union County Medical Societies, died at his home suddenly on July 5, aged 66 years.

Dr. William Wayne Ashhurst of Philadelphia, a graduate of the Medical Department of the University of Pennsylvania, and for sixteen years a practitioner of Chihuahua, Mexico, died at University, Va., after a long illness, on July 14.

Dr. Isidore Clarence Smulyan of Salt Lake City, Utah, a graduate of the Baltimore Medical College in 1901, died at his home from pneumonia on June 30, aged 35 years.

Dr. Clark Ingersoll Wertenbaker of Washington, D. C., a graduate of the Georgetown University School of Medicine, Washington, in 1894, a member of the American Medical Association, formerly first lieutenant in the Medical Reserve Corps of the United States Army, died at his home on July 6, aged 39 years.

Dr. Leland H. Munger, of Winona, Minn., a graduate of the Missouri Medical College, St. Louis, in 1879, and a member of the American Medical Association and the Minnesota State and Winona County Medical Societies, died at his home on July 9, aged 56 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HOSPITALS ASSOCIATION—FEEDING SCHOOL CHILDREN—ST. JOHN'S HOSPITAL—PARLIAMENTARY RETURN ON INSURANCE ACT—BIRTHS AND DEATHS FOR 1912—DR. GOULD GIVES RADIUM TO HIS HOSPITAL—SIR CH. TUPPER—HUNTERIAN MUSEUM—R. C. S. ELECTION—OBITUARY.

London, July 4, 1913.

On the concluding day of the annual conference of the Hospitals Association, Sir William Osler again presiding, Mr. Keith Young read a paper on the cost of maintenance which he showed was affected by mistakes in planning as well as errors of construction, including the use of inappropriate material. As an example, he said excessive length of corridors increased the cost of cleaning, whitewashing, and heating. Mr. Conrad Thies urged the importance of taking the best advice of engineering, electrical and building experts in addition to that of the architect. In a visit to a very large hospital in course of erection he was astonished to find a number of points likely to cause trouble in a few years. At St. Bartholomew's in a receiving room almost perfectly equipped there was no provision for wheeling patients into the casualty room instead of carrying them up steps. It seemed almost incredible. Sir Henry Burdett considered the plan of Bartholomew's was wrong. They could not find an architect to carry out a modern hospital without such mistakes. An expert hospital administrator ought to be associated with the architect. He deprecated interference with plans after they had been accepted and lamented that medical men did not realize the waste of money that was caused by failure to think out their requirements before the plans were made. Sir William Osler, returning thanks for re-election as president, said they looked to those who managed the hospitals to carry out the new ideas that were continually coming forward. He referred to the Peter Brigham hospital at Boston as the realization of a new ideal. There they had built only two units—the medical and surgical—and what impressed him was the simplicity. In future the profession would ask for hospitals to be built on lines not yet realized—on lines of individual units, each to be in charge of a single person, with groups of assistants and with laboratories and equipments ready to hand. This generation might not be asked to do it, but he had no doubt that doctors and workers would in the future demand hospitals so constructed.

The teaching of school children has been the leading subject discussed at a conference held this week at the Guildhall, the Lord Mayor looking in from time to time to welcome the members of the various institutions taking part. Overcrowding bulked largely in the view of teachers, who further complained that the classes were as a rule too large for the best results to be attained. Malnutrition, anemia, and various debilitating diseases, even tuberculosis, were dealt with by an assistant school doctor as prevalent in slum districts, where the children were not sufficiently in the open air. Another advocated the natural remedy, open air meals, open air employments and exercise as parts of the curriculum. The "Free Meal Act" was generally held to have been successful, and the manner of carrying it out by different local authorities freely discussed. Many congratulated themselves that this is the age in which the children, after generations of neglect, seem to be coming into their rights. On the other hand, one hears outside these educational assemblies an undercurrent of doubt as to how far this socialistic dependence on the State is to carry us. Free education, free doctoring, free meals and so on, they say, it will soon be everything free and the boasted British independent spirit gone. But as to the working of the free meals by local authorities, the plan adopted by Bradford was described by the superintendent as giving varied palatable meals under the management of persons in sympathy with children, so as to secure order, brightness and good manners. In that city breakfasts and dinners were prepared in a central kitchen and taken in cans and boxes by motor van and tram car to the several dining rooms where teachers and monitresses who volunteered for the work served the food. To determine who were entitled to partake, the rule was that when the total weekly income of the family, after deducting rents, was less than 3s. per head dinner was allowed; when less than 2s. per head, breakfast also. The result was declared to have been evident in the increased physical strength, mental alertness and better manners of the children thus treated. Other plans were described, and it was urged that the intimate association of the work with the medical service department showed that it should be supervised by the doctor, who should examine each child at definite intervals and remedy any physical defects. The teeth should specially be watched and attended to, which seems to prepare for the demand of dental surgeons being appointed. Sir George Kekewich, presiding at one of the meetings, said free meals formed the corollary of free education without being socialistic. Dr. Bulger admitted this but added that the result of philanthropic efforts had too often been to cultivate the "rotter."

The history of St. John's Hospital for Diseases of the Skin is a story of successive disputes which concern the medical staff. Those old enough to remember its being started trace back disagreements almost to the beginning. The constitution of the hospital is very unusual, perhaps unprecedented, for it has been registered as a corporation and its rules must be in accordance with the law of such bodies and embodied in articles of association. The committee are the governing body and can perform all acts which consist in conducting the institution within the legal limits applicable. The last dispute has brought them into the law courts. It seems to have arisen in the old familiar story of friction in the medical staff, and very disagreeable allegations were bandied about and reached the public ear and some were repeated in the trial and not refuted. Certain representations were made to the committee by the majority of the staff—practically all except the senior, who was a member of the committee and opposed his colleagues. The dispute grew and eventuated in the committee dismissing the opposing members of the staff from their posts. Three of these, with the support of others, appealed to the Court (King's Bench) as to whether the committee possessed legal power to summarily get rid of them and asking to be reinstated or otherwise awarded damages. Here comes in the point of the constitution, for they were all members of the corporation which owned the property of the hospital, and it was asserted that the directors of a company could not exclude shareholders, even if they could servants. The judge held that the articles and rules

did not justify dismissal and ruled that the plaintiffs remained members of the corporation, awarding them damages of £50 each with costs, but he declined to grant an injunction to restrain the committee from excluding plaintiffs from the hospital.

A parliamentary return shows that to April 30 last 24,533 applications for sanitarium benefit under the Insurance Act were received. Of these, 2,183 were ineligible, 20,414 were recommended and 19,097 received the benefit. In residential institutions 10,239 were under treatment, 2,797 receiving dispensary and 6,661 domiciliary treatment. The cost was stated as £171,888.

From a summary of the Registrar-General's statistics for 1912 the birth rate and death rate both show the lowest figures on record. The death rate represented 13.3 per 1,000. The infantile mortality also was the lowest recorded—95 out of each 1,000 children born dying before the end of their first year.

Sir A. Pearce Gould has given £1,000 to the Middlesex Hospital to buy radium, requesting it may be used for the treatment of patients, especially those with malignant disease.

Sir Charles Tupper, whose remarkable career in politics will be known to you, is a medical graduate of Edinburgh, probably the oldest living, as he kept his 91st birthday on Wednesday. He has crossed the Atlantic 64 times, has been in Canadian politics since 1855, retiring in 1900.

The additions to the Hunterian Museum for the past year were on view yesterday and will remain for three weeks. There are 830, many of them most interesting.

Yesterday was the election of four Fellows to fill vacancies at the Royal College of Surgeons. The poll resulted in the election of Messrs. Ernest Lane, H. J. Waring, L. A. Dunn, and J. Hutchinson.

Surgeon Lieutenant-Colonel Horace Par Yeld, late of the Indian Medical Service, died at Harrogate on June 21, in his sixty-sixth year. He was in the Afghan War, for which he held the medal. Later he became deputy assay master of the Calcutta and Bombay Mints, and retired in 1894.

Brigadier-Surgeon E. Sexton died on June 25. He graduated at St. Andrew's in 1856 and at once entered the Naval Medical Service. Two years later he left this and joined the Indian service and was engaged in the military works until he retired in 1889.

Mr. Alfred Willett, Consulting Surgeon to St. Bartholomew's Hospital, died on June 30, aged seventy-six years. He was held in the highest esteem by the profession generally throughout his career. He qualified in 1859, took F.R.C.S. in 1862, was elected on the Council in 1887, and became vice-president and held other offices, including examiner in Cambridge University and the London Royal College of Physicians. He took a great interest also in King Edward's Hospital Fund. He was not a frequent contributor to the press, though he attended the societies and sometimes spoke, but his great work was as a clinical surgeon and teacher. He gave the Bradshaw lecture in 1897, taking for his subject "The Operative Treatment of Deformities."

Dr. Roderick Maclaren, consulting surgeon of the Carlisle Infirmary, who died on June 17, was one of the most distinguished provincial surgeons. He took the Edinburgh Medical in 1865, and after a voyage for health settled in Carlisle. He was elected surgeon to the infirmary in 1874 and remained until 1903, when on retirement he was made consultant. His eldest son succeeded him at the Infirmary.

OUR CANADIAN LETTER.

(From our Regular Correspondent.)

MEETING OF THE CANADIAN MEDICAL ASSOCIATION

The proceedings of the public health section were possibly of the most interest as well as the most important of any of the meeting. The first paper read was the report of the committee on medical inspection of schools by Dr. John Stewart of Halifax. Dr. Stewart's paper was read by proxy, he being in Edinburgh whither he had gone to receive the degree of LL.D. from Edinburgh University, his alma mater. Dr. Stewart after reviewing the work being done in all the provinces stated that he was compelled to conclude that medical inspection of schools in Canada was yet in its elementary stage. While progress had been made in the cities, owing to the efforts of the few, apathy was still exhibited in the smaller places and this condition of affairs would continue to exist until some definite system had been worked out that would constitute a national standard. For this reason, therefore, there was need for a national public health service that could deal with such questions as immigration, sanitation of factories, control of diseases, adulteration of food along with medical inspection of schools.

A lengthy discussion of the question took place and a committee was appointed consisting of Dr. James Halpenny of Winnipeg, Dr. Park of Edmonton, and Dr. J. Hutchinson of Westmount. The chief recommendation of this report was that for the present the inspection of children should be done by an appointee of the school board working in conjunction with the medical officer of health. At the close of a long discussion on this recommendation, it was decided to leave the matter over for another year and to have it take a prominent place on the programme of the next convention. A considerable difference of opinion existed as to which body should control the inspection of children, the school authorities or the board of health.

Another very important matter discussed was that of the control of venereal diseases. Two papers were read dealing with the question—one by Dr. H. W. Hill of London and the other by Dr. F. A. Clarkson, Toronto. Dr. Hill said in part that in many respects syphilis might be compared with typhoid fever and as it was criminal for a city to allow its citizens to drink polluted water, in his opinion so should it be criminal to allow venereal diseases to spread, destroying the race and blasting future generations. While in one respect it was a question of morals, it was likewise a physical matter involving the future well being of the race and as such should receive the legislative attention its importance entitled it to. During the discussion Dr. Adami of Montreal advised that the moral aspects of the case should not be considered. Not because the profession was not heartily in accord with the views of the moralists, but because the view of the medical profession was purely a physical one.

Dr. F. A. Clarkson in his paper advocated the establishment of segregated areas with medical inspection as a means of preventing the spread of venereal diseases.

Dr. Dill in the discussion that followed pointed out that moral suasion had been tried for centuries

without any good results and said that it was now necessary that legislation be introduced which would control the spread of such diseases. Dr. Hutchinson of Westmount thought that what moral suasion could not accomplish, legislation would not. Dr. R. E. Woodehouse of Port Arthur said that in Fort William there was a segregated area and that this plan tended to keep down the spread of venereal diseases. Dr. Halpenny of Winnipeg totally disagreed with the view that segregated areas had any influence on the spread of these infections, and held that where there was a segregated area disease was spread among shop and factory girls. Prostitutes, as a rule, were careful to avoid diseases, since their living depended upon their health. He declared that in his opinion segregation always was and must always be a hopeless failure. He suggested that hospitals and jails be required to report on all cases of venereal diseases coming under their notice. Dr. Adami of Montreal pointed out that in some countries no statistics as to prevalence of venereal diseases were available and in few countries were figures relating to this matter sufficent to be of much use. Sweden had been the first country to demand notification of syphilis and gonorrhea and in parts of Australia efforts in this direction had been put forth. The first step to be taken was to procure statistics with regard to the prevalence of venereal diseases and the aid of legislatures should be invoked for this purpose. A committee to report on the subject was formed composed of the following members: Professor Harris of Halifax; Dr. Bapty of Victoria, B. C.; Dr. Halpenny of Winnipeg, Dr. Hill of London, and Dr. E. L. Williams of London. In this report the recommendation was made that Provincial Boards of Health be asked to have venereal diseases added to the list of reportable infectious diseases.

Dr. George Nasmith of Toronto read a paper on milk supplies, pointing out the need for absolute cleanliness from start to finish. There should be regular inspection by municipalities and in addition farmers should be encouraged to use the "cow test" to insure quality. The only way of making milk an entirely safe article of diet in its uncooked state was by pasteurization. Dr. Bryce of Ottawa threw out the suggestion that municipal control of milk supplies would be a good thing. The control of supply and delivery of milk was in municipal hands in Wellington, N. Z., and the system was working well.

Dr. Lewellys F. Barker of Johns Hopkins University, Baltimore, gave an address on "Mental Hygiene." He said in part that by this term was meant the conservation and improvement of mental health to make men think better, act better, and become better than now. The imbecile, the criminal, the prostitute, the insane, were so because they had to be. Their minds worked that way. The majority had been born with a bad brain and acted as their brain directed, while others, though born with a good brain, because of some deleterious act, acted wrongly or criminally. Two sciences were dealing with the problem of mind improvement. One was the science of eugenics and the other was that of euthenics. The advocates of the first believed largely in heredity and were endeavoring to bring children into the world equipped with good brains. The other school believed that environment played the larger part in the development and expression of brain power. Both schools were of equal importance and there should be no quarrel between them. Dr. Barker sketched the recent campaign in the United States to make the public, the medical men, and the law givers recognize the importance of the question of mental hygiene. Criminality, prostitution, imbecility, and the like were due to bad brains, and by enacting proper laws to prevent marriage of the unfit, to check the spread of diseases that affect the physical well being of the coming generation, much of the evil could be stamped out. The benefit of institutional training for the mentally unfit was highly extolled by Dr. Barker. He said that in his opinion psychiatric clinics should be held frequently, and that school teachers should be educated to recognize the abnormal children and segregate them or have them placed in institutions where their mental well being would be assured. Such a campaign according to Dr. Barker ought to produce as good results in Canada as it had in the United States.

Dr. Hill of the Institute of Public Health, London, gave an account of health statistics secured from the parents of 8,000 children attending the schools of London. He computed that each child in the city had 2.5 infections during the ages from 5 to 12. Taking the figures as typical of the whole province he concluded that during each year there were 300,000 cases of infectious diseases, which at the very low estimate of $2 per case would mean that the province expended $600,000 annually for the care of these cases. The monetary loss was great, not to mention the deaths and suffering following. Medical men should do all in their power to prevent the spread of these preventable diseases Every year there were at least 15,000 cases of scarlet fever in Ontario, 37,500 cases of measles, and 27,000 cases of whooping cough.

Dr. Helen MacMurchy of Toronto presided excellently well over the public health section and on the evening of June 26 delivered an illustrated lecture on public health. Dr. MacMurchy made the statement that the standard of public health was high in Canada.

(To be concluded.)

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 10, 1913.

1. The Typhoid Carrier Problem. C. L. Overlander.
2. The Treatment of Cardiac Edema with Alkali and Salt. L. H. Newburgh.
3. Cancer of the Stomach. P. E. Truesdale.
4. Some Relationships between Orthopedic Surgery and Internal Medicine. H. W. Marshall.
5. Report of Eighteen Cases of Separation of the Lower Femoral Epiphysis at the Boston City Hospital. H. Binney and F. B. Lund.
6. Excessive Polyuria of Arteriosclerosis. W. E. Paul.

1. **The Typhoid Carrier Problem.**—C. L. Overlander believes that until some more easy, rapid and accurate method has been devised for determining the presence of the typhoid bacillus, and until one can effectively rid persons of this microorganism, detention of such persons in quarantine until successive negative findings, of exceedingly doubtful value, have been obtained, is an unwarranted proceeding, viewed from the standpoint of either the patient himself, the health officer, or the community. Such a procedure, involving a false confidence in their freedom from infected material, in those released, would be productive of more harm than good. It would be more practical and less arduous and would better conserve the public health to regard each person recovering from typhoid fever as a potential carrier, to carefully instruct him concerning this subject and

the precautions he should take, and if possible to forbid him to personally handle public food supplies. The application of any approved method, however good it may be, must not be limited to any community, city, state, or nation. It is a problem world-wide in its scope.

2. Treatment of Cardiac Edema with Alkali and Salt.—L. H. Newburgh has found that the administration of alkali in cases of cardiac edema does not cause diuresis. The administration of alkali plus salt in cases of cardiac edama does not cause diuresis. The administration of alkali plus salt to persons with heart disease may cause edema, and appears to be positively harmful.

5. Separation of Lower Femoral Epiphysis.—H. Binney and F. B. Lund state that owing to the danger of subsequent interference with growth, absolute reduction and fixation at the earliest possible moment are of great importance. Early and repeated *x*-ray examinations are necessary to control the completeness and permanency of the reduction. In simple cases, where immobilization in flexion fails to hold the fragment in correct position from the start, open reduction with the use of a small nail or bone-plate is indicated. In compound separation the same means of positive fixation is to be recommended. The foreign body should be removed soon after union has begun in order to avoid interference with growth. This should be done not later than the third week.

New York Medical Journal.

July 12, 1913.

1. Longevity and Rejuvenescence. I. L. Nascher.
2. Wounds. S. Lloyd.
3. The Relation of Industry to Diseases of the Heart and Lungs. J. M. Swan.
4. Diabetes Mellitus: Treatment with Bacillus Bulgaricus Cultures. J. W. Beveridge.
5. Further Notes on Prostitution in Japan. D. C. McMurtrie.
6. Exophthalmic Goiter. S. J. Essenson.
7. Anterior Poliomyelitis; Infantile Spinal Paralysis; Polioencephalomyelitis; Acute Central Infectious Paralysis. C. M. Hazen.
8. Neosalvarsan; Intramuscular or Intravenous? R. Ormsby.
9. Interpretation of Pain in Surgical Emergencies. L. K. P. Farrar.

3. Industry and Disease of the Heart and Lungs.—J. M. Swan suggests that corporations interested in the health of their employees should require a certificate of health, based on a careful physical examination, from each individual on the payroll. Then the subsequent medical history of the employees might be studied and the occurrence of diseases among them could be recorded and investigated as to their relation to the work and to the habits of the employees when not working. In such a system, patients with heart or lung disease can be given suitable employment, and would not be set to work at tasks too great for them, as is now very frequently the case. Such an inquiry would be productive of much valuable information concerning the effect of industry on the health of the workers. It would require, however, for the best results, that the physician in charge of such a department should be a man of sound judgment, capable of undertaking original investigation.

9. Interpretation of Pain in Surgical Emergencies.—L. K. P. Farrar seeks to show that the inflammatory process going on in acute surgical diseases is accompanied by characteristic pain—that pain definite in character has a definite cause. Nature does not permit any severe injury to the body tissues without sending a message of protest. By the recognition of the pain the surgeon is frequently able to locate the organ affected, to judge of the degree of injury, and to give a prognosis of the result, whether he can detect the inflammatory process in the organ affected or not. The hernia that one can see enlarge and redden as it becomes obstructed is no more dangerous to life than the ulcer eating its way through the wall of the appendix to pour its infection into the unprotected abdomen, or the ectopic gestation opening up bloodvessels preparatory to a fatal internal hemorrhage, but it is much easier to convince a patient of the urgent need of an operation in an obstructed hernia than in an acute appendicitis or ectopic gestation. Unlike the experience of one's childhood, when the things one sees are not half as fearful as the things hidden in the dark, pain plus the sight of a tumor undoubtedly gains the patient's assent to operation far oftener than pain hidden in the abdominal cavity, even though that pain may be of a much more severe type.

Journal of the American Medical Association.

July 12, 1913.

1. Posterior Gastrojejunostomy in Acute Perforative Ulcer of the Stomach and Duodenum. J. B. Deaver.
2. Radium in Skin Diseases. F. E. Simpson.
3. Skin Complications of Diabetes. B. Foster.
4. The Transmission of Treponema Pallidum from the Brains of Paretics to the Rabbit. H. Noguchi.
5. Diagnosis and Treatment of Multiple Urethral Calculi. With Report of Unusual Case. W. C. Stevens.
6. Clinical Methods for Estimation of Total Nitrogen and Ammonia-Nitrogen in Urine. J. Rosenbloom.
7. Injection of Boiling Water in the Treatment of Hyperthyoidism. M. F. Porter.
8. The Relation of Gastrostomy to Inoperable Carcinoma of the Esophagus. With a Description of a New Method of Performing Gastrostomy. H. W. Janeway.
9. Salvarsan Versus Profeta's Law. A. Ravogli.
10. Mesenteric Cysts. With Report of a Case of Sanguineous Cysts of the Mesentery of the Small Intestine. C. H. Frazier.
11. Tuberculosis Acquired Through Ritual Circumcision. L. Emmett Holt.
12. Pemphigus Foliaceus. J. B. Kessler.
13. The Action of So-Called Emmenagogue Oils on the Isolated Uterus. With a Report of a Case of Pennyroyal Poisoning. D. I. Macht.
14. Recent Improvements in the Quinine Treatment of Lobar and Lobular Pneumonia: The Auxiliary Use of Cocaine, Posterior-Pituitary Extract, and Bacterial Products. S. Solis Cohen.
15. The Human Stock Show. A. Ditson.
16. What Relation, if Any, Have the Faucial Tonsils to Pulmonary Tuberculosis? E. Fletcher Ingals.
17. Diplosal—Its Toxicity. J. MacLachlan.
18. A New and Simple Method of Transfusion. A. R. Kimpton and J. Howard Brown.
19. When and How to Use Nitroglycerine. E. E. Cornwall.
20. Positive Results Following the Inoculation of the Rabbit with Paretic Brain Substance: A Preliminary Note. H. J. Nichols and W. H. Hough.
21. An Interesting Case of Hemophilia Treated with Repeated Injections of Blood Serum. F. E. Clough.
22. Unusual Concretion Removed from Nasal Cavity through the Mouth. A. A. Crabbe.

1. Perforative Ulcer of the Stomach and Duodenum.—By J. B. Deaver. (See MEDICAL RECORD, July 5, 1913, Page 36).

3. Skin Complications of Diabetes.—B. Foster states that many general practitioners fail to appreciate the close relationship of the skin complications to diabetes of which they may often be the first symptoms. Among these he enumerates dryness of skin and pruritus, boils, carbuncles and mal perforans which last occurs in about 3 per cent. of cases. These are the commonest disorders. Psoriasis has been reported, but the author considers this only a coincidence. The early recognition of the cutaneous complication is important since, while the ultimate prognosis is probably bad, there are few other serious diseases which are more amenable to intelligent treatment, as regards duration of life and the comfort of the patient.

4. Transmission of Treponema Pallidum from the Brains of Paretics to Rabbits.—H. Noguchi has succeeded in producing syphilitic scleroses containing *Treponema pallida* in the testes of two rabbits by the inoculation of an emulsion of the brain obtained from a paretic individual. The lesions developed slowly, requiring in the one instance ninety-two and in the other one hundred and five days. Taken all together the percentage of successful inoculations is thus far small, since they were obtained with one brain out of six. Both in respect to the slow development of the lesions and to the low percentage of infections the result is striking when contrasted with what occurs on inoculation of chancres, condylomata, or secondary syphilitic papules. By using several rabbits the author has usually succeeded with every specimen of the latter, while he has been successful with only one specimen of brain out of six employed. The disparity is probably connected with the small number of *pallida* present in

the brain tissue, although it may be due to a low degree of infectiousness of the brain spirochetes for the rabbit.

10. **Mesenteric Cysts.**—C. H. Frazier reports a case of sanguineous cyst of the mesentery of the small intestine. The cyst and adherent loop of bowel were excised and the severed ends of the small intestine were united with the Murphy button. These cysts are usually oval in shape, though sometimes spherical as in the case described, and are generally found not far from the ileocecal valve, though occasionally elsewhere. Most of them are freely movable. Their growth is rapid and may be accelerated by accidents causing hemorrhages in the cyst. Percussion reveals a dull sound and an area of resonance around the mass and the cysts can usually be revealed by palpation. Other symptoms may be lacking, but usually the cysts manifest their presence by digestive disturbances and pain, simulating that due to intestinal obstruction. If intervention is delayed the patient may die of inanition. Radical removal is the best treatment when feasible, but when symptoms are acute incision and drainage is simpler and more liable to relieve, as it is more quickly done. Aspiration is obsolete. The cysts are of varied origin, and include hydatids and dermoids as well as sanguineous and lymphatic cysts and other varieties.

13. **Action of Emmenagogue Oils.**—D. I. Macht concludes that these are not innocuous and have absolutely no direct stimulating action on the uterine contractions or tonicity. On the contrary, they inhibit such contractions and even paralyze the uterus. Their action as abortifacients, if they act as such, is no different from that of any other powerful systemic poison, such as phosphorus or arsenic. They have very little if any therapeutic value, and do not deserve the place among the official pharmacological preparations which many of them hold.

14. **The Quinine Treatment of Pneumonia.**—S. Solis Cohen employs in this treatment the double chloride of quinine and urea introduced intramuscularly in a fifty per cent. solution; the hypodermic injection of cocaine hydrochloride solution or of an extract of the posterior lobe of the pituitary body for the maintenance of blood pressure; and in cases of prolonged fever, delayed resolution or tardy convalescence, the injection of bacterins. The initial dose of the guinine salt is from fifteen to twenty-five grains followed by fifteen grains every third hour until the temperature falls and stays down below 102.2° F. One-half grain of cocaine hydrochloride or of caffeine sodiosalicylate, or 1 c.c. of pituitary liquid, or 1 c.c. of the 1:1000 solution of the posterior pituitary principle is given with the first quinine dose and repeated likewise every third hour until the systolic blood-pressure curve in millimeters of mercury taken in the arm rises and remains above the curve representing pulse frequency in beats per minute. No invariable maximum limit has been fixed to the number of injections of quinine or pressor substances, but it has been considered best to continue them not beyond the first twenty-four hours and rarely as long as this. Where the desired effects have not been reached by that time, the interval between injections has been increased to six hours. In general the idea is to give as much quinine as can be borne in the first forty-eight hours and as little of the pressor drugs as is needed to maintain the systolic blood pressure a safe distance from the pulse rate. These directions apply to moderately strong adults with good results. Until recently this treatment was reserved for cases calling for active intervention and other patients were permitted to go without it. Statistics are based, therefore, on cases from the moderately severe to those of the very worst type. At present the author gives the first dose of quinine to every patient and the result has been that the cases have become so much milder that they require no further treatment beyond good nursing. As regards the duration of this treatment, the quinine is seldom continued beyond seventy-two hours and the number of injections ranges from one to fifteen and is ordinarily five or six, usually of about one gram each. The number of cocaine and pituitary injections ranges from one to twenty and will average three and four in each case, and each case must be judged by itself. The only general rule is to give enough to produce the desired effect and no more.

The Lancet.

July 5, 1913.

1. The Surgery of the Large Intestine. Sir Berkeley Moynihan.
2. The Kinetic Theory of Shock and Its Prevention Through Anoci-Association (Shockless Operation). G. W. Crile.
3. Note on a Case of Incarceration of the Cecum and Ascending Colon in Lesser Sac of Peritoneum; Operation; Recovery. I. Back.
4. On the Possibilty of Achieving by Partial Pneumothorax the Advantages of Complete Pneumothorax in the Treatment of Pulmonary Tuberculosis. W. Parry Morgan.
5. The Difficulties of Tonsillectomy and How to Deal with Them. J. F. O'Malley.

1. **Surgery of the Large Intestine.**—Sir Berkeley Moynihan points out the surgery of the large intestine is chiefly concerned with three diseases—cancer, tuberculous tumors, and those simple inflammatory disorders which are grouped under the not very accurate or appropriate title, "diverticulitis." The merely technical aspects of this interesting subject have undergone notable improvements. Tumors of the large bowel can now be removed more widely, with greater safety, and with a higher degree of permanent success than would have been thought possible a few years ago. It is rare for patients suffering from a growth in the large intestine to complain of pain; there is more usually a sense of discomfort, of turmoil, of erratic and uneasy movements, with griping, accompanied by the noise of gas and fluid rolling about within the bowel. The borborygmi in the late cases may be very loud, so that they may easily be heard many feet away from the patient. It is a remarkable feature in cases of carcinoma of the colon that the patient is often able to localize the seat of the obstruction. He will describe the accumulation of flatus at a certain point in the intestine where the difficulty seems to lie, and may say also that a trickle of escaping fluid and gas is felt to be followed at once by relief. Alterations of the feces are usual in all cases. Blood is often present. In cases of carcinomatous growths in the ascending colon, and more rarely when the growth invades the cecum or the first part of the transverse colon, the presence of anemia may be observed. The anemia is stealthy in onset, steady in progression, and may often be very pronounced before any other symptoms have attracted attention. *X*-ray examination is a valuable aid to diagnosis. Of the conditions which imitate malignant disease very closely the most interesting is that now known as diverticulitis ("sacculitis" would be a better term).

2. **The Kinetic Theory of Shock.**—G. W. Crile presents a summary of a large clinical experience and of more than 1200 experiments on animals, most of the data of which have been published in detail in five monographs. He shows that shock may be produced by physical trauma with or without inhalation of anesthesia; that those parts of the body having the greatest number of nociceptors and which defend the most important regions by muscular action are the most shock-producing on receiving trauma. In the distribution of the defending nociceptors one perceives a brief epitome of the phyligenetic struggle for existence. Nitrous oxide anesthesia as compared with ether anesthesia is a protective agent against shock—protective through its interference with the use of oxygen by the brain cells—on the same principle as the action of a chemical fire extinguisher. The physical exhaustion and the brain cell changes are due to an adaptive response of the brain to the injury—a silent motionless effort to escape from the physical injury of the operation; if the field of

operation is blocked with local anesthesia, or if the nerve connection between the brain and the injury is blocked, physical injury can cause no shock. The motor mechanism may be powerfully driven by psychic stimuli—perhaps as powerfully as by traumatic and physical exhaustion—and corresponding brain cell changes are produced. If both the traumatic and the psychic stimuli are excluded shock cannot be produced. These physical changes in the brain cells are not produced by alteration in the gases in the blood or by metabolic processes from the shock-producing psychic or traumatic stimuli. The brain cell changes are not due to anemia from lowered blood pressure alone. One is forced to conclude that shock is an exhaustion phenomenon due to the driving of the motor mechanism by adequate stimuli, and that it is expressed by physical exhaustion and brain cell changes.

5. Accidents of Tonsillectomy.—J. F. O'Malley states that certain types of tonsil present difficulties to complete removal, and certain injuries to the soft parts are liable to occur until the operator has fully mastered the technique. These types and injuries are as follows: (1) The left tonsil in all cases; (2) the very large tonsil; (3) the "immobile" tonsil; (4) the small, flat, friable tonsil; (5) the "pulpy" tonsil; (6) removal of the uvula; (7) buttonholing the soft palate; (8) removal of portions of the anterior pillar (palato-glossus muscle), either its margin along the center or its lower end where it is inserted into the side of the tongue; (9) tearing the posterior pillar; (10) removal of portion of the pharyngeal aponeurosis; (11) tearing the mucous membrane over the point where the soft palate lies in relation to the hamular process of the internal pterygoid plate; and (12) hemorrhage. The author discusses the methods of avoiding the difficulties and dealing with the injuries.

British Medical Journal.

July 5, 1913.

1. Fatal Pellagra in Two English Boys. C. R. Box.
2. The Histological Changes in the Nervous System in Dr. Box's Second Case Compared with the Changes in an Egyptian Case. F. W. Mott.
3. The Natural History of Pellagra, with an Account of Two New Cases in England. L. W. Sambon.
4. A Case of Pellagra in England (Probably Contracted in Scotland). J. A. B. Hammond.
5. On Psychoanalysis. D. Forsyth.
6. Observations on the Toxemias of Pregnancy, and on Eugenics from the Obstetric Standpoint. A. Routh.

1. Fatal Pellagra in Two English Boys.—C. R. Box describes two cases of pellagra that occurred in boys of the same family that had never been out of England. One of these boys, aged eleven, was admitted nearly three years ago to St. Thomas's Hospital, London, with a disease that was diagnosed as an anomalous form of combined degeneration of the cord, in some respects resembling Friedrich's ataxia. No suspicion of pellagra arose at the time. He was discharged in two weeks in the same condition as when admitted, and died four months later. The brother of this patient, aged eight years, was admitted to the same hospital in September, 1912, with the history that three months previously he began to have recurring fainting spells. Later he had twitching movements of the limbs and convergent squint. When admitted to the hospital he was able to walk, but his gait showed a mixture of spasm and ataxia. He had a coarse nystagmus and his speech was indistinct. Even when the patient was lying in bed there was moderate rigidity of the arms and legs. He presented a symmetrical erythematous dermatitis of striking distribution which afforded the clue to the nature of his disease. The inflammation involved the backs of the hands and wrists, the orbital regions and bridge of the nose, the nape of the neck and backs of the ears, and, to a slight degree, the points of the elbow. On the face the dermatitis crossed the bridge of the nose, encircled both eyes and spread slightly on to the malar regions. The skin over this area was reddish in color, resembling acute sunburn. The patient died one month after admission to the hospital.

2. The Nervous System in Pellagra.—F. W. Mott made an exhaustive histological examination of the different parts of the nervous system in the latter of the two cases reported above by C. R. Box. There was a slight general diffuse sclerosis throughout the white matter of the cord in all regions, but in certain regions there was a perceptible naked-eye combined sclerosis affecting the direct cerebellar and Gowers's tracts, Goll's column, and the crossed pyramidal tracts. All the posterior spinal ganglion cells showed in varying degrees a marked chromatolysis, swelling of the cell, disappearance of the Nissl granules, except at the periphery, and frequently eccentric position of the nucleus. All the anterior horn cells and their homologues in the medulla and pons showed varying degrees of perinuclear chromatolysis; in some instances the cells were so markedly swollen, and the nucleus was so eccentric, that it appears as if the cell were dead. There was a marked chromatolysis of the cells of Clarke's column. The cells of the cortex showed similar changes.

3. The Natural History of Pellagra.—L. W. Sambon states that he has found this disease endemic in the eastern districts of Scotland and in the Shetland Islands. It appears to be linked to briskly running water just as necessarily as malaria is linked to stagnant water. The author believes that the *Simulidæ*, which are minute, thick-set, dark-colored flies, are concerned in the transmission of pellagra. They have a worldwide distribution and are found as a rule along briskly moving water.

Berliner klinische Wochenschrift.

June 30, 1913.

Influence of Lime Salts on the Constitution and Health.—Emmerich and Loew speak of the gradual recognition of the fact that not only bone and teeth, but heart muscle, glands, nervous system and brain, and so on throughout the sum of organs and tissues all depend on lime salts for their best efficiency. Calcium has been shown by biological reactions to be present in all cell nuclei. In fact the amount of calcium in the animal body varies directly with the nucleus content. Hence glands and lymphnodes contain an amount of calcium much greater than muscles, etc., because of the vastly increased number of nuclei. Calcium is therefore a sort of measure of cell activity, and the chief type of cell activity is connected with enzyme action. These properties are more readily studied in plant life but hold good as well for animal cells. Moreover, if we derive our lime from plant cells the knowledge of the latter becomes of special value. The authors have studied all forms of introduction of lime salts into the organism, and have learned incidentally that while a plain solution of lime chloride usually causes a marked gain in weight, it may exceptionally cause loss. In swine albumin metabolism and nitrogen retention are promoted, but there is a decrease of fat accumulation. The first phenomenon may cause an initial increase in weight, but the second in time overbalances it. To apply the authors' finds to practice one needs only to quote Reinhardt, a recent student of the subject: "Neurasthenic, overworked, and physically depressed persons are so rapidly healed by the chloride of calcium solution, that they could not show sufficient gratitude. They felt as if newly born, full of the zest of life, stronger and more enduring than ever and twenty years younger." Similar results are claimed for dogs. In addition to the use of a solution of anhydrous chloride, of which the patient takes doses representing 1.59 for a long period, the authors recom-

mend a calcium bread and similar products. They believe that the proper use of calcium is the keystone of individual hygiene.

Syphilis and Fever.—Glaser speaks of several types of syphilitic fever, some of which have long been known. He mentions early syphilitic fever preceding the rash, and tertiary syphilitic fever. Aside from these, however, there are types of fever which are irregular and simply indicate mixed infection. The first modern description of sure secondary syphilitic fever is by Guntz and Fournier about 30 years ago. It was held to be present in about 20 per cent. of cases. Many years later Senator sought to differentiate early syphilitic fever from other acute infectious diseases. It should be remarked that the syphilitic fever is not always a reaction preceding the exanthem; for in certain instances the fever is purely symptomatic of certain local lesions. Despite some connection between exanthems and fever the early syphilitic fever cannot be so easily explained (since it is a minority symptom). Pure tertiary syphilis is even more difficult to account for. Much more readily comprehended are the secondary syphilitic fevers which are seen in luetic liver, luetic lungs and the like. Certain fevers in certain patients appear to suggest the possibility of late syphilis.

Münchener medizinische Wochenschrift.

July 1, 1913.

Two Cured Cases of Tuberculous Meningitis.—Reichmann and Rauch report two such cases from Professor Stintzing's clinic. Such cases hold good for themselves alone, for any general successful therapy of this disease does not yet exist. Of the two cases cited, we quote that in the adult first. This patient, aged twenty-one, worked in glass, was admitted to the hospital in a state of mental confusion. History as follows: Patient always well and of sound stock. His illness began four weeks before admission with weariness, headache, and stitch in the side. He continued to work, although somewhat feverish for several days, when he developed fever blisters, cough and expectoration. In six days this petty attack had run its course. Certain symptoms, however, seemed to reappear—chiefly a severe, persistent headache and stiffness of the neck. On this account he was sent to the hospital with the diagnosis of meningitis. Examined at the latter place he was found to be drowsy with fever above 39° C., and high degree of nuchal rigidity. The pulse was but 68. Kernig's symptom was present, but the various reflexes were either absent or but slightly in evidence. Examination of lumbal punctate, when carried out with thoroughness and patience, showed tubercle bacilli abundantly sufficient for diagnosis. By studying these punctates with especial regard to their inoculability to animals, it became apparent that the virulency of these punctates became less and less pronounced. In the second case, in an infant, the diagnosis was made in the same manner. The old clinical diagnosis so commonly discussed was reinforced by the punctate finds. Of interest is the literary research of the authors, which show that up to the present time eighteen cases of tuberculous meningitis had recovered, those of the authors making twenty to date. But, as the authors state, what does this petty salvage signify against the tens of thousands of deaths from this cause in recent years?

Traumatic Thrombosis of the Inferior Vena Cava and Life Insurance.—Weber relates the following case: A robust looking man appeared for life insurance examination, but was seen to suffer from clumps of enlarged superficial veins believed to indicate an obstruction of the inferior vena cava. The urine was clear, and this fact, along with the patient's youth (age twenty-six), permitted his insurance for ten years. At the expiration of this period he was apparently in good health and insurable. Another case of much greater interest was that of a young medical man. In 1884, at the age of twenty-four he sustained a traumatic thrombosis of the inferior vena cava. There resulted a great dilatation of the superficial veins. The cause of the superficial vascular lesion was an attempt to break the short, high hurdle record. Patient at once took to his bed, and developed albuminaria. Bedridden for six months, he rallied and lived for twenty-five years, an invalid. The actual cause of death was tonsillitis, plus sepsis, but in the meantime various veins had become obliterated. Shattock traced the original mischief in all such cases to a laceration of the intima.

Deutsche medizinische Wochenschrift.

June 26, 1913.

Treatment of Cancer with Röntgen Light and Mesothorium.—Krönig and Gauss arrive at the following conclusions in reference to combined radiation therapy, a subject now in much vogue throughout Germany. As far as they have gone the indications are as follows: If cancer is still operable and controllable by sight and touch, we undertake to cure it by combined radiation. If this procedure fails we still have time for radical operation. If the cancer is operable, but not controllable by sight and touch, radical operation may be performed if the percentage chances are in the patient's favor. If these are not favorable, treatment should be by radiation. If the cancer is positively nonoperable the treatment should be intensive radiation, along with any other promising resources. Special resources should be employed to prevent recurrence. Every operation must be followed up by intensive radiation. This is a universal rule, and should be pushed to the limit, even after the average relapse period has expired.

Living Spirochetes in the Brains of Paralytics.—Forster and Tomasczewski refer to the first announcement of the discovery by Noguchi and Moore as to the finding of spirochetes in the cortex in progressive paralysis. Later Noguchi reported forty-eight cases in a total material of two hundred. Corroboration soon came from Marie, Levaditi and Bauchowski, along with Marinesco. All of these were cadaver finds. The methods used were either dark field illumination or silver impregnation. The authors have now greatly advanced our knowledge by results obtained through cerebral puncture in living paralytics. The material was obtained by the Neisser-Pollak technique which is very efficacious in brain studies. One case may be cited as an example: Male, aged forty-eight, with no history of luetic infection. During past eighteen months an obscure psychic alteration, which culminated in a seizure, in which the speech was chiefly affected. From then on progressive evidences of dementia paralytia. There was a cerebral puncture made at the right frontal brain. By dark field illumination numerous mobile spirochetes were seen in the punctate.

On the Applicability of Gelatine Capsules in Drug Administration.—Niculescu considers the general problem of giving medicines by hard coated gelatine capsules which are able to traverse the stomach unchanged. The passage of these capsules is controlled by Röntgen rays. The author mentions the use of iodide of potassium as an index of the absorbability of the capular contents, and discusses other methods of hastening or retarding absorption. His conclusions are expressed as follows: The desideratum in giving medicines in these capsules is that when the contents of the capsules are water-soluble and osmotic the capsules must be thick and resistant; while if the contents are not water-soluble thinner-walled capsules will answer.

Insurance Medicine.

The Medical Director as a Substantial Factor in the Establishment and Development of a Legal Reserve Life Insurance Company.—In the relation mentioned in the title of this paper, the successful medical director is a very important person and in some respects may be a very different person from one who would be very successful as the medical director of an old and established company. Mr. I. M. Hamilton, President of the Federal Life Insurance Company, Chicago, Ill., says that the medical director of an old and established company should be able to conduct the affairs of the medical department of his company so as to conserve the efficiency of an organization already established; the medical director of a company in the process of development should be able to organize as well as conserve, and unless possessed of this ability will be a substantial but deterrent factor. The director of a company about to be established is often selected while the company is in embryo and his selection is more often because of his supposed influence with others, or his ability to invest money or because of a personal "pull," than for any special qualification or previous experience properly to perform the duties of the position. Fortunately, all medical directors are not selected under such circumstances, and the great majority of those so appointed soon recognize the inevitable and resign or learn to perform their duties to the credit of their companies and themselves. Mr. Hamilton considers that the incipient medical director is much handicapped compared to members of other professions by the fallacies of his professional education and the ethics of his profession. It is necessary for him to discard many of his ideas before he is prepared properly to work out the business propositions which come before the medical department of his company for solution. As a physician, his unbusiness-like inconsistencies are frequently embarrassing after becoming a medical director. During the embryo stage of this type of insurance company, the medical director, to be of most value to his company, in addition to other necessary qualifications, should possess a large amount of patience and tact. He should have courage and dignity, discernment and organization ability, and the more personal magnetism the better. He should be constructive. The responsibilities of the medical director are grave ones and it requires courage and decision to meet them properly and promptly. He should bear in mind and be inspired by the thought that he is participating in establishing a worthy and lasting institution, to serve humanity long after he is gone; that it is in his province to "reject" and "approve," and that he can soften the disappointment to the applicant and the agent, not overlooking the wisdom of offering applicants not standard, such other forms of insurance as he believes his company with safety may issue. His dignified and congenial attitude towards the company's agents together with these other qualifications will make him an appreciated part of the constructive force in the establishment of his company and the conservation of its subsequent interests. Another important duty devolving on the medical director of a growing company is the selection of its local examiners and inspectors. Improvement can often be made along these lines, and the medical director should keep his examiners impressed with the true relations existing between them and the company employing them. In the selection of local examiners preference should be given to experienced physicians of deserved and established reputation, who understand the merits of legal reserve insurance. This does not mean that the young physician of high character, ambitious to become an examiner, should be tabooed, but his appointment should be a temporary one until he shall have proved his fitness for the work. A man of character and superior medical attainments, even though educated in an inferior school is to be preferred to a man of inferior ability, though educated in a superior school. The medical director who handles his examiners and agents with tact and discretion is a decided asset to his company, for harmony and not friction means benefits to all concerned. Promptness in decisions, whether favorable or unfavorable, and without carelessness or inefficiency is another link in the chain of requirements which hold a medical director in the respect and desire of his company. The medical director having the last word, so to speak, in cases of disagreement between himself and his agents can afford, and it is his duty to be, generous. Agents should be treated as patients, and not antagonized.—Report of the Medical Section, American Life Convention, February, 1913.

Effects of Tobacco Smoking.—That the effects of tobacco smoking are regarded as more or less serious according to the experience of the physician coming across many cases, was shown in a discussion among the members of the Life Assurance Medical Association, at a meeting held in London on January 15, 1913. Dr. Lees, while not a member of the Association, when asked for his opinion, said he had divided his results obtained on observation of many cases of habitual smoking, into two classes. In the first class, he placed young adults in which the early symptoms were signs of poisoning; in the second class, men of later life, showing signs of degeneration. In the first class, the chief symptom was the dilatation of the heart. In examining many cases of incipient pulmonary tuberculosis, Lees found that while in women the heart was always small, in young men, who were smokers, it was large. The border of the left ventricle in them was always outside the nipple line. After rest and total abstinence from tobacco, the heart resumed its normal size. In many of these cases there were no physical signs referrable to the heart, and the dilatation was only found after careful physical examination. Dilatation of the stomach frequently accompanied the first condition, but they were found independently of each other. In later life many conditions of degeneration are produced, not only by well-known causes, but also by the decidedly deleterious influence of tobacco, among these, the emphysema of men from 50 years old and upwards, which comes on gradually and is rarely the result of long-continued coughing. Often there is no history of cough at all, but a chronic condition slowly progressive in men of this age, who have been inveterate smokers of many years' standing. Chronic conditions of the heart and vessels, "intermittent claudication" and heart failure have been found in men who have given no history of other causes for these conditions, such as renal disease, syphilis, etc., but who have been heavy smokers. Inveterate smoking has seemed to play an important part in the causation of angina pectoris, as most cases give a history of this indulgence.

Book Reviews.

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and Science. By Philip B. Hawk, M.S., Ph.D., Professor of Physiological Chemistry and Toxicology in the Jefferson Medical College of Philadelphia. Fourth Edition Revised and Enlarged. With Two Full-Page Plates of Absorption Spectra in Colors, Four Additional Full-Page Color Plates, and One Hundred and Thirty-seven Figures of Which Twelve Are in Colors. Price $2.50. Philadelphia: P. Blakiston's Son & Co., 1913.

It is hardly necessary at this time to speak of the many excellencies of this work, for it has already long been known as one of the most practically useful of the many on the subject. The new edition comprises an unusual amount of new matter, so that the volume has been considerably increased in size, and many illustrations have been added. The chapters on the enzymes, carbohydrates, proteins, blood and lymph, feces, putrefaction, and quantitative analysis of urine have been enlarged and in the latter section a number of new methods have been included. An addition of importance in the section on blood counting is the full description of Burker's technique, which apparently represents the one great improvement in this direction that has been made in years. The book has now been so carefully revised and worked over that it is difficult to see how it could further be improved.

Organic Chemistry, Including Certain Portions of Physical Chemistry for Medical, Pharmaceutical, and Biological Students. With Practical Exercises. By Howard D. Haskins, A.B., M.D., Associate Professor of Organic Chemistry and Bio-Chemistry, Medical Department, Western Reserve University. Second Edition. First Thousand. Price $2.00 net. New York: John Wiley & Sons, 1913.

In this book the reader will find such facts of organic and physical chemistry as have an essential bearing on medical science. The arraignment and style are clear, and the small size of the volume and its large print combine in making it attractive. The work can be recommended to the student as a really interesting introduction to what is too often considered a dry and repellent subject.

A Text-Book of Physiology. By Isaac Ott, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia; Ex-Fellow in Biology, Johns Hopkins University; Consulting Neurologist, Norristown Asylum, Pa.; Ex-President of American Neurological Association, etc. Fourth Edition, Revised and Enlarged. Illustrated with 434 Half-Tone and Other Engravings, Many in Colors. Price $3.50 net. Philadelphia: F. A. Davis Company, 1913.

In this new edition the author has added a considerable amount of new material. There are plates showing the movements of the stomach and intestines; the chapter on the Internal Secretions has been largely rewritten; Abderhalden's new test for pregnancy is explained; a description of the heart in Stokes-Adams' disease is included; and, as a rule, the latest facts in physiology have been recognized. The preface tells us that the pineal gland and gonads have been considered; but we are unable to find the latter in the index. Physiological technique is wisely omitted; it should be learned in the laboratory, and not from a text-book. The volume is only one-half the size of the second edition, but it contains about one hundred more pages. In its present form it will bear comparison with the best one volume works on the subject; and for the practitioner it will prove a very useful book.

An Introduction to Chemical Analysis. For Students of Medicine, Pharmacy, and Dentistry. By Elbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology and Head of the Department of Chemistry in the University of Iowa; Author of "A Laboratory Manual of Physiological Chemistry." Fourth Revised Edition with 20 Illustrations. Price $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1913.

This book is well known as one of the best works on Analytical Chemistry for junior students. The present edition shows but few changes; some errors have been corrected, and a few of the more difficult methods have been simplified. There are two useful chapters on the sanitary examination of water and the detection of poisons. The author makes no attempt to produce a complete manual, but wisely contents himself with providing a most useful introductory work.

The Plant Alkaloids. By Thomas Anderson Henry, D.Sc. (Lond.), F. C. S. Superintendent of Laboratories, Scientific and Technical Department, Imperial Institute. Price $5.00 net. Philadelphia: P. Blakiston's Son & Co. 1913.

This volume is a perfect cyclopedia on the vegetable alkaloids. Of the importance of these bodies in medicine and chemistry there is no question; and the reader will find here an account of the properties, chemistry, occurrence, physiological action and methods of estimation of all the more important members of this group. The constitution of the alkaloids is given wherever it is known, and the author devotes a brief space to the discussion of the interesting questions concerning the method of formation and the function of alkaloids in plants. The book is well furnished with references to chemical literature, and many of these references are to periodicals and publications as late as 1912.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia; Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. March 1, 1913. Price $6.00 per annum. Philadelphia and New York: Lea & Febiger.

The present number of Progressive Medicine contains five articles. Surgery of the head, neck, and thorax is contributed by C. H. Frazier; Infectious diseases, including rheumatism, pneumonia, and influenza, by J. Ruhrah; Diseases of children, by F. Crandall; Rhinology and Laryngology, by G. B. Wood; and Otology, by A. B. Duel. Attention may be called to the valuable résumé of the work of Kopetzky and Haynes on Meningitis, on page 43; and a much fuller account of the same on page 312. Many readers will be apt to miss the latter reference, as they would hardly think of looking for the surgical treatment of meningitis under the heading of Otology.

Clinical Laboratory Methods, A Manual of Technique and Morphology Designed for the Use of Students and Practitioners of Medicine. By Roger Sylvester Morris, A.B., M.D., Associate Professor of Medicine in Washington University, St. Louis. Price $3.00 net. New York and London: D. Appleton and Company, 1913.

Most physicians are more or less familiar with the significance of the majority of clinical laboratory tests. There are very few, however, who are able to retain in their memory the details of these tests unless they are so placed that laboratory work constitutes a large portion of their daily routine. There is little to be gained by an attempt to remember all these details and the busy physician needs his time for more important things. This volume is a manual of laboratory technique and morphology, dealing merely with methods and with morphological elements which are of diagnostic importance. It gives in detail the means of detecting the abnormal in urine, gastric contents, feces, blood, sputum, and puncture fluids. Many valuable though minute technical details are included, while the significance of the abnormal finding is not discussed. The serological reactions and the more complicated chemical methods are not included. The work is carefully done and the book is therefore a valuable one. With this at his elbow any physician should be able to perform any of the clinical laboratory tests with ease. There is one typographical error which is of importance. On page 66, Solution B of Arnold's reagent for diacetic acid is made to consist of sodium nitrate. It should, of course, read "sodium nitrite." With this exception the press-work is excellent. The book can be highly recommended.

Die Schönheitspflege. Für Ärzte und gebildete Laien. Dargestellt von Dr. Orlowski, Specialarzt in Berlin. Dritte Auflage. Price 3 Mks. Würzburg: Curt Kabitzsch, 1913.

This brochure considers all the methods of the "beauty-doctor" and handles them in excellent shape. The proper way to attain whatever beauty there may be possible for the individual is carefully pointed out, as well as the dangers attendant upon many of the practices recommended by advertisement. The chief drawback for the American reader is that many of the preparations are local ones and would probably be obtained in this country only with considerable difficulty. The popularity of the pamphlet may be judged from the fact that this is the third edition issued within six years.

Society Reports.

TUESDAY CONFERENCES OF THE NEUROLOGICAL INSTITUTE.

FIRST DIVISION—DR. JOSEPH COLLINS.

Paralysis of Hypoglossal Nerve Due to Caries of the Occipital Condyle.—Dr. C. B. CRAIG presented this case. Paralysis of the twelfth cranial nerve is a symptom that the neurologist frequently encounters. It is usually associated with hemiplegia on the same side and is in such instances dependent upon vascular lesion in the motor pathway above the motor decussation. But paralysis of the hypoglossal nerve peripheral to its nucleus is comparatively rare, the more so if it be the only cranial nerve involved. Of the seventy-nine cases of hypoglossal paralysis collected by Ascoli only one-third had a peripheral cause. Lüschow and Oppenheim have each reported a case similar to that which I present.

The patient, a Jewess, 52 years old, born in Turkey, is married and has four children. Her previous medical history is uneventful except that three years ago she underwent a gynecological operation for uterine fibroid. While convalescing from the operation about ten weeks later she had two attacks of "stiff neck" two weeks apart and each lasting seven or eight days. The pain and stiffness on each occasion were confined entirely to the right side of the neck posteriorly.

Since that time she has been troubled with intermittent attacks of mild pain in the right suboccipital region accompanied by a "crackling" on rotating or nodding the head. Three months ago the pain recurred with increased intensity and has gradually got worse.

When first seen on March 23, 1913, the patient had in addition to the pain almost complete fixation of the head and neck. This fixation was caused by the pain attendant on movements, especially the nodding motion. There was marked tenderness over the right suboccipital area and the region below the ear. There was slight drooping of the right angle of the mouth. When the lips were pursed there was distinct weakness of the sphincteric power of the right half of the mouth. No other facial weakness was demonstrable. The tongue as it lay on the floor of the mouth was heaped up on the left side, the right side being broader and thinner. The raphe curved to the left and the tip was directed in the same direction. She could with difficulty touch the upper right row of teeth with the tip of the tongue, and on protrusion the body of the tongue deviated sharply to the right while the tip turned off the left. There was no fibrillary tremor. On palpation the right half of the tongue felt soft and flabby.

When the patient was admitted to the hospital on the following day she had a temperature of 102° F. The leucoytes numbered 15,000. Physical examination showed an indurated area with local heat below the right mastoid, with all the appearance of a ruptured purulent mastoiditis. There was, however, no reddening of the external auditory canal nor of the drum membrane. An incision was made the same day by Dr. Elsberg just below and in front of the right mastoid, deeply into the neck, and a small collection of pus, close to the anterior portion of the occipital bone, was liberated. A probe passed into the wound came in contact with denuded and carious bone. An *x*-ray picture later showed, in the opinion of Dr. Archibold P. Evans, a mild grade of disintegration of the right condyle, the vertebræ being all quite normal. Cultures made from the pus developed *Staphylococcus aureus*. There was no evidence of involvement of the spinal accessory nor vagus nerve. The evident cause then of the paralysis of the right hypoglossal nerve was a carious condition of the right occipital condyle involving the nerve at its point of escape from the skull, namely the anterior condyloid foramen. This case is particularly interesting inasmuch as it tends to establish the position, maintained by Tooth and disputed by Oppenheim, *i. e.* that the hypoglossal nerve takes part in the innervation of the orbicularis oris muscle.

Operation for Tumor of the Hypophysis.—Dr. ELSBERG presented from the First Division a patient upon whom he had performed a frontal craniotomy for tumor of the hypophysis with threatened blindness. The patient was a man of 31, who had been treated for some eye trouble for two years until it was recognized that he had a temporal hemianopsia. When the patient was admitted into the Neurological Institute, he had only slight light perception in the nasal side of the right eye, and complete temporal hemianopsia on the left side. By *x*-ray the sella turcica was found much enlarged. The hypophysis was exposed by the transfrontal route as described by Frazier, and an excellent exposure of the sella turcica and contents obtained. The hypophysis was the site of a large tumor of which a part was removed with a sharp spoon. Convalescence from the operation was uneventful. Improvement in the left eye was noticed by the patient on the day after the operation, and has steadily continued. The last perimetric charts show a very marked increase in the field of the left eye for all colors.

SECOND DIVISION—DR. FREDERICK PETERSON.

Aplasia of the Lenticular Nuclei.—Dr. FOSTER KENNEDY presented this case: M. B. female, age 8 yrs. was seen in the out patient department of the Neurological Institute on the 5th of March, 1913. The parents complain that she is unable to walk or control her arms or to speak properly. She is an only child, and was delivered after seven months' term; no instruments having been employed, in delivery. The arms and legs at two years of life were stiff and allegedly incapable of being moved volitionally. At the age of three years the child began to move both her arms and legs and her power over her limbs has improved up to the present time. There is no real palsy but adequate power is enormously interfered with by reason of marked hypotonus of all the muscles of the body, to which disadvantage is added a bilateral tremor affecting both the arms and legs, of coarse and irregular nature. At times this tremor is replaced by movements of severely choreiform nature. The cranial nerves are normal. Emotional instability marked but emotional expression somewhat limited, owing to her smiles being slow to develop, and spastic. The mouth is held open, and dribbling of saliva is almost constant. There are no sensory changes whatever. The knee jerks and the ankle jerks are not obtained, a condition which may be perhaps explained by the high degree of hypotonus present in the musculature. In the moments of relaxation of the abdominal muscles the superficial abdominal reflexes have been obtained on both sides. The plantar reflexes are indefinite in type. The great toes by reason of hypotonus are held normally in an acutely extended position. On stimulation of the soles these toes are flexed and again rapidly extended. Attempts at walking are quite unsuccessful;—muscular hypotonus, tremor, and choreiform movements combining to make progression impossible. With difficulty can any object be grasped by either hand for similar reasons. Speech is almost unintelligible. Vowel sounds are fairly well expressed, but apparently owing to the spasticity of the muscles involved she is unable to approximate properly the tongue and the various parts of the buccal cavity necessary for the intelligible production of consonants. When asked her address which is 281 Monroe Street, she gives it promptly and to the listener knowing the proper answer it is clear from the

vocalization and rhythm of the sounds that she is attempting to give correct information. Similarly in many tests she has displayed acute intelligence. No intelligence defect can be demonstrated. Special senses are all normal, and in view of the criticism that this case may be one of agenesis of the cerebellum it may here be stated that no nystagmus has ever been demonstrated,—that the dysarthria is much more marked than is found in that affection; and that the general increase of muscular tonus is opposed to such a diagnosis, defective cerebellar control being invariably associated with a diminution rather than with an increase of muscular tonicity.

Some years ago this case would have passed more or less unnoticed in most outpatient departments with the label of Little's disease placed upon it; but the condition described by Little embraces many different clinical types and in most of these cases marked mental defectiveness is present.

In March, 1912, Wilson described a series of 12 cases in which bilateral softening of the lenticular nuclei was demonstrated on autopsy together with a multilobular hepatic cirrhosis. The latter pathological condition did not manifest itself by any symptoms during life. But the symptoms consequent upon the ganglionic degeneration were, briefly, marked hypertonus of all voluntary muscles with the exception of the extrinsic muscles of the eyes, bilateral irregular tremor, marked dysarthria, emotional instability, the mouth being held agape with dribbling of saliva. Not until the very last stages of the disease was any intelligence defect demonstrable. In the case under consideration, it is not alleged that the morbid condition is one of those described so excellently by Wilson in which the condition occurred subsequent at the earliest to the 10th year of life, and which progressed in all cases to a fatal termination. But the author of that paper by his clinical observations and anatomical examinations of the cases observed has succeeded in demonstrating a symptomatolgy referable to the lenticular nuclei. A premature child bearing from birth the signs found in Wilson's cases in which these nuclei were demonstrably degenerate makes it highly probable that in such a case these nuclei were either congenitally diseased or, much more probably, congenitally deficient. In such a hypothesis there is nothing inherently improbable or fantastic in view of the many cases of aplasia of various cranial nerve nuclei which are on record.

THIRD DIVISION—DR. PEARCE BAILEY.

A Case of Drug Delirium.—Dr. Louis Casamajor presented this patient, a married woman of 36 years, who was admitted to the service of the Third Division on April 15, 1913, in a state of agitation and excitement. The history was obtained from the nurse who had brought her to the Institute from a small town in a neighboring state. In the family history the only prominent incident was the fact that the patient's mother had suffered from a psychosis at one time. The personal history is negative. The patient had had six children, five of whom are living and well and the sixth was a still birth at term. No history of venereal or other disease.

For six months before admission to the hospital the patient had been treated for "heart disease" and had taken numerous drugs: About two weeks before the onset of her persent trouble, she began taking a proprietary mixture of bromides and hyoscyamus on her physician's advice. We have been unable to determine the exact composition of this mixture but judging from the fact that the dose was one teaspoonful t-i-d., the amount of drug taken could not have been very great. Two months before her admission to the hospital, the family noticed that the patient was becoming very absent minded and a bit quarrelsome in accusing others of not doing their work. Following this she became confused and talked in a rambling disconnected fashion, jumping rapidly from one subject to another. As her condition became worse she expressed peculiar ideas about herself, at times stating that she had a large tumor in her abdomen, and at others that her head had been crushed in. Frequently she heard imaginary voices and spoke of seeing people in her room who were not there. She slept and ate very little and had lost considerable weight.

Physical examination on admission showed a thin, poorly nourished woman of early middle life who weighed 104 lbs. Her pupils were widely dilated and reacted sluggishly to both light and accommodation. All superficial and deep reflexes were active and equal throughout. The heart showed typical signs of a fairly severe mitral stenosis. The urine and blood were negative.

Mentally the most prominent features in this case were the confusion, hallucinations of sight and hearing, and the dream-like ideas. She knew she was in a hospital in New York, but could not name the day or date, yet she knew that the year was 1913. She made mistakes in giving her age, the date of her birth and other more recent dates. She stated that she had been operated upon—the doctor had made a cut in her abdomen and removed a number of sticks about 2 inches long tied to one another with strings. She was told they were sticks of dynamite. Her talk was distinctly flighty with word and sound associations and she was continually being distracted by things in her environment and by hallucinations of sight and hearing. Paraphasia was not prominent. On one occasion she said: "I sneezed today and everything ran out of me in the bed and my palate has gone down again. My heart is in pieces and part of it is in my shirt pocket. I turned over and my belly button came out but it did not go very far. It only went on a vacation. . . . People shoot things at me and they go through me; they shoot glass or something at me. A doctor operated on me and then he took a couple of lambs or pigs, now which it was I don't know, and put them in my insides just because I was decayed."

She continued to express ideas of things being shot into her, of animals being put in or taken from her body. At times she claimed that her husband and children were murdered and their bodies were down stairs. Her daughter was killed each day and buried and dug up and murdered the next day. Her affect reaction seemed very insufficient as she showed little sorrow or anxiety while telling of these things.

With the diagnosis of drug delirium made, very active eliminative treatment was instituted consisting of hot baths and packs, saline diuretics, and cathartics, together with forced feeding. After about ten days the delirium began to recede. The patient slept better and was much quieter during the day. First she ceased her flighty distractable talk and then the delirious and dream-like experience gradually receded from her thought stream and the patient presented for a few days a pure hallucinosis mostly in the auditory sphere. As these hallucinations subsided she would manifest excitement when she heard children's voices in the street for she thought they were the voices of her own children who were being in some way injured.

Mental examination on May 10 showed a normal mentality. Her memory was good for events happening up to within about one month of her entrance to the hospital. From this time on her recollection is increasingly hazy. She retains practically nothing of her trip to the hospital. Beginning with about May 1 her memory returned and now there remains nothing of her psychosis but the circumscribed partial amnesia for the period of her delirium. She is now ready to be discharged as cured.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held April 15, 1913.

DR. LINSLY R. WILLIAMS IN THE CHAIR.

Aneurysm of the Aorta, Showing Results of Antisyphilitic Treatment.—Dr. G. REESE SATTERLEE reported this case. The patient was a man, 50 years old, a chef by occupation, and married. As a child he had measles and in 1874 he had yellow fever. Twenty-five years ago he had a severe attack of jaundice with pain; this illness was of nine months' duration and the jaundice lasted nearly two years. His habits during the latter part of his life had been good. Thirty years ago he had an attack of gonorrhea with a chancre, said to be a soft one. He had noticed no eruption and did not know that he had syphilis. There was no further history of acquired venereal disease. His present illness began about three years ago with indigestion, for which he was treated in the out-door department of the New York Hospital. At the same time he had pain in the back and dyspnea. He was then treated in the tuberculosis clinic of the Department of Health and his condition was diagnosticated as pulmonary tuberculosis. He was sent to Otisville, where the pain became so severe he could not work. On further medical advice, he went to Denver and later to Colorado Springs. There he became much worse, with severe pain in the back and dyspnea. He said that he was told he had pulmonary tuberculosis. In May, 1911, when Dr. Satterlee first saw him, he came in complaining of hoarseness and aphonia. He also had severe pain in the left side of the chest, in the epigastrium, and in the left shoulder. The pain was continuous and it prevented him from lying on his back. He had dyspnea on exertion, but no cough. A laryngeal examination showed a paralysis of the left vocal cord, but no local syphilitic manifestations. The physical examination showed the patient to be a man of good frame, but considerably emaciated. The superficial veins on the anterior surface of the left side of the chest and on the left shoulder and arm were engorged and tortuous, with thickened walls. The heart showed a moderate degree of hypertrophy with normal action and sounds. There was a distinct area of dullness, 2½ inches in diameter, in the first and second interspaces, merging with the area of cardiac dullness. No murmur, pulsation, nor thrill was evident. The left radial pulse was absent. The eyes were normal. The Wassermann complement fixation test was positive. A tentative diagnosis was made of thoracic tumor, near the arch of the aorta, possibly an aneurysm, and an active tertiary syphilis. Dr. Le Wald, at the Edward N. Gibb *x*-ray laboratory, made a stereoscopic radiograph of the chest, which revealed an interesting condition. The accompanying plate showed a round tumor mass, situated in the neighborhood of the arch and beginning portion of the descending thoracic aorta. The outline of the shadow was smooth and spherical, the density of the shadow less than that of the aorta. Subsequent radiographs, both anteroposterior and lateral views and fluoroscopic examination, failed to fully convince them that the tumor was only an aneurism. There was, however, a distinct aneurismal dilatation of the thoracic aorta at the level of the lower third of the heart, extending below the lower third of that organ. The lungs showed no evidence of tuberculous deposits. He had no sputum to be examined for tubercle bacilli. A few doses of salicylate of mercury were given intramuscularly and then 0.4 gram of salvarsan suspended in oil of sesame was injected into the substance of the gluteal muscle. The injection of the salvarsan caused considerable pain, but the results were very satisfactory. Two and a half days after the administration of the salvarsan, the patient experienced a feeling of return of the circulation of the blood in the left forearm and hand. Examination showed the left radial pulse to be present where it had previously been absent. The voice also began to steadily improve and the man's general physical condition showed a vast improvement. One grain of salicylate of mercury was given intramuscularly, twice weekly, and potassium iodide up to the toleration point until August 5. On this date 0.3 gram of salvarsan was given intravenously, and this was followed by a decided feeling of improvement in the general condition and the pain. The urine had always been normal and the blood-pressure averaged 160 mm. of mercury. On October 13, the laryngeal examination showed a slight weakness of the left vocal cord, a condition of decided improvement. The Wassermann test on this day was negative. The heart had been acting well, as evidenced by normal polygraph tracings. The diagnosis at the present time seemed to point to an aneurism of the descending thoracic aorta and to one of the arch, with a syphilitic deposit in the neighborhood. It seemed probable that the pressure on the left subclavian artery and on the left recurrent laryngeal nerve was caused by the aneurism of the arch, indirectly through the surrounding mass. This pressure must have been relieved by the action of the antisyphilitic treatment in resolving some of this deposit, presumably syphilitic in nature. It hardly seemed probable that the size of the aneurism could be much diminished in so short a time. In comparing the early and late radiographs, no marked diminution in size of the aneurism could be noted. Salvarsan was undoubtedly a powerful agent in the relief of this man's condition, but had to be administered in a small dose and with care, and combined with treatment with mercury and the iodides. He felt that in these cases Ehrlich's valuable remedy should not be neglected, and if given in repeated small doses would obviate the possible danger from a large dose in aortic disease and aneurism. The presence of an active syphilis should naturally be ascertained. The blood-pressure, if it did rise after the administration of salvarsan, was not elevated more than 5 mm., so that danger from this source could possibly be eliminated. Up to this date, April 15, the patient had seventy-eight intramuscular injections of mercury salicylate, 1 grain each. He was able to do light work and had lived a few months last summer in Colorado with no discomfort. The blood-pressure was now 150 and there was no pain present.

A Hitherto Undescribed Form of Polycythemia and Its Possible Relation to Duodenal Ulcer, Chronic Pancreatitis, and a Disturbance of Internal Secretions (Suprarenal).—Dr. GEDIDE A. FRIEDMAN read this paper. He said that polycythemia, polyglobulia, erythemia, and erythrocytosis were the usual terms for increased number of red cells, but the two latter terms were fittingly chosen in analogy to leukemia and leucocytosis. If the number of red cells exceeded 1,500,000, the condition of polyglobulia could be spoken of. A marked increase in erythrocytes might occur physiologically in newborn children and in adults who were living in high altitudes, and pathologically in starvation and in losses of fluid from the body as from persistent vomiting, profuse sweating, severe diarrhea, etc. Cholera asiatica might serve as the best instance of the occurrence of polyglobulia due to losses of body fluids. A numerical increase of red blood corpuscles occurred in congenital and acquired heart disease with disturbed compensation, in emphysema, and in edema of the lungs. Poisoning with phosphorus, arsenic, or carbon dioxide might also lead to the condition of polyglobulia. Polyglobulia also occurred in patients with reduced intake of fluid, as occasionaly in chronic constipation, gastrosuccorrhea, and obstructive jaundice. The causes of most polycythemias remained obscure. The hyperglobulia was, according to Osler, probably compensatory to lack of oxygen in the air, and there was an increased activity of the bone marrow. In true erythremia this same increased activity of the bone marrow was present. Vaquez-Osler disease was, therefore, considered as a primary lesion of the bone marrow, just as leucemia was an affection of the leucoblastic elements. But the immediate cause of the hyperactivity had not yet been established. Their material consisted of 14 patients from private practice, and 11 from the Vanderbilt Clinic, 23 being males and 2 females. The ages ranged from 19 to 57 years. All of the 25 patients complained of the usual symptoms of chronic indigestion and of attacks of pain. The paroxysmal pain dated back mostly for years, and in a large number constant pain was also complained of. Jaundice could not be elicited from a single history. Objectively, there could be demonstrated in all the cases tenderness of different intensity to the right of the epigastrium, in the continuation of the right parasternal line somewhat above the navel; in but a few instances tenderness was found also somewhat to the left of the navel; in one patient there was also tenderness in the appendicular region. In one of the patients was neither liver border nor the gallbladder palpable, nor was the spleen enlarged. There were no tender spots characteristic of gallstone disease, nor of gastric ulcer. Dr. Friedman gave the abstracts of the histories of several cases and then offered the following conclusions: (1) Polycythemia was apparently a frequent phenomenon in cases of duodenal ulcer, proved such by operation, or answering the clinical syndrome erected by Moynihan and others. (2) No such phenomena were seen in gastric ulcer nor in other abdominal conditions. (3) Injections of adrenalin in such patients was followed by a transient diminution in the red cells, but soon afterward the polycythemia asserted

itself. (4) The injections of suprarenal extract in dogs produced a polycythemia which apparently was due to a lesion of the bone marrow. He assumed that the causes of polycythemia in his cases were intimately connected with the causes of duodenal ulcer, and might be due to some alteration in the secretion of the suprarenals. (5) It might be assumed that duodenal ulcer was a trophic disorder due to some disturbance in the secretion of suprarenal extract. His theory was that suprarenal extract in some cases acted harmone-like in a specific manner upon the vessel of the duodenal mucosa and produced the changes that finally led to the appearance of ulceration.

A Case of Amebic Colitis Treated by Emetine Hydrochloride.—Dr. William Van Valsah Hayes reported the case of a man, twenty-one years old, who had suffered from intermittent attacks of dysentery for a year and a half. This was found to be of amebic origin. The patient was put to bed and placed on a light diet. He was given one-half a grain of emetine hydrochloride by hypodermic injection twice a day for three days, and once a day for seven days longer. The symptoms of dysentery disappeared after the third day. The patient was allowed out of bed after two weeks, had steadily improved, and had gone to work.

Visualization of Obscure Lesions of the Gastrointestinal Tract by Means of the Röntgen Rays.—Dr. Alfred F. Holding said that of the five senses, sight was the most acute. Sight applied to the diagnosis of gastrointestinal lesions by means of the Röntgen rays. Concrete examples with definite case histories proved by operation or autopsy finding were reported in dental lesions, in intrathoracic lesions, and in gastric and duodenal lesions. X-ray pictures were shown.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held February 27, 1913.

Dr. George G. Ward, Jr., in the Chair.

Acute Appendicitis, Four Days Post-Partum, Operated Upon Under Spinal Analgesia.—Dr. Sidney D. Jacobson presented a patient who had had a spontaneous delivery. Four days after labor she complained of severe pain on the right side and she had a temperature of 104° F. Upon examination she presented all the signs of a ruptured appendix. Dr. Howard Lilienthal agreed with this diagnosis. The woman also had a very severe bronchitis and a racking cough. Under spinal anesthesia the abdomen was opened and a considerable quantity of sero-pus was seen in the pelvis. The appendix was found buried in a mass of adhesions and inflammatory products and it was believed that an attempted removal of this extensive mass, even if feasible, would entail too much risk to the patient; accordingly the mass was broken into by the finger and a rubber drainage tube passed down to it. The abdominal wound was closed by layer suture in the customary manner except that on account of the cough and danger of rupture of the abdominal wound the fascia was sewn up with two rows of sutures, the first being a row of mattress and the next a running stitch over the cut edges. The patient experienced absolutely no pain during any part of the operation, and she made a splendid recovery in spite of her dreadful cough. It was a pleasure to note the relief experienced with spinal anesthesia; one did not have to contend with a patient straining and forcing her intestines out of the wound. There was a total absence of symptoms referable to the stomach and intestines after operation. After briefly considering the evolution of surgical anesthesia Dr. Jacobson said that it was admitted that inhalation anesthesia was the best for general purposes. However, it was by no means a perfect method and left much to be desired in point of comfort and safety to the patient, and in certain cases was distinctly contraindicated. Advanced diabetes was a condition in which inhalation anesthesia was especially dangerous. If coma supervened it usually meant the death of the patient. Ether could not well be used in warm climates and must be used with extraordinary care in the presence of a gas or other flame, or fire, for fear of an explosion. Certain other general anesthetics could not be used for prolonged operative procedures on account of the short duration of the anesthesia produced. Ether, known as the safest anesthetic, had a distinct mortality rate of its own; as to the exact figures, authorities differed. Keen placed the death rate at 1 in 16,000, while Reclus placed it at 1 in 7,000. Ether was not to be used in the presence of arterial degeneration or aneurysm for fear that the increased blood pressure caused by it might bring about rupture of a blood vessel. It should be voided in acute nephritis, certain operations on the abdominal organs where straining or post-operative vomiting might have serious results, and certain operations upon the brain. It was not suited for operations upon the nose and throat and was contraindicated by the presence of bronchiectasis, emphysema and pulmonary tuberculosis. Alcoholic subjects took ether badly. Chloroform had a conceded mortality of 1 in 2,300 anesthesias. Its use was contraindicated in heart affections with weakness of that organ. Myocardial degeneration, cardiac dilatation, conditions like exophthalmic goiter, asthma, or emphysema, which threw too much strain upon the heart, precluded the use of chloroform. Chloroform was a very dangerous anesthetic in aortic regurgitation, in the lymphatic habitus, and in subjects worn out by prolonged suppuration or cachexia. It followed that inhalation anesthesia was sadly in need of further improvement urged on by the constant necessity of a method of destroying pain without loss of consciousness, experimentation was still going on. Toward this much desired end the discovery of the local anesthetic action of cocaine by Dr. Koller in 1884 was a most valuable contribution. Spinal anesthesia had also been called intradural, subarachnoid, and lumbar anesthesia. Insensibility to pain was produced by the injection of certain substances of the cocaine type into the subarachnoid space of the spinal canal; the region below the spinal segment thus treated became paralyzed as to sensation and motion for a time varying from one-half to two hours. The after effects varied with the drug injected and especially the size of the dose. Leonard Corning of New York was the first to experiment with spinal anesthesia; while he published the results of his work in October, 1885, Bier was to be credited with being the first to intentionally cocainize the spinal canal for surgical purposes. This he appeared to have done without knowledge of the experimental work on animals done by Corning fourteen years before. Bier had done more than any one toward perfecting this method and eagerly tried the newer remedies like stovain, alypin, novocain, etc. In America, Simon Marx, Crile, and Bainbridge were entitled to special mention as pioneers. Babcock administered spinal anesthesia in about 3,500 cases of general surgery, gynecology, and obstetrics. The first spinal anesthesia was used in obstetrics in Bumm's clinic at Basel in 1900. Dr. Jacobson said he had a strong leaning toward the use of stovain for spinal anesthesia, more especially on account of its antiseptic properties. He used the 10 per cent. alcoholic solution containing 0.04 of the drug. In careful hands selected cases would do well by this method of anesthesia. It had its limitations and was not to be used indiscriminately; it had its mortality rate. The main contraindications to its use were extreme debility whether due to hemorrhage, sepsis, or long standing disease, and especially cases with very low blood pressure. Its great field of usefulness would therefore be in those cases of disease of the heart, lungs, or kidneys, in which the use of the vapor anesthetics was contraindicated and more especially in major operations anywhere below the nipple line.

Dr. George Gray Ward, Jr., asked if Dr. Jacobson had used central instead of lumbar spinal anesthesia; abroad he noticed they used this method a great deal. He had also noticed that the injections were usually preceded by a hypodermic of morphine and when the patients were brought into the room they were more or less in a state of stupor.

Dr. Sidney D. Jacobson replied that he had used that method in some gynecological cases and in one case of ectopic gestation that had ruptured. In using the central method one should go high up if he wished to desensitize the parts.

Large Papillary Adenocarcinoma of the Ovary Complicating Labor Removed During Puerperium, with Recovery of the Patient.—Dr. Sidney D. Jacobson reported this case. The patient was a Roumanian, twenty-two years old, and in the last month of pregnancy when admitted to the hospital. Her family and personal history had no bearing on the case. She had a greatly distended abdomen which measured 55 inches at the level of the umbilicus and there was a slight cyanosis. One day after admission marked edema of the lower limbs set in and the tentative diagnosis of polyhydramnios having been made the membranes were punctured; only a small amount of amniotic fluid escaped. A Champetier de Ribes bag was introduced and the vagina packed with gauze. A small child was expelled spontaneously. The abdomen was still distended with fluid and as the patient seemed distressed the abdomen was tapped with a trocar and two gallons of fluid withdrawn. It was clear, yellow, and had a spe-

cific gravity of 1016. The circumference at the umbilicus was 36.5 inches. Dr. Jacobson first saw the patient October 2, 1910, eleven days after her admission, and found unmistakable carcinoma of the left ovary which filled the left abdominal quadrant. Four days later he performed a laparotomy. The carcinomatous cyst was moderately adherent to the anterior abdominal wall, small intestine, and, by one band, to the liver. The diagnosis was confirmed by Dr. Eli Moschcowitz, who pronounced the growth a papillary adenocarcinoma. The patient made a good recovery, the convalescence being temporarily interrupted by a rise of temperature and pelvic effusion about nine days later. This condition was cleared up by an incision in the posterior cul-de-sac. An examination on February 27, 1913, showed her to be pregnant three months, but there was no sign of any recurrence and she looked and felt perfectly well. In view of the danger of malignant degeneration of ovarian tumors it ought to be the practice to remove all ovarian tumors at the earliest possible moment.

Septate Uterus Causing Fatal Puerperal Septicemia.—Dr. Sidney D. Jacobson made this report. This malformation of the uterus, which caused the woman her life, was a variety of arrested development, caused by a failure of proper coalescence of the Müellerian ducts with consequent absence of absorption of the septum between the two halves of the fetal uterus. The patient was thirty-four years old and a primipara. During the first week in June, 1907, she went into labor at term and was delivered in her home by the aid of median forceps. Within a few hours her temperature rose to 104 F. and she began to show all the typical signs of puerperal sepsis. Dr. Jacobson was called to see her on the third day after delivery and found her with the symptoms of severe pelvic peritonitis. The interior of the uterus contained a distinct partition running from before backwards and extending almost to the cervix. This partition divided the uterine cavity into two equally sized chambers, one of which was quite empty and the other filled almost entirely with a soft and friable mass of bad odor. This was evidently the cause of her sepsis and the pultaceous mass in one chamber of her bilocular uterus, a false decidua which had not been expelled and had in some way become infected. He advised immediate hysterectomy, but the husband declined and finally agreed to a "cleaning" of the uterus. The uterus was carefully curetted and a considerable quantity of mushy and malodorous material removed. The organ was irrigated with a 50 per cent. solution of alcohol. She improved somewhat but still presented the picture of profound infection. On June 11, 1907, she was removed to the hospital and a hysterectomy performed as a last resort, hoping to give her a fighting chance for recovery. She died on the following day of pulmonary embolus. The specimen of the uterus was shown; it was a large subinvoluted organ cut longitudinally and showed the septum beautifully. The specimen was presented to show the fact that a malformed uterus might become a fatal complication in labor.

Unilateral Fused Kidney with X-Ray Illustrations.—Dr. Arthur Stein reported the case of a woman, thirty-two years old, whose previous history was negative. She was married but had no children. Her menses were not accompanied by pain until five or six years ago; since then the pain had increased in severity. She was told that she had a uterine tumor as well as a tumor on the upper right side of the abdomen which should be removed. All the organs were normal except on the right side of the abdomen where there was a rather hard tumor, larger than the fist, slightly movable, extending to near the median line and disappearing toward the right renal region. The examination was not painful. The left kidney could not be palpated. There was a retroflexion of the uterus and at the posterior wall there were several small myomata which altogether were no larger than an orange. A diagnosis was made of multiple myoma and there was a suspicion of congenital horseshoe or unilateral fused kidney. The abdomen was opened, the myomata removed, and the uterus was found to be fixed to the anterior abdominal wall. In order to determine the precise nature of the right abdominal tumor, the posterior peritoneum was incised at the level of the tumor, and it was immediately seen that they had to deal with renal tissue. The small peritoneal incision was then closed. The left side was carefully examined in search of a kidney but none could be found, and the abdominal wound was then closed. Several weeks after the patient had left the hospital several *x*-ray pictures showed that both of the catheters inserted into the ureters deviated to the right and both were arrested at the same level. The injection of 30 per cent. of calargol into the renal pelvis demonstrated the fact that there were two renal pelves which were distinctly visible in the illustration. They were thus forced to the conclusion that they had to deal with a congenital fusion of two kidneys with seperate pelves and separate uterus, the openings of which were both at normal positions in the bladder. The typical horse-shoe kidney was found about once in 1,000 autopsies, the unilateral fused kidney much more rarely. This case was the only one reported in which a unilateral kidney was found to be absolutely healthy, the patient applying for treatment chiefly on account of uterine troubles.

Extirpation of the Kidney for Multiple Fistulæ.—Dr. Arthur Stein reported the case of a patient, thirty-nine years old, who had been operated upon for bilateral pyosalpinx on May 5, 1911. The pyosalpinx was firmly adherent to the omentum on both sides, and there was an extensive general adhesion of the genitals to the intestines and a fresh peritonitis. In the attempt to remove the tube it burst and a large quantity of pus was evacuated into the peritoneal cavity. While attempting to remove the left pyosalpinx the tissues were found to be so brittle that hemorrhage could not be arrested and a total extirpation was carried out. The drainage of the abdominal wound was upward and toward the vagina. About eight days after the operation urine was found escaping through the abdominal incision; after the usual treatment this fistula closed in about two months. About three weeks after the formation of this fistula, a vaginal fistula of the left ureter developed. The patient was discharged on July 4 with the abdominal wound closed but with the uretero-vaginal fistula still patent. She was directed to return in a few months to have it closed; she returned on August 31 in a rather emaciated and debilitated condition and stated that she had lost eighty pounds since the former operation. She complained of continuous pain in the left inferior part of the abdomen and had had chills during the week prior to her return. There was a pronounced feeling of pain along the left uterer, especially in its lower part. The vagina contained urine, but otherwise the wound was found in a normal postoperative condition. The bladder had a capacity of about 300 c.c. The walls of the bladder were normal. The aperture of the left ureter was somewhat distorted and no urine was seen to escape from it. In introducing the catheter into the left ureter no difficulty was experienced but an obstacle was encountered about one inch above the aperture making it impossible to insert the catheter any further. The function of the right kidney and ureter was normal. At the vaginal examination a narrow opening was found in the left fornix through which clear urine flowed very copiously. This opening was located about 3 cm. above the left fornix. Judging from an examination of the urine from the left kidney, it did not seem to be inflamed. On September 15 an incision was made between the old scar and the anterior superior spine and there were found extensive old adhesions, especially between the bladder and the anterior abdominal wall. The ureter was distended to the thickness of the little finger and was very edematous. It was dissected free in its whole length down to the fistula where it was ligated and cut off, the proximal end being implanted into the bladder with two flaps in the usual way. The wall of the bladder was fixed to the external wall of the ureter with seven or eight sutures. In order to secure abundant nutrition for the ureter, as much mesenterial fat as possible and adjacent intestine was sutured above it. The bladder was filled in order to demonstrate any possible leakage, but the place of implantation was quite impermeable. On the sixth day after the operation there was a gradual return of the urinary dribbling from the vagina and a few days later from the abdominal wound. The bladder was perfectly intact and consequently they had to deal with simultaneous fistulæ between the ureter and vagina and between the ureter and the abdominal wall. The patient recovered but none of the fistulæ closed. A radical operation for the removal of the fistulæ was decided upon and two courses were considered—first, an attempt at implanting the ureter into the colon, and, secondly, the total removal of the kidney. The latter operation was chosen after it had been established that the right kidney was in absolutely normal working order. On October 11 the left kidney was extirpated. The patient passed through a normal convalesence, the right kidney voiding clear, normal urine in quantities varying between 1,000 and 2,000 c.c. From the laboratory came the report that there was present a chronic interstitial nephritis and parenchymatous degeneration, together with a chronic pyelitis.

Hernia of the Uterus and Both Adnexa, with Report of a Case.—Dr Lillian K. P. Farrar read this paper. She reviewed the instances of this condition reported in the literature from 97 A. D., when, according to Peyrilke, Soranus of Ephysia stated that he had seen with his own eyes "a loop of small intestine descend in the inguinal canal preceded by one ovary," owing, as he said, "to the relaxation of the broad ligaments which retained and enveloped it and together with which the suspensory had also escaped." This case was of interest as a description of what might be called the first stage of the hernia of the genitalia. The writer reviewed the cases reported in the literature under three stages, (1) hernia of the ovary, (2) hernia of one adnexa and the uterus, and (3) hernia of both adnexa and the uterus. The case which the writer presented was that of a patient, 32 years of age, who had had five children, the eldest seven and one-half years and the youngest nine months. The first four labors were easy. During the second and third months of the second pregnancy the patient noticed a mass in the left inguinal region, which was tender on pressure and reducible when she was in the recumbent position. The mass appeared again in the third pregnancy but was absent during and after the fourth. In the fifth pregnancy it appeared at about the third month and was much larger and more painful than before. On rising on the seventh day after labor she noticed the mass, which remained reducible for about four weeks and then was irreducible for five weeks. On examination a left inguinal hernia was found which was irreducible and contained a solid body, broader below than above, firm in consistency, and somewhat tender on palpation. Two smaller growths were palpable below this organ and two others on a higher plane in the hernial sac. On bimanual examination, the cervix which was high in the vagina was found drawn to the left, and continuous with the tumor in the hernial sac. A diagnosis of hernia of the uterus and both adnexa was therefore agreed upon. At operation the uterus, two ovaries, two Fallopian tubes, and two broad ligaments were found in the canal of Nuck. The uterus was turned to the right with the left adnexa anterior to the uterus and the right posterior. Both the adnexa and the uterus were normal. The hernial ring measured two inches in circumference and the tissues of the canal were very much softened. The round ligament was three of four times its normal size. The uterus and adnexa were easily returned to the abdominal cavity and the wound closed by the Bassini method. The patient had had one child since with a labor of five and one-half hours duration and there had been no return of the hernia. At present the uterus was in good position and only slightly to the right of the axis of the pelvis. Dr. Farrar reviewed the theories that had been advanced as to the cause of hernia of the uterus and the conditions necessary for the formation of a hernia. She then discussed the diagnosis and operative treatment and concluded as follows: 1. There were only two varieties of hernia of the uterus and both adnexa, namely, inguinal hernia and femoral hernia. The inguinal variety was by far the most common and the only one in which a hernia of a pregnant uterus had occurred. 2. In inguinal hernia of the uterus, there were two types, (a) congenital, which was the most frequent, and (b) the acquired, which was infrequent if it occurred at all. 3. Hernia of the uterus occurred in infancy, usually associated with malformation of the genitalia, or in adult life after numerous pregnancies. If it occurred between infancy and adult life, there were usually hermaphroditic malformations. 4. Hernia of the uterus was always secondary to hernia of one adnexa, but a hydatid of Morgagni, or a broad ligament, might precede the ovary into the hernial ring. 5. The diagnosis rested on symptoms which were connected with the pelvic organs and not with the intestine. The diagnosis was usually based on the signs of pregnancy occurring in the patient together with the changes occurring in the hernial tumor. Hernia of the non-pregnant uterus could be diagnosed only by bimanual examination. 6. The treatment was always operative, either on the pregnant uterus for the relief of the immediate condition, or on the non-pregnant uterus to prevent degenerative changes in the organs or to avoid the danger of pregnancy in the hernial sac. 7. The causes were probably not single, but several associated. (a) Adhesive peritonitis in intrauterine life produced malformations and displacements of the genital organs which rendered them more liable to hernia. (b) The processus vaginalis peritonei made an opening favorable for hernia. (c) In the majority of cases occurring in infancy and childhood it was probably intraabdominal pressure that was the immediate cause of the hernia. (d) In cases occurring in adults, multiple pregnancies, subinvolution of the uterus and adnexa, or a previous inguinal hernia of the intestine were the secondary causes favoring its formation. (e) In some cases it was apparently the round ligament as Eisenhart and Winckel had stated that drew the ovary as the gubernaculum of Hunter drew the intestine into the inguinal canal. (f) In certain other cases it seemed probable that the broad ligament might first become adherent to the internal ring or to the processus vaginalis peritonei and form a reduplicature, and so draw the ovary in by a mechanism analogous to the gliding hernia of the large bowel. (g) If the intestine or omentum to which an ovary was adherent was in the hernial sac it seemed only logical to consider that the ovary which had made its way into the inguinal canal, in a manner analogous to the testicle, had in the same manner as the testicle dragged a loop of bowel after it into the hernial sac. The ovary being, therefore, the origin of the hernia and not the intestine as Keustner and Eisenhart had stated.

Dr. William B. Coley believed Dr. Farrar's paper to be the most interesting and scholarly paper on hernia of the uterus that had yet been written. He said he wished to report two cases that came under his personal observation. Hernia of the uterus alone, without the tube or ovary, was an extremely rare condition. In nearly 4,000 operations at the Hospital for Ruptured and Crippled, of which about 700 were performed upon the female, the ovary had been found alone in 4 cases, the tube alone in 1 case, the tube and ovary in 7 cases, and the uterus and tube in 2 cases. Personally, Dr. Coley had operated upon 1 case of hernia of the ovary alone, 1 of the tube alone, 5 cases in which the sac contained the tube and ovary, and 2 cases of hernia of the uterus.

Case I.—This patient was four and a half years old and was operated upon for double oblique inguinal hernia of three years' duration, a truss having been worn for two years. Operation was first performed on the right side; the sac was found to contain a broken tube and one horn of a bicornate uterus. In the left hernial sac was found a large and more completely developed horn of the uterus with a well developed tube, and a large ovary which contained a few small cysts. The hernia on the left side resembled in type, a sliding hernia of the sigmoid or cecum, the uterus being attached to the posterior wall of the sac low down, making a high closure of the sac difficult. The peritoneum was separated from the surrounding tissue, the lower portion of the sac was cut off, and the upper portion pushed down into the cavity. An uneventful recovery followed.

Case II.—This patient was ten years old and had a hernia the size of a walnut, partly reducible. She had worn a truss since infancy. The operation disclosed a large sac which contained the left tube and ovary and a large part of the uterus apparently normal in size. The left tube was adherent to the posterior wall of the sac. Bassini's operation was performed and was followed by an uneventful recovery.

Hilgenreiner up to 1905 was able to find reported but 37 cases of hernia of the uterus and his statistics showed it to have occurred most frequently in middle aged women who had borne children. In nearly one-half of the cases reported the trouble was associated with defects and malformations of the genital organs. The diagnosis was seldom made before operation except in cases complicated with pregnancy. Dr. Coley did not believe it was possible to make a diagnosis in children. As regards the etiology of hernia of the uterus, Dr. Coley believed the chief cause in children to be an abnormal mobility, or malformation of the uterus associated with a congenital sac and an abnormally large opening in the canal.

Dr. Sidney D. Jacobson presented certain facts in embryology to show that it was not difficult to understand the malformations of the uterus due to faulty coalescence of the Muellerian ducts. Their cause was not determined yet. It had also been noticed that women suffering from double uterus had strikingly broad hips. He regretted that he could not agree with Dr. Farrar that these malformations of the uterus were always due to bands caused by a fetal peritonitis.

Tuberculous Disease of the Middle Ear.—G. N. Biggs states that facial paralysis in children associated with aural discharge and unaccompanied by any symptoms of labyrinthine or intracranial disease is pathognomonic of tuberculosis of the middle ear.—*British Journal of Diseases of Children.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Idaho State Board of Medical Examiners.

October, 1912.

ANATOMY.

1. Give the origin, insertion, and nerve supply of the obliquus externus abdominis.
2. Describe the relations between the median nerve, brachial, and ulnar arteries.
3. Describe the portal circulation.
4. Describe the hip joint.
5. Describe briefly the inferior vena cava and its tributaries.

HISTOLOGY.

1. Describe the structure of the stomach.
2. Classify the different tissues and describe briefly where found.
3. Describe the structure of the skin.
4. Describe the structure of a uriniferous tubule.
5. What is the distinguishing difference between an artery and a vein?

PHYSIOLOGY.

1. What four chemical elements enter most largely into the construction of animal bodies.
2. Describe the portal circulation.
3. Discuss the function or functions of the spleen.
4. Name the types of muscle tissue and outline the parts played by each.
5. Describe the gastric juice.
6. Name the active principle of the saliva, and state the time required for the splitting up of starch cells in the mouth.
7. What effect has paralysis of the radiating fibers of the iris on the eye?
8. Is the sphincter vesicæ a voluntary muscle? (*a*) how stimulated (*b*) how inhibited?
9. Define the following terms concerning the phenomena of muscle action, summation, tetanus, contraction clonus, clonusmus, tonus, and rigor.
10. Which nerve supplies the upper incisors and canine teeth?

CHEMISTRY AND TOXICOLOGY.

1. Give chemical formula for (*a*) phenol; (*b*) lunar caustic; (*c*) mercurous chloride; (*d*) mercuric chloride; (*e*) methyl alcohol.
2. How are the two chief bile pigments formed?
3. What is the action of KHO when taken internally and what antidotes should be used?
4. Give method of disinfection in detail (*a*) with sulphur; (*b*) with formaldehyde. Which is the more efficient and why?
5. What is the cause of lactic acid in the stomach and how can it be separated from hydrochloric acid?
6. Give the post mortem findings in a suspected case of electrocution.
7. Give treatment, symptoms, and post mortem findings of oxalic acid poisoning.
8. Define the terms (*a*) rape; (*b*) rigor mortis; (*c*) hermaphrodite; (*d*) infanticide; (*e*) wound.
9. What is the general treatment of all cases of acute poisoning?
10. Name five neurotic poisons with symptoms and treatment for same.

ANSWERS.

ANATOMY.

1. The *external oblique muscle* of the abdomen *arises* from the eight lower ribs; is *inserted* into the anterior half of the outer lip of the crest of the ilium, and Poupart's ligament; *nerve supply*, the lower intercostal nerves, the iliohypogastric and ilioinguinal.

2. The *median nerve* lies at first on the outer side of the axillary artery, then crosses it, then lies on the inner side of the artery; it is at first on the inner side of the brachial artery, then crosses it, and then passes to the middle of the forearm and ceases to be in intimate relation with the artery.

3. *Portal circulation:* "The hepatic artery and the portal vein convey blood to the liver. The artery carries arterial blood, and the vein food-laden venous blood from the walls of the alimentary canal, and from the spleen and pancreas. Both vessels enter the liver at the transverse fissure, and they ramify in its interior, breaking up into small terminal branches which run between the lobules and send fine capillary branches into their substance; from these latter branches the blood passes into the capillary tributaries of the intralobular veins, thence to the sublobular veins, and from the sublobular veins to the hepatic veins which terminate on the posterior surface of the liver in the inferior vena cava."—(Bain's *Medical Practice.*)

4. The *hip-joint* is an enarthrodial joint, formed by the head of the femur and the acetabulum. The articular surfaces are covered with cartilage. Near the center of the head of the femur is attached the ligamentum teres. The *ligaments* are: (1) The capsular, which embraces the margin of the acetabulum above, and the neck of the femur below. (2) The ileofemoral or Y ligament, which passes obliquely across the front of the joint, and is attached above to the anterior inferior spine of the ileum, and below to the anterior intertrochanteric line. (3) The ligamentum teres. (4) The cotyloid ligament, which deepens the acetabulum, and bridges over the cotyloid notch, being there called (5) the transverse ligament. The joint has a very extensive synovial membrane. It is capable of the following movements: Flexion, extension, abduction, adduction, circumduction, and rotation.

5. The *inferior vena cava* is formed by the junction of the two common iliac veins in front and a little to the right side of the fourth or fifth lumbar vertebra. It passes upon the right side of the aorta, to the posterior surface of the liver, where it receives the hepatic veins; it passes through the diaphragm, perforates the pericardium, and enters the lower and back part of the right auricle. The *tributaries* are: Lumbar, right spermatic, renal, suprarenal, phrenic, and hepatic veins.

HISTOLOGY.

1. "The *wall of the stomach* consists of four coats, which, enumerated from without in, are: serous, muscular, areolar, or submucous, and mucous membrane. The *serous coat* is a layer which is derived from the peritoneum. It is deficient only along the lines of the lesser and greater curvatures. The *muscular coat* consists of three layers of plain muscular fibers. Of these the bundles of the outer layer run longitudinally, those of the middle layer circularly, and those of the inner layer obliquely. The longitudinal and circular bundles become thicker and stronger toward the pylorus, at which they pass into the corresponding layers of the small intestine; at the pylorus itself the circular layer is greatly thickened to form the sphincter muscle. The oblique fibers are only present in the left or cardiac part of the stomach. The *areolar or submucous* coat is a layer of areolar tissue, which serves to unite the mucous membrane loosely to the muscular coat; in it ramify the larger branches of the blood vessels and lymphatics. The *mucous membrane* is a soft thick layer, generally somewhat corrugated in the empty condition of the organ. Its inner surface is covered by long columnar epithelium cells, all of which secrete mucous. They are prolonged into the ducts of the glands, but when these divide to form the tubules the cells become shorter (cubical). The thickness of the mucous membrane is due to the fact that it is largely made up of long tubular glands, which open upon the inner surface. Between the glands the mucous membrane is formed of retiform with some lymphoid tissue. Externally it is bounded by the muscularis mucosæ, which consists of an external longitudinal and an inner circular layer of plain muscular fibers."—(Schäfer's *Essentials of Histology.*)

2. The *different tissues* are: Epithelial, connective, muscular, and nervous. *Epithelium* is found lining the vascular and lymph systems, in glands, in the ducts and cavities of the body, on the skin, etc. *Connective tissue* is found in tendons, ligaments, fasciæ, aponeuroses, skin, blood-vessels, lungs, intestines, etc. *Muscular tissue* is found in the voluntary and involuntary muscles and in the heart. *Nervous tissues* are found in the brain, spinal cord, and nerves.

3. "The skin consists of: (1) Epidermis or cuticle. (2) Dermis, corium, or cutis vera. (3) Sweat glands, nails, hair, and sebaceous glands.

"The *epidermis* forms a protective covering over the whole surface of the body. It is moulded over the surface of the corium, covering the ridges, the depressions, and the papillæ. It is made up of three principal layers: (*a*) the horny layer, or *Stratum corneum*, is the most superficial, and consists of layers of flattened cells, which are dry and horny without any nucleus; (*b*) the *Stratum lucidum*, composed of several layers of nucleated cells, which are more or less indistinct, and in section appear as an almost homogeneous layer; (*c*) the *Rete mucosum* or Malpighian layer contains, in its upper part, layers of

'prickle' cells, and its inferior layer consists of a single stratum of columnar cells. Pigment is principally found in the lowest layer.

"The *dermis*, or true skin, is made up of an interlacing network of connective tissue, formed of white fibrous tissue, yellow elastic tissue, corpuscles, vessels, and nerves. In some parts of the body, as in the skin of the scrotum, perineum, penis, the cutis vera contains unstriated muscular fibers. There are also small muscular fibers in connection with the hair follicles. Beneath the skin the subcutaneous tissues contain abundant adipose tissue. Numerous fine ridges are seen on the surface of the skin of the palm of the hand, and sole of the foot. The ridges are caused by rows of little elevations of the cutis vera, termed papillæ. These little eminences are more or less conical, or sometimes club-shaped; they may be compound, and contain a capillary loop, nerve, and touch-corpuscle; they project into the epidermis, and by raising it up, as it were, form a ridge on the surface of the skin. They serve to increase the sensitiveness of the part, lodging a touch-corpuscle in a favorable position for receiving sensations of touch."—(Ashby's *Notes on Physiology.*)

4. "Each *uriniferous tubule* commences in a globular capsule—Bowman's capsule—which surrounds a glomerulus of blood-vessels, the whole forming a Malpighian body. The tubules are at first convoluted, then become narrowed, and form loops of Henle, which dip down into the base of the pyramid; these loop tubules return into the cortex, and again become convoluted. The second convoluted portion ends in a short, narrow tubule. Several of these unite to form a straight tube, which they usually join at nearly a right angle; the straight tubes unite in pairs and form the greater part of the pyramid. The straight tubules open into little pits at the apex of a pyramid, by which the urine is discharged into one of the calices. The urinary tubules consist of a fine membrane lined with epithelium. The epithelium is cubical in the convoluted portions, somewhat flattened in the loop tubules, and cubical or columnar in the straight tubes of the pyramid. Bowman's capsule is lined by a layer of flattened epithelial cells, which is reflected over the vessels of the Malpighian tuft."—(*Aids to Physiology.*)

5. *Differences between arteries and veins:*

ARTERIES.	VEINS.
Generally carry arterial blood.	Generally carry venous blood.
Carry blood from the heart.	Carry blood to the heart.
Do not collapse when cut.	Collapse when severed.
Are found contracted and empty after death.	Are not found empty after death.
The middle coat is the thickest.	The external coat is the thickest.
Do not have valves.	The medium-sized veins have valves.

PHYSIOLOGY.

1. Carbon, hydrogen, oxygen, and nitrogen.

2. See above. ANATOMY, 3.

3. The *function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

4. The types of muscle tissue are voluntary and involuntary; also cardiac. The *voluntary* muscles are striped, are more or less under the control of the will, do not contract rhythmically, do not evince peristalsis, and the nerves to them end as "end-plates." The *involuntary* muscles are unstriped, are not under the control of the will, contract rhythmically, show peristalsis, and the nerves to them end as a "plexus." The cardiac muscle is the heart.

5. The *gastric juice* is a fluid, of acid reaction, specific gravity of about 1001 to 1010, and is composed of water and solids, the latter being about one-half of one per cent. About 10 or 12 pints are secreted daily. It contains pepsin, hydrochloric acid, mucin, salts, a curdling ferment, and water. The pepsin converts the proteids into proteoses and peptones.

6. The active principle of the saliva is called *ptyalin.* The time required for the ptyalin to split up the starch cells depends upon the starch. If the starch is boiled, it may be accomplished in a few minutes; unboiled starch may require even a few hours.

7. Paralysis of the radiating fibers of the iris causes contraction of the pupils.

8. There is no *voluntary muscle* by the name of *sphincter vesicæ.* "When the urine has passed into the bladder, it is there retained by the sphincter vesicæ muscle, kept in a state of chronic contraction by the action of a nerve center in the lumbar region of the spinal cord. This center can be inhibited and the sphincter relaxed, either reflexly, by impressions coming through sensory nerves from the mucous membrane of the bladder, or directly, by a voluntary impulse descending the spinal cord. When the desire to urinate is experienced impressions made upon the vesical sensory nerves are carried to the centers governing the sphincter and detrusor urinæ muscles and to the brain. If now the act of urination is to take place, a voluntary impulse originating in the brain passes down the spinal cord and still further inhibits the sphincter vesicæ center, with the effect of relaxing the muscle and of stimulating the center governing the detrusor muscle, with the effect of contracting the muscle and expelling the urine. If the act is to be suppressed, voluntary impulses inhibit the detrusor center and possibly stimulate the sphincter center."—(Brubaker's *Compend of Physiology.*)

9. *Summation* of stimuli is the muscular or mental effect produced by the frequent application of slight stimuli, one of which alone would be without evident response.

Tetanus is a tonic muscular contraction, especially induced by an electrical current.

Clonus is a form of convulsion marked by contractions and relaxations of a muscle, occurring in rapid succession.

Clonismus is a long continued state of clonic spasm.

Tonus is the state of normal elastic tension.

Rigor is the hardening and stiffening of the muscular tissues. (From Stedman's *Medical Dictionary*).

10. The upper incisors and canine teeth are supplied by the anterior superior dental branch of the superior maxillary division of the trigeminal (fifth cranial) nerve.

CHEMISTRY AND TOXICOLOGY.

1. Phenol. C_6H_5OH. Lunar caustic, $AgNO_3$. Mercurous chloride, Hg_2Cl_2. Mercuric chloride, $HgCl_2$. Methyl alcohol, CH_3OH.

2. Bile pigments are formed in the liver from the coloring matter of the blood, by the disintegration of the red corpuscles.

3. KHO, taken internally, is a corrosive, and distintegrates the tissues; it has a caustic action, may perforate the stomach, or cause thickening of the stomach walls with closure of one or both of the orifices of the stomach. The antidote is dilute acid or vinegar.

4. "*Sulphur dioxide* is a powerful germicide and a good surface disinfectant; the disadvantages of sulphur dioxide for disinfection are (1) that it is not very penetrating, (2) that it does not destroy spore-bearing bacteria, (3) that it damages textile fabrics, (4) that it bleaches vegetable colors, and (5) that it injures and tarnishes metals. It is also very poisonous to those handling it, causes injury to the mucous membranes of the eyes, and nose, and throat, and leaves a very disagreeable odor, clinging to materials for a very long time. Several methods of sulphur disinfection are employed: The pot, candle, or liquid form; also by means of furnace. About five pounds of sulphur are used for every 1,000 cubic feet of space to be disinfected. Moisture and heat increase the penetrating qualities of the gas and the value of disinfection. An exposure of twenty-four hours is necessary for thorough disinfection, and as the gas is very diffusible precautions must be taken effectively to close all windows, doors, and all cracks, crevices, and other apertures found in the room. Sulphur disinfection is preferable wherever surface disinfection is needed and where there are few articles which would be deteriorated by it, also wherever insecticide action is demanded.

"*Formaldehyde* gas has greatly superseded sulphur dioxide as a disinfectant. Its main value is that, while it is a good germicide, it does not destroy fabrics and injure objects as the latter, and also it is nontoxic. Formaldehyde is also but a surface disinfectant, its penetrating qualities not being very great. Bacteria are killed by formaldehyde immediately on direct exposure, and spores within an hour. It kills dried organisms as well as those in a moist state. Formaldehyde is not an insecticide. For domestic disinfection formaldehyde is generated by spraying liquid formalin (which contains 40 per cent. of the gas), or by heating paraform pastils or powder, also by means of generators or lamps. Other methods of evolving formaldehyde in disinfection which are used in large house and hospital disinfections are by means of large generators or lamps, or in specially constructed autoclaves under pressure, or in retorts without pressure."—(Price's *Hygiene and Public Health.*)

5. Lactic acid is formed in the stomach during the digestion of carbohydrates.

Test for lactic acid: Put three drops of concentrated solution of phenol and three drops of an aqueous solution of ferric chloride in a little water; to this add the solution to be tested; if lactic acid is present the blue color turns to canary yellow.

Test for hydrochloric acid: Put a few drops of the filtered gastric juice in a porcelain dish, and add a drop of 0.5 alcoholic solution of dimethylamidoazobenzol; a cherry red color indicates the presence of hydrochloric acid.

6. In *death from an electric current,* rigor mortis is usually marked, the heart is flaccid, the large veins, the brain, and abdominal viscera are congested, the left heart is empty, the right heart is full of blood, the blood contains oxyhemoglobin and reduced hemoglobin.

7. Oxalic acid poisoning. *Symptoms:* Pain, vomiting, nervous symptoms such as twitching, coma, prostration, cardiac depression, cramps, delirium, convulsions; symptoms are very variable. *Treatment:* Magnesia in solution should be given in large doses; this should be followed by an emetic; the depression and prostration may then require treatment.

Post-mortem findings: "No matter what the size and concentration of the dose may be, there is always a greater or less amount of bleaching and softening of the mucous membranes; they may be covered with a soft brownish coat representing the discharges from the stomach. The stomach as a rule contains a dark-brown, more or less gelatinous fluid. The mucous membrane of the stomach will usually be pale and softened, in some cases presenting no signs of inflammation. It will usually be easily separated from the walls of the stomach and will appear as if boiled. The intestines are usually congested if death has been delayed for even a few hours. The lungs and brain have been found congested. The heart is usually flabby, and may be either empty or full. The blood is dark-colored and fluid. The kidneys, where life has been prolonged, may exhibit a peculiar white line in their cortical areas, representing an accumulation of calcium oxalate." (Dwight's *Toxicology.*)

8. *Rape* is carnal knowledge of a woman without her conscious permission, or with such permission extorted by fraud or force.

Rigor mortis is the stiffening of the muscles of the body observed after death.

Hermaphrodite is an individual who possesses both ovaries and testicles.

Infanticide is the destruction of life in a newly born child. *Wound* is a solution in continuity of any of the tissues of the body.

9. *General principles of treatment:* "(1) Lose no time. (2) Use the best remedy obtainable at once. (3) Get rid of the poison. (4) Stop its action. (5) Remedy the mischief already done. (6) Fight against the tendency to death (Tanner). In the treatment of poisoning, whether by mineral or vegetable substances, if the poison is known the first indication is to administer the proper chemical antidote, so as to render it harmless or comparatively so. Next, the stomach should be emptied and washed out, lest the newly-formed compound be absorbed after a time, also to remove any poison which may have escaped the action of the antidote. Next, the appropriate antagonist should be administered, to counteract the effects of such portion of the poison as may have been absorbed. Lastly, such antagonistic measures should be employed as may sustain the action of any organic function showing signs of failure. In most cases of alkaloidal poisoning absorption has proceeded so far before professional assistance is obtained that antidotes are of no value, hence reliance can be placd only upon the physiological antagonist and such supporting measures as will tend to maintain vitality until the poison can be eliminated by the natural channels." (Potter's *Materia Medica,* etc.)

10. *Five neurotic poisons:* Morphine, cocaine, strychnine, atropine, and aconite.

Morphine. *Symptoms:* "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis, the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."

Treatment: "Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach, and in maintaining the respiration. In the first or second stage the 'ambulatory treatment' should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop, the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee, or caffeine, by the mouth or rectum, are of benefit. The same cannot be said of atropine. The urine should be drawn by the catheter."

Cocaine: *Symptoms:* Pain and fulness in the head, pulse at first quick but later feeble and slow; extremities cold. The symptoms are not constant.

Treatment consists in the administration of ammonia or coffee; morphine, strychnine, chloroform, and ether have all been suggested; artificial respiration may be necessary. The safest plan is to treat whatever symptoms are present.

Strychnine. *Symptoms:* "A sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

Treatment: "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

Atropine. *Symptoms:* "In the first stage, that of delirium, there are dryness of the throat, thirst, difficulty of deglutition and spasms upon swallowing liquids, face at first pale, afterward highly reddened, pulse extremely rapid, eyes prominent, brilliant, with widely-dilated pupils, complete paralysis of accommodation, disturbances of vision, attacks of giddiness and vertigo, with severe headache, followed by delirium, occasionally silent or muttering, but usually violent, noisy, and destructive, accompanied by the most fantastic delusions and hallucinations. Usually the urine is retained, and the body temperature is above the normal. The delirium gradually subsides, and the second stage, that of coma, is established, with slow, stertorous respiration, and gradually failing pulse, until death occurs from respiratory or cardiac paralysis, or sometimes in an attack of syncope during apparent amelioration."

Treatment: Lavage of the stomach; morphine may be given cautiously during the period of violent excitement. Maintain respiration; strong coffee by the mouth or rectum is beneficial. Pilocarpine may be given, in not too large doses, to stimulate the secretion of saliva." (From Witthaus' *Essentials of Chemistry.*)

Aconite. *Symptoms:* "Numbness and tingling, first of the mouth and fauces, later becoming general. There is a sense of dryness and of constriction in the throat. Persistent vomiting usually occurs, but is absent in some cases. There is diminished sensibility, with numbness, great muscular feebleness, giddiness, loss of speech, irregularity and failure of the heart's action."

Treatment: Remove the poison and wash out the stomach with infusion of tea holding charcoal in suspension. Stimulants should be freely administered.

Simple Ulcers of the Jejunum and Ileum.—A. Cade, C. Roubier, and J. F. Martin state that these ulcers are much rarer than those of the duodenum, but are a little more frequent than those of the large intestine. The lesion in most cases in an inflammatory one dependent upon any of the following factors: traumatism, foreign bodies, intoxications, and infections. But circulatory and nervous factors may also be present. Clinically the ulcer is frequently latent and has an insidious course. Usually its first manifestation is a preforation followed by peritonitis. If there are any premonitory symptoms these are apt to be vague intestinal manifestations, such as colic, pain, diarrhea, and less frequently, constipation. Occasionally there may be vomiting. Intestinal hemorrhage is not frequent. According to Ewald the presence of a localized pain regularly associated with the taking of food should arouse the suspicion that an ulcer is present.—*Le Progrès Médical.*

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CLINICS, DEPARTMENT OF PUBLIC CHARITIES

CALENDAR, AUGUST 1913

MONDAY			
Cumberland St. Hospital (Brooklyn)	Surgery	Dr Walmsey	3:00 P.M.
	Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
	Oral Surgery	Dr Shea	4:30 P.M.
TUESDAYS			
Neurological Hospital	Neurology	Dr Byrne	9:00 A.M.
Cumberland St. Hospital (Brooklyn)	Ophthalmology and Otology	Dr Warner	3:00 P.M.
	Surgery	Dr Iler	3:00 P.M.
Kings County Hospital (Brooklyn)	Surgery	Dr. Bogart	8:30 A.M.
	Genito-urinary Surgery	Dr. Morton	2:00 P.M.
	Genito Urinary Surgery	Dr. Fraser	2:00 P.M.
Coney Island Hospital	Surgery	Drs. Fiske and Bogart	10:30 A.M.
	Surgery	Drs. Murphy and Lack	10:30 A.M.
	Medicine	Drs. Hall and Nash	3:30 P.M.
	Medicine	Drs. Hegeman and Byington.	3:30 P.M.
WEDNESDAYS			
City Hospital	Genito-Urinary Surgery	Dr Greene	2:00 P.M.
	Obstetrics	Dr Dorman	2:30 P.M.
Neurological Hospital	Neurology	Dr. Maloney.	10:00 A.M.
Cumberland St. Hospital (Brooklyn)	Gynecology	Dr Pierson	2:30 P.M.
Kings County Hospital (Brooklyn)	Dermatology	Dr Winfield.	1:00 P.M.
	Orthopedics	Dr. Truslow	9:00 A.M.
	Orthopedics	Dr. Napier	2:00 P.M.
Coney Island Hospital	Pediatrics	Drs. Beck and McQuillan.	3:30 P.M.
	Pediatrics	Drs. Pendleton and Van Wart	3:30 P.M.
THURSDAYS			
City Hospital	Gynecology	Dr. Child	2:00 P.M.
	Dermatology	Dr Gottheil	3:00 P.M.
Cumberland St. Hospital (Brooklyn)	Surgery	Dr. Walmsey.	3:00 P.M.
	Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
Kings County Hospital (Brooklyn)	Surgery	Dr. Bogart	8:30 A.M.
	Otology	Dr. Alderton	1:00 P.M.
	Gynecology	Drs. McEvitt and Mills	10:30 A.M.
	Surgery	Drs. Mayne and Rankin	10:30 A.M.
	Surgery	Drs. Fiske and Bogart.	10:30 A.M.
	Surgery	Drs. Murphy and Lack	3:30 P.M.
FRIDAYS			
City Hospital	Laryngology and Rhinology	Dr. Dougherty	2:30 P.M.
	Obstetrics	Dr. Dorman	2:30 P.M.
Neurological Hospital	Neurology	Dr. Abrahamson.	9:00 A.M.
Cumberland St. Hospital (Brooklyn)	Ophthalmgology and Otology	Dr Warner	3:00 P.M.
	Surgery	Dr. Iler.	3:00 P.M.
	Surgery, Oral	Dr Shea	4:30 P.M.
SATURDAYS			
Neurological Hospital	Neurology	Dr. Walsh	2:00 P.M.
Kings County Hospital (Brooklyn)	Surgery	Dr. Bogart	8:30 A.M.
	Gynecology	Dr McNamara	1:30 P.M.

All registered physicians, visiting and resident and medical students, are cordially invited to attend these Clinics.

Cards of admission, valid until October 1, 1913, may be obtained at the Academy of Medicine, 17 West 43rd Street, Manhattan, and at the Medical Society of the County of Kings, 1313 Bedford Avenue, Brooklyn, as well as from the Secretaries of the several Medical Colleges.

Leucocyte Inclusions in Surgical Diseases.—A. Naccarone notes that in various surgical diseases inclusion bodies are found in the polymorphonuclear leucocytes. The inclusion bodies described by Döhle are therefore not peculiar to nor pathognomonic of scarlet fever. The absolute number of these inclusions and their predominating variety bear no relationship to the various types of cell present, nor do they vary according to the different stages of the disease. The author regards the inclusion bodies as certain resistant forms of parasites.—*La Riforma Medica.*

The Cerebrospinal Fluid in Simple and in Ophthalmic Migraine.—M. J. A. Sicard states that during an attack of simple migraine the cerebrospinal fluid shows neither lymphocytosis nor hyperalbuminosis and has the normal content in urea and glucose. Occasionally its pressure is increased. On the contrary, during a crisis of ophthalmic migraine, the cerebrospinal fluid may be normal, or it may show a hyperalbuminosis with a lymphocytosis. In the former instance the prognosis is favorable, the ophthalmic migraine being but a "neuro-arthritic" episode. In the latter instance the findings indicate an organic meningocortical reaction of syphilitic or tuberculous origin.—*Gazette des Hopitaux.*

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NEWER ASPECTS OF THE TREATMENT OF EPILEPSY.*

By L. PIERCE CLARK, M.D.,

NEW YORK.

The first impression derived from a study of the work done upon epilepsy during the past few years is that no new promising therapeutic drug has been introduced during this period. Furthermore, none of those introduced during the corresponding previous period have proven themselves permanent additions to our therapeutic treasury.

If, however, one applies to this work on the treatment of epilepsy those therapeutic possibilities in which shall be represented all methods of treatment of every description, particularly hygienic, dietetic, physical, and psychic remedies, as well as medicamentous ones, we shall soon be convinced that our knowledge of the treatment of this malady has not stood still and that abundant evidence of progress can be found if properly sought for. One might say that the past decade could be designated as one of painstaking, minute and accurate adjustment of principles already known but often inaptly applied in the past.

The past few years have doubtless seen one innovation of far-reaching importance which is so revolutionary that most conventional reviews of our knowledge of epilepsy of a certain type, more particularly the type without mental stigma or deterioration, into the sphere of the affect psychoneuroses. Our knowledge has come about in two principal ways: first, from prolonged study of institutional cases by men like Bratz of Wuhlgarten, whose studies have been quite independent of results of treatment, and second, by the successful application of Freudian psychanalysis by students of Freud, such as Stekel, Jones, Jung, and others. Naturally, this opens the old vexed question of hysteroepilepsy, but of recent writers only one (Sadger) makes use of the term "hysterical pseudo-epilepsy." The majority, while admitting the fact that some confusion must attend reopening the whole problem of the nature of the disease, especially when applied to individual cases, insist that not only is the epilepsy in question typical in every respect but that all the stigmata of hysteria are absent. There can be no doubt, however, that an epileptic showing no deterioration, no stigma of the epileptic character, should be considered carefully in the light of the above suggestion, especially in view of the fact that ten per cent. of all epileptics show no stigma of their disease and, moreover, never deteriorate. There is also a cumulative body of evidence which indeed goes back some years, that even true epileptics may be subject to affect attacks which may even amount to true status. Any careful observer in this field must have seen not a few cases of this sort. In such psychotherapy may reduce these subjects with frequent attacks to the type which present relatively few attacks. Many different methods of mental treatment have proven the correctness of this view. Even quack methods have made use of this fact. Careful investigations of this whole subject should be illuminating and profitable. When we bear in mind that until very recently the dictum has been generally accepted that in true epilepsy there is no affect element, we can understand the revolutionary character of this teaching. It may be simply stated that some true epilepsies may have an element of affects.

Naturally, supposed cases of genuine epilepsy will require years of observation and control, for a subject apparently cured of seizures which have been more or less frequent may be found to exhibit attacks at long intervals which are quite spontaneous. Thus it may ultimately be shown that the recurrence of attacks in a supposedly cured case of genuine epilepsy may be due to the recurrence of a particular affect. This should be noteworthy in the relapsing cases, which in the absence of the other well known excitants such as dietetic errors and like physical causes are not evident.

At the present time our knowledge of the curability of apparently severe cases of epilepsy by methods of psychanalysis rests upon the carefully related case-histories of Stekel and Moedet. However, psychogenous attacks in genuine epileptics are naturally a broader subject in which a number of us have been studying interestedly (Bratz, Stullmen, Friedman, Dana, Jones, Clark, etc.). In reviewing Stekel's cases one is somewhat puzzled by the discrepancy in referring to his cases in one moment as "typical, genuine epilepsy," and in the next as "pseudo-epilepsy." Much will depend in the future study of this question upon the exact status of this point. I have been impressed that many of his so-called genuine epilepsies would not pass muster by experienced epileptologists. It has seemed to me rather that many of his cases are but neuropaths with psychogenous or pseudo epileptic attacks, and therefore our power over true epilepsy has not really been increased beyond palliation. Stekel shows, however, that his patients had certain attributes inseparable from genuine epilepsy. For instance, one of his subjects had the epileptic temperament while the other had at least undergone an apparent mental deterioration but regained his mental powers.

When we bear in mind that considerable time is usually required for successful psychanalysis and that few men have the knowledge of the technique, patience and opportunities to apply it, one must confess that the great bulk of epileptic cases hardly

*Read before the County Medical Society, St. Louis, Mo., January 11, 1913.

avail themselves of this new view of the disease. Hence the greater significance of this research will be one of diagnosis and not therapeusis. It is, however, a line of study which especially needs to be followed up in the future. Moreover it may be borne in mind that the affect element may be reached by other and newer methods in psychanalysis as elaborated and modified by Jung, where failures of new adaptations in life are made of more moment and the consequent regression into the affects of the earlier life is the important issue. While the technique of psychanalysis is not essentially modified thereby, knowing that some early sexual trauma is no longer the nucleus of the affect state, detailed analysis of such becomes less important and imperative of exact analysis. Then, too, as pointed out by Hoch, the failures in adaptations are not in themselves so very important except to disclose the inherent weakness of the trends in the personality and afford us thereby accurate clues to the particular lines of psychic therapeusis. The application of the newer psychological psychiatry to our subject in hand is worthy of an independent paper, which space forbids even outlining.

There has been introduced into psychiatry and neurology a resource which as far as I know has not yet been thoroughly tested in epilepsy. This is the use of pyretogenic substances to induce high temperatures, the rational basis being the fact that not infrequently typhoid and other continued fevers in the insane have been followed by recovery from the psychosis. Such recoveries are occasionally seen in epilepsy—for example, one which followed an attack of erysipelas, which is sometimes quoted.

Until the discovery of the tuberculin reaction we did not have at our disposal any fever-producing resources suitable for routine use. At a later period "nuclein fever" was discoverd. Both these pyretogenic substances have been used freely in general paralysis and are being tested in other psychoses. in an article on the modern treatment of epileptics, published in 1909, Wahl, a French writer, alludes to attempts to induce fever in the belief that thereby convulsions might be prevented. The idea he treats as an old one, never thoroughly tested. The future may doubtless witness a trial of tuberculin or nuclein.

Has chemotherapy, the great resource of the future, developed any point of contact with the therapy of epilepsy? As far as I know, only in connection with salvarsan. Routine use of Wassermann's reaction seems to have shown beyond doubt that only a very small per cent. of epileptics and idiots show a positive test. Of course when the latter is present it is no guarantee that salvarsan is curative, although naturally antisyphilitic remedies would at once be used in such a case. For several years I have been concerned with a number of epileptics in whom the Wassermann reaction has been positive, and in which a history of early infection was obtained. However, antispecific treatment, including that of salvarsan, seems to have produced no noticeable results in the disease. It must be said that two phases of specific epilepsy must be considered; first, the one in which the epilepsy is little less than a symptom of exudative phase of cerebral syphilis and in which salvarsan and other older antisyphilitic remedies are of greatest avail, and secondly, in which the epilepsy is the remote sequence of degenerative changes induced by syphilis and in which latter condition, comparable in part at least with tabes and paresis, is not modified by any antispecific remedies. The point of practical moment to which I wish to call particular attention here is the relatively small number of the latter class in which by spinal puncture and differential cell count one may determine whether or not the exudative phase of the specific disease is entirely passed. It is precisely in this class of syphilitic epilepsy that the older method of treating such cases by a combination of iodides and bromides must have produced such favorable results. The Brown-Sequard mixture was the remedy most frequently employed.

Since epilepsy has recently been studied from the viewpoint of blood pressure, we may ask pertinently whether epileptic seizures like those of puerperal eclampsia are in any way the result of high arterial tension. This is said by Lallemant and Rodiet to be true of menstrual epilepsy in which the pressure rises until a fit occurs. Alcoholic epilepsy might have a similar mechanism, as also attacks which follow the use of tea and coffee, and Féré produced attacks with pilocarpin. A milk-vegetable diet lowers the pressure and this is also the result, somewhat inconstant, of bromides. Rosenberg's antiepileptic "epileptol" is said to lower the blood pressure dangerously if given in too large doses. Although one frequently sees noted that the arterial tension in epileptics is higher on an average than in controls even when under full regimen (bromides, diet, etc.), pressure of over 200 being often mentioned, I have never seen such cases. In my experience the blood pressure is invariably low, ranging from 70 or 80 to not higher than 140 mm. I believe the regimen for epilepsy and arteriosclerosis being placed upon practically the same plane by Lallemant and Rodiet on account of the similarity of arterial tension can be better justified upon quite other and more rational grounds. The defects in protein metabolism in the epileptic when such foods are taken in excess is well known and above all the defect the epileptic suffers in elimination which is so frequently fostered by a high protein diet and a consequent putrefaction may be considered proven. The general employment of blood pressure instruments furnishes important indications for treatment and prognosis, although I advocate their use on quite the reverse grounds than some other observers. To those who follow the high tensionists in the physical make-up of the epileptic, a note of warning needs to be sounded, inasmuch as any extreme lowering of blood pressure in epilepsy may be pronounced hazardous since prolonged use of bromides may have impaired the heart.

An anaphylactic origin has naturally been attributed to epileptic as well as to eclamptic seizures. In attacks at long intervals we may suppose that the cortical cells have been sensitized to some particular toxin while in frequent and serial attacks the cells have become sensitized to irritation of every sort. If we seek a remedy through this clue we come upon the fact that calcium salts are about the sole resource available, so that the indications agree with those of spasmophilia. The use of calcium in epilepsy is not bearing fruit, and it is claimed that an excess of lime in the blood is as bad as a deficit. Attempts to influence the calcium metabolism through thyroid feeding have proved failures largely owing to the fact that the method of administration is probably a very crude system of introducing such substances into the system as compared with the human economy acting in a physiological manner.

The past few years have witnessed no advances in the organotherapy of epilepsy, and the opinion has become more confirmed that but little is to be expected from this source. The thyroid is used by different men for different purposes. One would employ it only in children who show evidences of arrested development in the hope that they might outgrow the disease. A single author gives thyroid substance because he believes it to be the best antibromic. He combines it with bromides. Others believe it indicated in menstrual epilepsy, but this view seems to be ill founded. The old belief that thyroid substance antagonizes spasmophilia has been exploded by the discovery that only parathyroid substance stands in definite relationship to this condition. In 1908 Bouche, a Belgian writer, called attention to this point and suggested that parathyroid extracts be tested in epilepsy. He claims that in the few cases in which thyroid substance is distinctly antiepileptic the rationale is probably to be sought in the presence of a parathyroid admixture. This suggestion has not been carried out to any extent because of obvious difficulties in getting pure glandular products. Isolated cases of improvement under ovarian extract, adrenalin and hypophysis substance have given rise to a belief that a polyglandular extract would be of benefit. More rational is the view that organotherapy should only be carried out in cases in which the existence of an insufficiency of certain extracts can be positively shown. Claude, who has labored for years in this field, not only studies cases from this viewpoint, but also finds in common with others that small doses suffice in certain individuals. He combines the thyroid and ovarian, and hypophysis and ovarian extracts in suitable cases. However, in no case does he dispense with bromides (a strange, therapeutic irony) during the organotherapy. However, it may be said his treatment is intended only to bring about remote results and not to control convulsions. All my personal efforts in this field have been unproductive permanently. More definite knowledge of the function and uses of the ductless glands on the nervous system is nowhere more impatiently awaited than in epileptology.

There is an entirely different phase of organotherapy in which brain extracts have been used. On account of the readiness with which brain substance is obtainable the resource has been tested on quite a large scale. Eulenburg has used Poehl's "cerebrin" both in tablet form and hypodermically. Poehl was very sanguine in some alleged remarkable results in Russia. Eulenburg's results have been as negative as those obtained by the rest of us using this substance in this country. The matter is here introduced and commented upon largely because a rather new application of the principle was made of it in Italy, where a preparation called "cephalopin" has been used for some years by a number of practitioners less as a specific for epilepsy than for the defective and neuropathic substratum. Trevisanello claimed a radical cure of a very severe epilepsy with organic substratum from injections of this substance. That the brain has an internal secretion in the ordinary sense of the term is, of course, highly questionable, but it is by no means impossible that brain substance when used as food may yield cleavage products which are of special nutritive value in nervous insufficiency. Some authorities make use of glycerophosphates and organic phosphorus from the same viewpoint. The recent remarkable results obtained by Abderhalden in feeding animals with cleavage products alone, and even in replacing organic with inorganic nitrogen to a certain extent shows that the line of demarcation between drugs and foods is becoming progressively more ill-defined. Some cleavage products of ordinary digestion are not utilized by economy; while others are potentially toxic and require detoxicating by the economy. It is impossible to state when a cleavage product ceases to act as mere food, for combustion or to replace waste, and begins to assume the activity of a drug. The future organotherapy of epilepsy may consist in the use of synthetic food containing only such cleavage products as are known to be utilizable fully and free from any possible toxicity.

In regard to serotherapy and autoserotherapy—including the use of puncture fluids—it seems safe to say that no progress has been made in the past few years, and there is no promise of any better results. In regard to vaccinotherapy, a discovery has been made which bears indirectly upon epilepsy. It has been shown that both bromides and iodides distinctly lower the opsonic index to the staphylococcus. This, of course, is only what was to have been expected. Whether in the case of those peculiarly susceptible to bromic acne and other pustular lesions a course of vaccinotherapy and staphylotoxins will be worth while must be left to the judgment of the attending physician. Naturally, one would first have to determine whether despite the continued use of bromides the opsonic index could be influenced favorably by the vaccination. A find of some importance is that arsenic is able to elevate the lowered index and this naturally explains its power in antagonizing the bromides and iodides.

The past few years have brought out nothing in favor of any plan of physical therapy for epilepsy. Indeed, the opinion seems to be generally held that everything under this head is all but contraindicated for this malady. This fact is a great stumbling block; for nearly all chronic affections derive benefit from these measures, as do also healthy subjects. Only when their action is purely sedative do we feel that they are really indicated. Radium as far as we know has not been tested fairly. It may be made to quicken greatly the metabolism, and if the opinion is true that an obese epileptic improves upon any plan which reduces his weight, it should be indicated in such cases. But the same law holds good for thyroid feeding which also intensifies metabolism, yet has not benefited epilepsy in general.

Since a sluggish colon must usually be due to atony, anything which can overcome the latter by physiological means should be a desideratum. Doumer, a colleague of Arsonval, was so impressed with three cases of arrest of fits by voltaization of the abdomen that he brought the attention of the matter before the French Academy of Sciences.

Second only in importance to the colon in this respect is the stomach. The state of the latter in regard to dilatation and stagnation, to prolapse, etc., will doubtless be fixed for each case in the future by radiography. The gastric crises which occur so frequently even in sound subjects and no doubt are essentially preventable may perhaps be foretold and prevented by this resource. As a matter of routine I have all my epileptics with grave digestive disorder *x*-rayed. Now that it is possible by means of *x*-rays to determine the points or parts of intestinal stasis in constipated epileptics we are likely to see a more exact physical therapy of movements,

massage, and electricity applied to overcome the defective function. It will also be possible to determine the value of such lines of treatment by subsequent *x*-ray analysis of the individual case after the special therapy has been used. Even though such physical therapy may not be efficacious in entirely overcoming the special defect causing the constipation, its employment may be safely advised until more drastic surgical procedure, such as ileosigmoidectomy, may be found necessary finally.

Notwithstanding hydrotherapy, with the exception of carefully given lukewarm baths, is condemned by many, the same has not been my experience. With very few exceptions I insist that all my able-bodied epileptic patients shall take cold douching or the cold tub at least once a day. This point is doubly necessary if a bromide therapy is followed to counteract the circulatory depression entailed by the latter drug. In the robust class which, by the way, includes a very large number, I even add salt to the baths for extra stimulation. Sea baths, electric light baths, carbonic acid baths, mud baths, etc., may all be applied in special cases. While it may be true that as a class the metabolism of epileptics is not greatly defective, their defective power of elimination of waste products does not admit of doubt, even though the vicious depression of sedatives be ruled out. Again, it is rather popularly held by the laity as well as the profession that anything which overheats the epileptic is not well for him; here, again, the principle I have just enunciated holds doubly true. Some extreme views and much discrepancy in statements upon this point are doubtless due to the fact that while one has in mind a vigorous epileptic with relatively few seizures, another refers to hopeless cases with frequent attacks. Several years' experience at the Craig Colony for Epileptics proved to me that the extreme of exacting over-strenuous exercise, especially attended by mental excitement, such as keen competition in football and baseball matches, invariably worked harm to the participating epileptic subjects. The equal harmfulness of vicious idleness in this class is already of too common observation to most of us to warrant further comment.

While it may be questioned that any subject has ever been cured solely by making him into a vigorous, robust man, yet this principle should be one of the main points to be considered in any plan of therapeutics. Moreover, the hardening process in the epilepsy of childhood has specially prophylactic powers.

The universal use of caloric feeding has brought out that many epileptic dietaries are several hundred calories short of theoretical requirements. This is a point of special significance inasmuch as the gourmandizing tendencies of the epileptic are proverbial and only too often his dietary is harmfully reduced in consequence. It has not, however, been shown that deficient allowance of food increases convulsions, and if a low diet is prescribed in subjects, especially conjoined with considerable rest and isolation, the same may be a positive benefit in epilepsy.

A great deal continues to be said and written on salt-poor and salt-free diets, and while there are many enthusiasts for the latter, others contend that a salt-poor diet not only answers all practical purposes but that this is furnished automatically by the ordinary milk-vegetable regimen, so that it gives no trouble in administration to either patient, attendant, or physician. The elimination of salt as seasoning, and also to some extent in cooking, replacing it with sodium bromide, is a simple and effective resource. In some cities in Germany breads and flours, zwieback, etc., have been prepared in which sodium bromide is substituted for the chloride. No doubt there are individuals who benefit greatly from rigid exclusion of salt; but on the other hand death from status has occurred under this same plan.

In regard to alcoholics, Bratz found that two bottles of beer daily do not aggravate the average case at Wuhlgarten, but he does not advocate its use and evidently only means to show that we may accuse the wrong factor in certain cases. The objections to a moderate amount of meat and purins are conceded to be chiefly theoretical. An excess of meat gives rise to the possible formation in the intestine of poisonous or injurious cleavage products. In regard to purins Ziehen never allows his patients to take bouillon, placing this in the class with coffee, tea, and spirits. In carbohydrate intolerance cereals must be avoided.

We now come to a phase of treatment second only to psychotherapy in regard to novel features. For while gastroenteric disorders are the longest known of any, the part which they play has not been fully realized until quite recently. The late Ebstein, in an article written in 1911, speaks earnestly of the gastroenteric factor as being almost the key in unraveling the mystery of convulsions—not only spasmophilic but epileptic in the strict sense. If many convulsions in epilepsy are psychogenous, many others may be enterogenous—due not to epilepsy *per se*, but to associated or underlying spasmophilia.

The renewed importance at this period of the subject in question is due chiefly to the revolutionary diagnostic uses of the *x*-ray in locating mischief in the gastroenteric tract as previously noted. Our knowledge of colonic activity is being added to enormously. The course of a test meal can be traced accurately from mouth to rectum, and the relations which subsist between yesterday's and to-day's ingesta properly appreciated. Aside from universal types there are individual anomalies due to mechanical faults in the colon. There seems to be little doubt that if the latter defect could be eliminated a certain contingent of epilepsy might be greatly benefited. Alexander (1910) writes exhaustively of this subject and refers to the cures of epilepsy by Lane with ileosigmoidostomy, while La Place of Philadelphia claims to have cured a case by removing mechanical obstructions.

If the rationale of the colonic factor depends on putrefaction and absorption of toxic substances like cholin, this result must be due largely to the activity of putrefactive bacteria. It is not difficult to fix the status of this question by urinary tests, but the mere presence of indicanuria in such cases is not conclusive, for intestinal autointoxication need not depend upon the amount of toxic material formed, but rather on the personal susceptibility, perhaps increased by previous sensitization, on which there is a wide difference of opinion.

There remain for consideration surgery and drug therapeutics. In regard to the former it is doubtful if the past few years have contributed a single new fact of importance. Well indicated operations fail and paradoxically good results seem to follow random operations done for their own indications. Removal of an irritating peripheral focus may perhaps cause the cessation of spasmo-

philic convulsions in an epileptic without in any way modifying the disease itself. For instance, Alexander's operation of fenestration of the dura, performed upon idiopathic epileptics in whom the attacks begin focally or in which there remains throughout life a Jacksonian order of muscular invasion of the fit, has nothing specially to recommend it. Many have reported failures after undertaking this operation, but it must be admitted they did not accurately follow the surgical technique laid down by Alexander. However, even in those who have followed this surgeon's technique carefully the results so far have been uniformly poor. Even Alexander's main reason for the operation, a focal edema of the pia arachnoid and epipial space, has not been confirmed by other observers so far as I know. I have known of but three cases personally observed in which this operation was undertaken, and no good results followed its use.

In regard to the drug therapy the fact is now conceded that drugs from several classes of remedies possess antiepileptic powers, and it is conceivable that any narcotic, sedative, hypnotic, antispasmodic, or cardiovascular depressant may favorably modify convulsions for a short time. Hence it need not surprise us if new drugs like "epileptol" and "crotalin" reduce the number of seizures in selected cases; or that old time-honored prebromidian drugs when tested to-day often show marked powers in this direction. Under this head we may mention silver salts, zinc salts, the valerians, cannabis indica, belladonna, and all the mydriatic alkaloids, codeine, etc.

It need not startle us to be told that borax has antiepileptic powers, and that veronal and other hypnotics exert some control over convulsions. We should be more surprised if all these drugs did not exhibit some of this power; but that any or all of them produce permanent good results one may have grave doubts.

Whatever plan of treatment is used must be exhibited continually for years and it is only too evident that none of the proposed measures can supplant the bromides save when the latter cannot be tolerated. And nine-tenths of the intelligent effort is being directed toward preparing bromides in a form which can be tolerated.

The question is not between bromide and some other drug, but between drug treatment and drugless treatment. If drugs have to be used they must be chiefly bromides. That this view is the one commonly accepted is shown by the great activity in preparing synthetics containing a large per cent. of bromide. Perhaps the chief objection to these is and must be the expense involved. Sodium bromide is one of the cheapest drugs and is not likely to be supplanted. It is palatable and agrees well, and it is difficult to see how it can possess any marked inferiority to the new synthetics.

For years routine sedative treatment has so usurped the field of attention in epilepsy that many physicians have made no serious attempt to really understand the nature of the difficulties confronting them. This has led to great inroads of special quacking in legitimate fields of medicine such as eye-strain and other reflex explanations, and a host of vampire patent remedy venders. Now that we are in the day of real scientific inquiry as to the nature of the individual case, especially the factors of defective bodily functions, there is more hope that we shall know the influence which such disorders have upon the mental and neural make-up of the spasmophilitic constitution. I have detailed elsewhere my views opposed to the sedative plan of treatment ("Curability of Idiopathic Epilepsy with Report of 29 Cures," *Archives of Internal Medicine*, January, 1912, Vol. 9).

Bromides should not be used until everything in the physical make-up, in circulation, digestion, and the like important functions is set quite right, and then the sedatives need to be applied with the greatest caution as they have such potency to injure the functions most desired to remain normal.

A word as to the so-called detoxicating or antiautotoxic regimen. This does not lie in the application of a single resource or a few, but represents the application of most of our modern resources at the same time. Many measures are advocated for no other reason than the possible diminution of the sum of the autotoxic poisons. Sweating and purgation are old but very important resources. During the Bouchard period "intestinal antiseptics" came into vogue and their influence is still in evidence, for now and then an author reports good results from the use of salicylic acid, bismuth, naphthol, and similar drugs, and the supposed antiepileptic power of borax and boric acid is believed by some to be bound up in this form of activity. Much of dietetics and all of the measures securing intestinal drainage and sterilization are based on the idea of detoxication, so that right or wrong the latter conception underlies three-fourths of our modern ideas of treatment. Personally, I believe it is the most rational view to take in applying any general plan of therapeusis in epilepsy.

Finally, it is unfortunate that the disease of epilepsy should be looked upon from two radically different viewpoints in its nature and treatment: first, that the mechanism of its production is a general chemical poison, from some defect in nutrition in bodily functions, thus ignoring the spasmophilitic constitution, and secondly, that of the phenomena of the fit, which some would make all there is of epilepsy, the subject showing his disease only at the time of seizures, and therefore the disease has its pathogeny chiefly or solely in a progressive and irritating form of marginal or cornual gliosis of the brain. The one school either ignores the brain changes or counts them only as results of the attacks, while the other thinks attention to the defects in the metabolism and elimination of waste products in the epileptic is a remote, hypothetical, and visionary view of causation. We have yet to educate ourselves to paying equal attention to both, and neglecting no broad biological concept of the disorder whose treatment continues to be a stumbling block in neurological therapeutics.

84 East Fifty-sixth Street.

DISEASE AND GENETICS.

By R. G. ECCLES, M.D.,

BROOKLYN, N. Y.

It is hardly likely that any one will deny that the properties of matter reside in and are inherent qualities of the same. How, otherwise, could they be properties of matter? Pure sugar possesses sweetness, whiteness, and a definite crystalline form with other qualities that constantly occur in it. Dissolve, and thus separate the sugar units as much as we choose, and so long as they remain intact sugar molecules these properties persist. Split them, chemically, into fragments smaller than the sugar molecule, or rearrange their inner atomic

structures so as to produce isomeric groupings and, instantly, all distinctly sugar qualities vanish, while other new and quite unlike ones take their places. Like sugar every distinct chemical entity has certain qualities that belong to each particular atomic grouping and to no other. Such groupings may vary their color by varying their crystalline form, and thus producing a different effect on light waves, but even this quality is specific. To this rule the substances constituting the building materials of our bodies show no evidences of being exceptional. Their properties all appear to be inherent in their molecules. Bone, skin, hair, muscle, nerve, bark, wood, etc., are what they are by virtue of their molecules. Inasmuch, however, as the qualities of all of these are hereditary qualities, who can give any reason why we should not look to the molecule as the basis of heredity? To changes in the molecules of all of these must be due their variations and to their unchanged, persistent sameness must be credited the persistence of heredity. Since chromatin granules, chromosomes, and other cell structures, as well as the tissues and organisms which they collectively produce, are all built of chemical molecules, their properties must, somehow, be due to the molecules out of which they are constructed. How, then, can any one hope to solve the problem of genetics until we have solved the problem of its relation to the molecule? "This vertebrate," says Pouchet, "has muscles, organs of senses, viscera like the various animals from which it is supposed to have proceeded. But there are, further, in it living substances of a special order, cartilage, and bone, which are real chemical species. When, how, and under what circumstances did these substances appear which we find identical as to themselves in all vertebrates which no other existing animals possess? * * * We want to be told through what internal chemical actions these organic compounds appeared; these clearly defined substances the presence of which establishes an absolute distinction between vertebrate animals and the worm or molluscs from which they are supposed to descend."[1] Will mutationists, Mendelians, and all who hold to the faith that nature's biological progressions occur through leaps, kindly consider Pouchet's question and say how it is possible for such substances to evolve except by an evolution of their respective molecules? Either the appearance of these substances in the higher organisms betokens a miracle or there must have been an evolution of a molecular character. No third possibility seems conceivable. But, if the evolution was a molecular one, then it follows that the units taking part in heredity are so exceedingly minute that a de Vriesian mutant is comparable thereto about as Mount Everest might be compared to a grain of sand at its base. In such organisms as have been chemically studied there have been found minerals, fats, carbohydrates, and proteins. What, other than these, can be credited with being the bearers of many or most hereditary qualities? Why should we not, with Loeb, "naturally think first of definite chemical compounds as the bearers of hereditary qualities?"[2] What except the myosinogen, and other molecules of a muscle, can constitute its form or cause its contractility? "The protein molecule," says von Noorden, "just as the cell and the protoplasm can transmit and hand down its form and specific energy to a newly formed molecule. * * * One part of the problem dealing with the transmission of vital properties—in fact, a most important because a fundamental one—is the transmission of the protein molecule."[3]

The chief quantitative constituent of organisms is, doubtlessly, water. It is the most important of the mineral constituents of our bodies, and no living form could have existed without it. Its wonderful inherent ability of being able to build up crystals of exquisite form we are all familiar with. "Those fern-like forms," says Tyndall, "which on a frosty morning overspread your window panes illustrate the action of the same (crystallizing) force. Breathe upon such a pane before the fires are lighted, and reduce the solid crystalline film to the liquid condition, then watch its subsequent appearance. You will see it all the better if you look at it through a common magnifying glass. After you have ceased breathing, the film, abandoned to the action of its own forces, appears for a moment to be alive. Lines of motion run through it; molecule closes with molecule, until finally the whole film passes from the state of liquidity, through this state of motion, to its final crystalline repose." Again he tells us that "Latent in this formless solution, latent in every drop of water, lies this marvelous structural power, which only requires the withdrawal of opposing forces to bring it into action. * * * The common matter of our earth—'brute matter,' as Dr. Young pleases to call it—when its atoms and molecules are permitted to bring their forces into free play, arrange themselves, under the operation of these forces, into forms which rival in beauty those of the vegetable world. And what is the vegetable world itself but the result of the complex play of these molecular forces? Here as elsewhere throughout Nature, if matter moves, it is force that moves it; and if a certain structure, vegetable or mineral, is produced, it is through the operation of the forces exerted between the atoms and molecules. These atoms and molecules resemble little magnets with mutually attractive and mutually repellent poles. The attracting poles unite, the repellent poles retreat, and vegetable as well as mineral forms are the final expression of this complicated molecular action."[4]

We are yet far from being able to trace the path by which these polar forces, to which Tyndall here refers can, through colloidal cell material, direct the dendritic hereditary morphology of plants. We know that such forces exist and we likewise know that during mitosis, when cells are about to divide, there occur numerous chemical changes that indicate freedom of molecules that might be of a directive quality. But, whether Tyndall's theory is or is not true we are constrained with President Schäfer to bow to the conclusion that heredity "is one of the questions the eventual solution of which we must look to the chemist to provide."[5] The chemist is rapidly working his way thither and it might be well for some of our biological evolutionists to take heed to what he is doing. His analyses show that no mineral substances that enter into the construction of organisms can be credited with qualities specific for the organisms in which they occur. They cannot therefore bear any such relationship to such organisms as water molecules bear to the magnificent crystal fronds that grace our windows on very cold nights. They do not vary in kind from organism to organism as we might expect them to do if they took a directive part in the morphology of organisms. The chemist has also found that "not only do identically the same sugars and fats occur in many species of plants and

animals, but many of these are common to both forms of life," so cannot possibly be related to the forms in which they occur, as water molecules are related to water crystals.[6] He has, therefore, ruled out every known material constituent of animal protoplasm, *except protein,* as being in any way a pronounced agent in producing the differences that occur between animals and animals and, with one possible exception, between plants and plants. If any known material constituent of cells takes any part in directing specific morphology it must be protein. Nothing else known to man can meet the numerous requirements and it does so to so startling a degree of fidelity that we must conclude that if it is not the chemical cause it well might be. In whatever organism it is found its chemical structure parallels, perfectly, in its variations the variations of that given organism from its biological kindred. Kossel tells us that while we cannot at present fully comprehend the rôle of the proteins, "we must assume that many of the enigmatical properties of living matter depend on this activity of *intact* protein molecules. We can obtain," he says, "some idea of the possible variety in the combinations of the protein baustein (building-stones; amino acids) by recalling the fact that they are as numerous as the letters in the alphabet which are capable of expressing an infinite number of thoughts. Every peculiarity of species and every occurrence affecting the individual may be identified by special combinations of protein baustein, that is to say, by specific proteins. Consequently, we may readily understand how peculiarity of species may find expression in the chemical nature of the proteins constituting living matter, and how they may be transmitted through the material contained in the generative cells."[7] This same idea is expressed by an editorial writer in the *Journal of the American Medical Association,* who declares that "We know that the characteristics of different cells and tissues depend chiefly or solely on their proteins, and the proteins in turn differ from one another in the proportion of the various constituent amino acids that they contain. Each class of animals has cellular proteins and blood proteins specific for its own kind, as shown by precipitin tests, and it is possible that the proteins of every individual differ in some respect from those of every other individual."[8] Guyer, in discussing the same subject, says: "Our whole scheme of natural classification demands just such a physical basis as is depicted for the structure of the protein molecule."[9] In bacteria, moulds, fungi, algæ, grasses, herbs, trees, protozoa, sponges, sea urchins, worms, snails, fishes, reptiles, birds, beasts, and men, *identical kinds of amino acids constitute the building stones of the respective protein molecules.* They differ solely in the proportions, and in the relative positions which they occupy in the different kinds of molecules. As these proportions and relations change so their crystalline forms change when they are crystallizable. They are all bound together in these molecules in the same manner, *i.e.* by the aid of an enzyme and amboceptor (co-enzyme) their acid and basic side chains are brought together and linked in union and these unions we call proteins. The process of union in every instance seems to be the same. How the right amino acids reach the right place at the right time, within each kind of molecule, constitutes the chief secret of living matter—a secret which has baffled the biochemists for many years. If we could but discover this secret of the sifting power of cells there would be but little trouble in our producing specific protein molecules. Emil Fischer has already taken the primary steps in his work of building up polypeptids. He makes the proper unions, but is unable to guide the right amino acids, at the right time, to the right places, so as to produce our specific proteins.

We have stolen from organic nature far more of her chemical secrets than the average physician, or naturalist, who is not something of a biochemist, is aware of. It is not generally known that our present knowledge in this direction is, in the main, very definite and quite exact, so far as it goes. It is no longer the vague, nebulous thing it was when most of the readers of this were college students. There is now no room for reasonable doubt of our having succeeded in securing a clear understanding of the nature of the constituent fragments out of which proteins are built. There is a complete consensus of the competent and this is expressed clearly by Taylor when he says that "No matter in what manner and with what reagents (different acids in different concentrations, different alkalis in different concentrations, ferments, steam), the hydrolytic cleavages are accomplished, the end result in the yield of amino acids is the same. In other words, the hydrolysis does not form amino acids, it does not alter them, it does not convert them (one) into another; it simply sets them free, their isolation thereafter depending upon particular chemical methods. * * * The reactions of hydrolysis do not add to, subtract from, or in any way alter the component bodies that existed preformed in the original substrates. The more the technique of the hydrolysis of the proteins is perfected, the more certain has it become that the component amino acids exist preformed in the molecule of protein."[10] This fact being firmly established puts us upon a secure footing in respect to the parallelism to which reference has been made, between the chemical make-up of the various proteins and the morphology of the organisms containing them.

As hair differs from the feathers of birds, skin from the scales of fishes, our color from that of a negro, and our nervous equipment from that of a worm, so differ the molecules that constitute these respective tissues. The albumins, globulins, glutelins, prolins, albuminoids, histones, protamins, nucleouproteins, glycoproteins, phosphoproteins, hemoglobins and lecithoproteins of different organisms, all show differences corresponding to the differences of the organisms in which they occur. They all carry characteristics that are distinctly hereditary. These characteristics cannot possibly reside in anything other than their molecules. As the numbers of these molecules increase growth becomes evident. With no increase in their numbers there can be neither growth nor multiplication in any organism. The heredity of the cell, as well as the heredity of the organism, thus resolves itself into the problem of the qualities of molecules, or, as Guyer puts it, "The mechanism of heredity would seem to be not so much a local problem of nucleus and cytoplasm as of fundamental species substances, probably mainly protein in nature."[11] But from whence come these species substances? How and where do they originate within the cell? "Kossel concludes that the formation of new organic matter is dependent on the nucleus, and that nuclein in some manner plays a leading rôle in this process;

and he makes some interesting suggestions regarding the synthesis of complex organic matters in the living cell with nuclein as a starting point. Chittenden, too, in a review of recent chemico-physiological discoveries regarding the cell, concludes: 'The cell-nucleus may be looked upon as in some manner standing in close relation to those processes which have to do with the formation of organic substances.'[12] Mann states that he is unable to reach any other conclusion than that the nucleoproteins are the "agencies by which amino acids are built up into cell plasm."[13] Inasmuch as the nucleoproteins are chemical constituents of what microscopists call chromatin this statement seems to confirm the statement of Minchin when he tells us that "There is no evidence that chromatin, within or without the nucleus can ever arise *de novo* or in any way except from preexisting chromatin, the particles of which grow and multiply as the result of processes of assimilation such as constitute the most essential characteristics of living substances generally." Again he says: "Judged by microchemical tests, no two samples of chromatin can be considered identical in composition, whether from different cells or even from the same cell at different times."[14] The significance of these statements of Minchin's can be readily seen when we learn from Wilson that "In the shark *Pristiurus* * * * the chromosomes, which persist through the entire growth period of the egg, undergo the following changes: At a very early stage they are small, and stain intensely with nuclear dyes. During the growth of the egg they undergo a great increase in size, and progressively *lose their staining capacity*. At the same time their surface is enormously increased by the development of long threads which grow out in every direction from the central axis. As the egg approaches its full size, the chromosomes rapidly diminish in size, the radiating threads disappear, and the staining capacity increases. They are finally again reduced to minute, intensely staining bodies which enter into the equatorial plate of the first polar mitotic figures. At the beginning the chromosomes measure, at most, 12 micros (about 1/2000 inch) in length and ½ micro in diameter. At the height of their development they are almost eight times their original length and twenty times their original diameter. These measurements show a change of volume so enormous, even after making due allowance for the loose structure of the large chromosomes, that it cannot be accounted for by mere swelling or shrinkage. The chromosomes evidently absorb a large amount of matter, combine with it to form a substance of diminished staining capacity, and finally give off matter, leaving an intensely staining substance behind."[15] All this agrees exactly with the supposition that the chromatin of the chromosomes is concerned in the building up of protein molecules. When its staining capacity is great it appears to be almost entirely composed of nucleic acid, the substance within it that stains freely with nuclear stains. As the amount of basic protein increases the staining power must, naturally, decrease. When this newly formed protein is discharged into the cytoplasm the staining power, of course, must return. "In inverse proportion," says Wells, "to the degree to which this acidity (of the nucleic acid) is neutralized by proteid groups in the nucleoproteid molecule, the nucleo-proteid will show affinity for basic dyes."[16] If the protein molecules of the soma plasm are, as the facts seem to indicate, products of the chromatin granules, then it follows as a probable conclusion that within, or upon, these granules the orderly sequence, proportions, and time control, of the enzyme-conducted syntheses of amino acids occur, by some such means as specific osmosis through their walls, or specific absorption upon their surfaces, of these acids. Chromatin granules, from this viewpoint, are, as it were, a sort of type-setting machines for the orderly putting together of the amino acid type-alphabet. As our bodies contain somewhere near twenty different kinds of proteins we can consider them as twenty living volumes of phylogenetic history. How faithfully they portray this history can be seen when they are read in the light of the precipitin reaction. Let us first ascertain that part of the story told by the blood serum.

As the reader may wish to test the method the following condensed statement will be appreciated: "A rabbit is injected intraperitoneally with 10 c.c. of human blood serum at intervals of a few days until from six to eight injections have been given so that there is formed in the animal's blood a substance that will produce a precipitate in diluted human serum. The animal is now allowed to rest for a week, after which its blood is drawn and the serum obtained. The blood to be treated, if fresh, is diluted 100 times, but if dried, the material is soaked with distilled water and the filtered solution is mixed with an equal volume of double normal salt solution (1.2 to 1.8 parts of sodium chloride to 100 parts of water). To the clear solution thus prepared a few drops of the serum of the immune animal (the rabbit) are added and the mixture allowed to stand to see whether a precipitate will occur. If the material contains human blood, a precipitate will occur within half an hour. The precipitin is specific for human blood as distinguished from that of other animals except those of the ape family."[17] If dog's serum has been injected into the rabbit instead of human serum the precipitin in the rabbit's blood would have been specific for dogs and not for humans. If horse's serum had been used for injecting, then the precipitins would be specific for horses and not for dogs or humans. Whatever animal is chosen, from which to take the injected serum, the precipitin is specific for that animal, and its close of kin, but for no others. Other animals besides the rabbit can be used into which to inject the serum and the precipitin will be formed in the blood of that animal.

It having been suggested that the precipitation might be due to physical causes, Arrhenius, the well-known Swedish chemist, made a thoroughly critical study of the subject and reported that "it is perfectly clear from many circumstances that the precipitation is a chemical process."[18] The further question being raised as to whether the precipitin might not be an enzyme he replied that "the experiments with precipitins lead to the conclusion that they are really bound in the precipitates and do not act as catalytic agents."[19] So thoroughly established has scientific confidence now become concerning the reliability of the precipitin reaction that it has taken its place as one of the certainties of forensic medicine. Schulz has even developed a method of volumetrically estimating special proteins by its means. In an actual test of his method it was found that one part of extract of horse flesh in 820 parts of diluting material could be determined to within about 2.5 per cent. of the actually added flesh.[20] It is now possible, by means of the precipitin test,

to tell the kind of animal from which a given sample of blood came and a human blood stain can be identified, as human, when found on clothing or other articles, after the lapse of many days. Blood stains of dogs, cats, hogs, horses, chickens, or sheep can be told apart with but little difficulty. There is an element of difficulty in telling a human blood stain from that of a chimpanzee, but with care, this, too, is possible. Very old stains sometimes might mislead, but generally "dried bloods give the reactions after the lapse of considerable time, months or even years," and Nuttall declares that this "has been fully established."[21] Species of animals that are closely related to each other, as the ape to man, the goat to sheep, or the dog to the wolf, while giving precipitates with the same precipitins do not give the same amounts. The animal whose serum was injected, so as to form the precipitin, gives with its serum the largest volume of precipitate and it appears in the quickest time. If dog serum were injected into the rabbit then the serum of any dog would give a denser precipitate than would the serum of a fox. The serum of a wolf, however, while giving less pricipitate than that of a dog would give more than that of a fox. The degree of consanguinity is in this way revealed by the test. "It is a somewhat startling verification of the consanguinity of man and the higher monkeys," says Ewing, "that the blood of the chimpanzee gives 90 per cent. as much precipitum with humanized rabbit serum as does the blood of man himself, while the blood of lower monkeys yields only one-fourth or one-third as much. The chimpanzee thus appears much more nearly related to man than to the common Rhoesus monkey."[22] Arrhenius tells us that "A very interesting instance of this behavior is given by Hamburger in the action of the serum of a rabbit treated with sheep serum on the sera of three different animals, viz., sheep, goat, and bullock which are so closely related to each other that all yield precipitates with the said rabbit-serum. As is natural the sheep serum yielded the most voluminous precipitate; next comes the goat serum, which animal is most closely related to the sheep; and the least quantity of precipitate is given by the serum from the bullock, which is less closely related to the sheep than is the goat."[23] These reactions all indicate that the precipitated protein molecules of different species of animals, when the same type of protein is considered, grade into each other, in their chemical qualities as their blood relationships grade. They also prove that there is a quantitative relationship among the molecules of any given tissue protein corresponding to the species relationships of the organisms in which they are found. As gradually as changes any given type of protein molecules so changes the species. Where no changes occur in the protein molecules no changes occur in the species. As is the amount of change found among the molecules so is the amount of change found distinguishing the species from which such molecules come. The entire hereditary outfit of every species is paralleled in volume by precipitin differences in the different protein molecules which they contain.

We have seen that 10 per cent. change in the serum of a chimpanzee as compared with that of a man represents roughly by our crude method of estimation, about 10 per cent. of variation in species difference. We have also seen that a 70 per cent. change in the precipitin reaction indicated a correspondingly great change in the external form of the monkey compared. On getting far enough away, so that no human-like characteristics remained, no precipitins could be formed. When 90 per cent. of the serum of a chimpanzee is chemically precipitated by the same precipitating reagent as throws down 100 per cent. of human protein molecules, what else can it mean than that 10 per cent. of the serum molecules have varied sufficiently from the homologous blood serum with which the common ancestors of both started so as to differ in their chemical affinities to this extent? All the other molecules may have changed a little, or they may not have changed any, but if they have changed at all it is not enough to alter their power of uniting with that particular precipitin. The reaction tells us quite unequivocally that nine out of ten of the molecules of human blood serum are very nearly, or perhaps wholly, identical in chemical nature with those found in chimpanzee blood. The chemical gap widens as widen the variations in form and function until at last there is not sufficient resemblance between them to show kinship. As Nuttall says: "It is a remarkable fact * * * with the Anthrapoidea, and this applies to other groups of animals, that a common property has persisted in the bloods of certain groups of animals throughout the ages which have elapsed during their evolution from a common ancestor, and this in spite of differences in food and habits of life. The persistence of the chemical blood relationship between the various groups of animals serves to carry us back into geological times."[24] What is no doubt the most striking illustration of the sameness in the chemical nature of the protein molecules linking living with extinct animal forms is the one related by Friedenthal. He has shown that animals "immunized to elephant's blood produce precipitins that react with the blood obtained from a Siberian mammoth which had remained frozen in the ground since the diluvial period."[25] Here is evidence that a modern-made precipitin was able to chemically unite with protein molecules produced, probably, many thousands of years ago and that were protected from hydrolytic cleavage by persisting cold. Here, too, is evidence that ancient blood and modern blood are really akin. Precipitins as an index of evolution link together every so far tested organism. Experiments in great numbers have shown that they are producible for birds, and beasts, fishes and reptiles, plants and protista. Wherever there is evidence of kinship, as seen in our scientific classifications, there is found precipitin evidence telling the same sort of a story. The rule, with one apparent exception, is universal. Wherever we tap the proteins the radiations of their kinship appear. The whole fabric of life, in its warp and woof of connected species, shows this gradual grading of proteins with proteins through and through every structure. At every point we get evidence of the almost infinitely minute selections of fitnesses. At every point the precipitins demonstrate that the heredity qualities come and go in quantitative degrees so fine that they are only measurable as molecules. The finest microscope ever constructed is far from being sufficiently powerful to detect relatively immense numbers of them when grouped together. Suc' a condition of things is inconceivable as having any natural cause, unless there has been always, and at every point in evolution, an incessant sifting for destruction of such molecules as failed to vary as varied the environment. The fact that in the whole ascending scale of living things certain kinds of molecules were constantly disappearing while certain others as constant-

ly took their places can only mean a survival of the fit in the struggle for existence. The fact that fit molecules kept increasing in numbers while unfit ones disappeared, and this *pari passu* with the evolution of every kind of organism, means natural selection or miracle. The fact that the precipitin reaction is not a restricted bit of phenomenon, but something that is seen to have gone on everywhere, and in every living thing, for all past time, appears to the writer to be strong evidence in favor of the view that the incidence of natural selection must have been much less upon the individual than upon the protein producers of the germ plasm. Its immediate cause would seem, likewise, to have been always nearly the same, always something that selected for destruction certain kinds of protein molecules. The perishing as well as the surviving units are always and everywhere protein molecules. The survival of fit molecules would, naturally, mean the survival of the individuals carrying such molecules. The disappearance of unfit molecules, thus making way for fit ones, would likewise be a cause of survival of the individuals from whom they disappeared.

Strong as is the evidence, from the study of the precipitation of proteins by precipitins, that a gradual variation has been constantly going on in protein structures along the paths that radiate from species to species, and from genera to genera, it has been rendered very much stronger by the research work on hemoglobins. The molecules of these proteins being readily crystallizable can, by successive crystallizations, be procured in a very pure state and their crystal forms studied. Measurements of their angles have shown conclusively "not only that corresponding hemoglobins are not identical, but also that their peculiarities are of positive generic specificity, and even much more sensitive in their differentiations than the 'Zooprecipitin test.' Moreover, it has been found that one can with some certainty predict by these peculiarities, without previous knowledge of the species from which the hemoglobins were derived, whether or not interbreeding is probable or possible, and also certain characteristics of habit, etc." Dr. Reichert, whom I here quote, further says: "This method of studying the hemoglobins of various species of animals furnishes the systematic zoologist a means of testing his findings in regard to the relationships of different species and genera, and should prove a valuable adjunct to the morphological data upon which he relies for establishing such relationships. The crystallographic characters that have been recorded in the descriptions of the hemoglobins of species, and especially the tabulations of them for the different groups of animals studied in their research, show, as has been pointed out, that the characters of the crystals of a genus are specific for each genus. The comparison of the crystals of related species or genera show how closely they may approach each other as regards this character. If we take, for example, the genera *Canis, Vulpes,* and *Urocyon* of the family *Canidæ* they will be found to be as closely related to each other in regard to the crystallography of their hemoglobins as are the species of a single genus in other cases; for example, as the crystals from the baboons of the genus *Bopio* are to one another. Indeed the dingo (*Canis dingo*) varies more from the normal dog type in regard to these characters than the species of the same genus *Canis* in general vary from the species of *Vulpes* and *Urocyon.* * * * On comparing the crystals of the few species of primates that were examined a striking similarity may be seen between the α-oxyhemoglobin crystals of the baboon and those of man. The β-oxyhemoglobin crystals found in the baboon were not observed in the crystals from the human species, but the γ-oxyhemoglobin crystals of the baboons closely resemble the corresponding crystals observed in human blood. In this case the parallellism of the crystals from the two genera is shown in the two kinds of oxyhemoglobin crystals."[26] The reader can no doubt see that we have here proof of the most convincing character that these protein molecules gradually vary from species to species in a manner that parallels their morphology. It is, therefore, among protein molecules that we should look for the fundamental facts of heredity. It is among them that we ought to search for the causes of variation. It is to them that we should go, if we really wish to determine why, in all upward evolution, some disappear steadily and gradually as if being picked out for destruction by some selecting agent. Inasmuch as it is common knowledge that the lives of the cells of both plants and animals are now, and long have been, menaced because of the edibility of their molecules, why should we refuse to put these two facts together and deduce from them their one and only conceivable meaning? Guyer does not hesitate in tracing the crystal forms of the hemoglobins to their molecular configuration when he says: "In hemoglobin, one of the few crystallizable proteins, the crystals of each species of any genus, while possessing a constant individuality, all belong to the same crystallographic system and generally to the same crystallographic group of the same system. * * * This isomorphism must signify in all probability correspondence in the fundamental chemical constitution and molecular configuration of respective hemoglobins."[27] But why stop at this point and not ask ourselves whether there is, or is not, some agency at work directing these molecular variations? What is it that is selecting for perpetuation certain types of molecules while dooming others to destruction and final disappearance? *Is it not a very suggestive fact that the same substances as are attacked by disease-germs are the identical substances that are now known to change their structures during phylogenetic progress?* Surely there is something more than coincidence in a relationship such as this when it is perpetuated generation after generation, age after age, and geologic epoch after geologic epoch. Nor is the evidence of its existence confined to the discoveries of serologists and crystallographists alone. Biochemists confirm their findings. Osborne, who has made a life study of the subject, in conjunction with other educators, and with his pupils, declares that "the chemical constitution of the proteins is closely connected with the biological relations of the forms of life that produce them, and that the morphological differences between species find their counterparts in the protein constituents of their tissues."[28]

When an attempt is made to read into these marvelous modern discoveries regarding the foundation facts of living organisms what they most likely mean for genetics, we are astonished at the meagerness of the references made to them by writers on heredity. We feel, when reading such books, much as if listening to a performance of the play of Hamlet in which the Prince of Denmark fails to make his appearance upon the stage. Why do they not take the clue from Verworn when he declares that modern physiology is little more than the

chemistry of the proteins?[29] Perhaps we are not justified in expecting anything more satisfactory than this when we discover how little many chemists know about what is going on in pathology, or biologists about what is being done in chemistry. There was a time when medical men constituted the "Naturalists" of the world, but the old genus Naturalist has become almost as scarce on our planet as are teeth in the mouth of a hen. Specialization has all but extinguished this race. Many of our most far-seeing thinkers are deploring the widening of the gaps between sister sciences and are protesting against its perpetuation. Opie has, evidently to his regret, found that "The pathologic problems are unfamiliar to the physiological chemist, and the pathologist is poorly prepared to solve them."[30] Wheeler aptly refers to "the characteristic myopia of one who sees not the forest because he is studying the venation of the leaves."[31] Poulton deplores the all too patent fact, that "the home of information is in this country [England] too often the grave of imagination."[32] Bower tells us that "It is not every worker who understands the general scheme of which his labor forms a part, however well he may be carrying out his own particular research. And, furthermore, since there is seldom any masterhand directing the efforts of individuals, some workers, having a perverted idea of the general scheme, may lay out their own investigations on mistaken lines, and their labor may be in vain."[33] Ganong presents the case in a forcible manner and half suggests a possible remedy. He says: "The expansion of science in our day has been so vast, the literature has become so voluminous, the specialization of method and thought are so extreme, that it is becoming a serious question how the results of new research, when not of a sensational nature, can be quickly, accurately and adequately incorporated into the general mass of our knowledge and made available to the intellectual or economic uses of our race. Every scientific man has witnessed the ignoring of new truth long after its announcement, and the repetition of old error long after its disapproval, not alone in popular information and literature, but even in the best scientific textbooks; and this maladjustment between scientific research and general knowledge waxes constantly greater. The trouble is plain: we have no recognized collectors of knowledge, scholars whose business it is to stand between the investigators and the general user of knowledge and to interpret correctly the results of the one to the other."[34] This state of affairs among scientific workers supplies an ample explanation for the fact that students of genetics have ignored, and still continue to ignore, the important facts herein set forth. Knowing only the popular, and somewhat sensational, aspects of the precipitin reaction they could hardly be expected to apply it at the root of their own subject where it rightly belongs. No wonder, then, that one of the best botanists in the world could write in one of his books that "the material bearers of the hereditary characters cannot be identified with the molecules of chemistry."[35] Inasmuch as they actually do vary in their chemical qualities as vary the species and genera in which they occur, we have in this positive proof that molecular structural qualities are inherited. Since crystallizable proteins vary in their forms, as vary the species in which they are found, have we not in this strong evidence of their carrying inherited qualities? When, by a study of their crystals, an expert can predict the leading characteristics of the genus or species from which such crystals came, can we declare that they are not carriers of heredity? What is there in the body more fundamental than these proteins? What takes a more prominent part in the structure of an organism than these? What, more than these, varies as organisms vary? Whence, if not from these, comes the directing energy that underlies morphology? It is the multiplication of these that makes organisms grow. It is quite true that there must be a mechanism by which the building stones of these molecules are brought together, but does not the whole body of each animal take some part in metabolism? From the moment food leaves the stomach till the time it is completely sifted into the respective amino acids, and these distributed to the cells that need them, are there not membranes to pass having specific osmotic powers? Within the cells are membranes that continue the sifting and continue their aid in bringing the right amino acids to the right place at the right time? Are not certain, presumably unfit, amino acids destroyed before reaching the nucleus of any cell?

The chromatin granules are probably the cell organs in which the synthetic work of constructing the various kinds of protein molecules begins. Such facts as we possess appear to point in this direction. Should, however, a time come when this conclusion should become doubtful the facts relating to the proteins are so certain that some other cell organs would have to be chosen as the regions of the proteins' birthplaces and as the rudimental nuclei (enlagen) of heredity. Nothing else than the proteins, that we know anything about, can be reasonably credited, from a chemical standpoint, with being the carriers of heredity. To credit the chromosomes with being such carriers is but to credit them with being the producers of proteins. Any other conclusion seems to lead to a deadlock between logic and fact. The chromosomes are the carriers of heredity because they are—from this viewpoint—the producers of proteins, and for no other reason that we are able to give. This conclusion is at present ignored by most mutationists and Mendelians, but the time is now here when they must reckon with the chemical facts or be routed as illogical theorizers. They must show why the molecule's heredity is of no importance to them. They must show why its heredity is invariably correlated with the heredity of the organism. The discovery that inheritance is a far more fundamental problem than they have thought it to be puts a new face on the entire subject. They have done good work in supplying us with a wealth of facts that were before unknown or ignored, but in their attempts at explaining such facts they, in turn, have ignored other facts just as important as any they possess and immensely more fundamental, inasmuch as these later facts sink down to the foundation stones of all material properties—the molecules. Truth, in this instance at least, seems to have been found at the bottom of the well of facts. When Punnett tells us that "in the light of our present knowledge we must regard the mutation as the basis of evolution—as the material upon which natural selection works. For it is the only form of variation of whose heredity we have any certain knowledge,"[36] it is quite evident that he has forgotten or overlooked the fact that the molecules of proteins are in possession of a heredity far more fundamental than that of any mutation, and their variations are so constant that they mark the path of evolution at every point. They, and not exclusively the

mutations, are the fundamental material upon which natural selection works.

The mutation view of the origin of organisms, while it may be reasonably maintained as a temporary makeshift by men capable of holding their minds for a long time in suspended judgment, tends to bias the mind of the average man in favor of a belief in miracles. To-day it is the strongest prop that the believer in a miraculous preordained harmony is able to get hold of as a defense of tradition. The fact that there are sudden, discontinuous appearances in biological phenomena no one is likely to deny, so that the *fact* of so-called mutations is one thing and the attempt to make them appear as being miraculous is quite another. To assume that neither natural selection, nor any other understandable cause, is to be credited with the appearance of mutants, is to give over science to whim and the orderliness of Nature to caprice. No really scientific mind can believe that mutants leap into existence, full-formed and panoplied, like Pallas-Athene from the head of Zeus, caused only by the decree of a god. It is much more reasonable to believe that they occur as occur landslides, where the slow undermining influences of a river make manifest its work by a sudden crisis. Every chemist who, with burette, beaker, and indicator, has estimated a substance volumetrically, is fully aware of the fact that chemistry is flooded with such sudden, apparently discontinuous, jumps. To suggest to a chemist that his suddenly appearing colors represent discontinuous creations would be to make him smile at such mental crudity. *Natura non facit saltum* is a permanent part of the chemist's creed. Physiological chemistry is rapidly proving that every part of every organism is correlated with every other part through the action of what Starling has called hormones. The thyroids, parathyroids, thymus, adrenals, testes, ovaries, hypophysis, etc., act and react on all parts of the body, by their internal secretions, in such a manner as to weave the entire being into a continuous whole. The digestion, too, is controlled by chemical hormones. They leave no room for the possibility of any profound mutation. As one physiologist declares: "The essential unity of the organism is not only fatal to the whole theory of unit characters, but it is an insuperable objection to the theory that evolution has been by jumps. The organism is a finely adjusted mechanism of a very complex kind; it seems impossible to a physiologist that one can cause a sudden large change in any part of it and have it continue to function; it is as incredible as if one should remove one of the wheels of a watch, replace it by a larger one, and expect the watch to continue to run."[37] That there are what appear to be mutations is a certainty. When secondary sexual characters appear they are due to the action within the organism of a special hormone, probably protein in nature, acting on other chemical molecules where these characters appear, and remote from the place where the hormone is secreted, the stoppage of such hormone secretion, by parasitic invasion, results in the nonappearance of these characters, thus producing visible changes analogous to mutations. Our knowledge of mass action in chemistry makes it probable that when such hormones first appeared as a fitness they could hardly have shown any effect on the externally visible characters until their volume became sufficient to overcome the resistance of the cells to the change. On becoming visible it would seem as if the characters were newly formed, while, as a fact, the cause may have been a cumulative one covering many generations. Let any hormone become subject to long protracted parasitic attack, let its structure vary in a way to resist such parasitism, and when enough of the new molecules appeared it is evident that a "mutation" would arise. The new molecules could not produce exactly the same effects throughout the system as the old ones did. Protein and other molecules must balance each other into an almost perfect amphoteric (*i.e.* neutral) whole, for in the circulation of the higher animals deviation means death. Here at least all changes must be molecular and gradual.

Huxley, Darwin's great champion, looking beyond the superficial aspects of natural selection, foresaw a coming day when evolutionists would be forced to go deeper into material facts and explain selection by the molecule. He says: "I conceive that both hereditary transmission and adaptation need to be analyzed into their constituent conditions by the further application of the doctrine of the struggle for existence. It is a probable hypothesis that what the world is to organisms in general, each organism is to the molecules of which it is composed. Multitudes of these having diverse tendencies are competing with one another for opportunity to exist and multiply, and the organism as a whole is as much the product of the molecules which are victorious as the fauna or flora of a country is the product of the victorious organic beings in it. On this hypothesis, hereditary transmission is the result of the victory of particular molecules contained in the impregnated germ. Adaptation to conditions is the result of the favoring of the multiplication of those molecules whose organization tendencies are most in harmony with such conditions."[38] This quotation was first written when Roux's theory of the struggle of the parts was being considered by evolutionists. While we can see that there is less importance to be placed on the shiftings of molecular equilibrium as these favor, from time to time, the production of greater quantities of one kind of molecule at one time and of another kind at a different time, we now believe that it is quite a different cause that is at work selecting molecules. Had Huxley lived long enough to have realized the intensity, persistence, extent, and antiquity of the parasitic struggle for molecules that are, to them, assimilable, he would have better understood the real nature of the bearing which he saw molecules must have upon natural selection. He knew nothing of precipitins, of anaphylaxis, or of the crystallographic continuity that runs from molecule to molecule in correlation with the morphological variations that exist between species and species. He did not know how strangely parallel the correspondence is between the distributions of all sporozoan parasites and the classification of their respective hosts. Parasite is related to parasite, phylogenetically, as host is related to host. They parallel each other's distribution in time and extent of variation. He did not know how curiously the respective chemotactic proclivities of the parasites paralleled the evolution of the molecules that go to make up vertebrate tissues. Some parasites have chosen muscle tissue, some blood cells, some the cells of special organs, while the probable progenitors of all show evidences of having started in the gut and branched off in their affinities toward the other tissues. The malarial parasite, for instance, in one of its phases can now only live on a vertebrate blood-cell, but its evolution is traceable back to the sporo-

zoan parasites of the epithelial cells of the guts of more primitive vertebrates. Huxley did not know that at every step of evolution, in organisms of every kind, each variation to a new organism meant a similar sort of deviation in the molecules of that organism. Had he lived long enough to have known of these facts he would, most likely, have been quick to see their bearing upon his expressed belief that molecules must be better understood in order to understand adaptations and heredity. He would have seen that something must be choosing new types of molecules and causing old types to gradually disappear, otherwise, why the grading of precipitins, why the specificity of alien proteins in anaphylaxis, and why the gradual and steady shading of protein crystal forms away from each other as grades the organisms? We know of nothing but parasites that attack protein molecules rendering them, when overattractive, unfit and dangerous possessions for their producers. We know of nothing but parasites that could possibly have kept up the slow, never ceasing, gradual picking out for survival of adapted protein molecules. Precipitins and hemoglobins appear to demonstrate that such selecting has occurred. We know of nothing other than parasites that could possibly supply selection value to fit variations in protein molecules. We know of nothing other than parasites that parallel with destructive activity the phylogenetic changes that have actually taken place in all higher organisms. The results which are demonstrable as existing are exactly the kinds of results that we should reasonably expect to follow countless generations of parasitic selection. We have substantial reasons for believing that there actually did occur countless generations of just such selecting. What is still more startling is the now well-known fact that the precipitin reaction, like the anaphylaxis reaction, is *an immunity reaction against all parasitic diseases.* Precipitins are produced wherever and whenever an animal is diseased. When the germs of typhoid fever invade the body their proteins produce within the victim's circulation precipitins for typhoid germs. Whatever the kind of germ that attacks the body, precipitins for that particular kind of germ are there and then produced.[39] The sole benefit to any organism that any person is able to suggest, as coming from the "immunity reaction" in which such precipitins are produced, is that of protection against that disease. Precipitin formation is a first step in the direction of acquired immunity. The precipitin reaction is, evidently, as old as disease and as universal as disease. It tells at one and the same time of universal resistance to disease and of the way in which the protein molecules of every kind of organism shade into each other. The protein shadings which, as we have seen, mark the path of evolution, along which every organism has traveled, *are shadings indicative of disease.* The path of organic evolution in being thus mapped out, everywhere, by a reaction that is distinctly and specifically a disease reaction would appear to be the past path of disease. The corelationship is pronounced and to all appearances unequivocal. At every point where species show kinship with other species and genera with other genera the precipitin reaction—*the reaction of disease*—is always present. It tells the double tale of parasitism and of progress and of the survival of proteins sufficiently fit to resist parasitic attacks on the one side and host protecting, parasite destroying devices on the other. It shows, too, the successive overcomings of such fitnesses by new variations, first in the host and then in the parasite, so as to keep up a perpetual pendulum swing of readaptations.

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DIFFERENTIATION OF THE ERYTHEMA OF SCARLET FEVER AND THAT OF GERMAN MEASLES. DIAGNOSIS.*

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The difficulty of accurately diagnosing the onset of either of these two diseases is quickly recognized by those who are daily experiencing this undertaking. At present there is an unusual number of cases of both very mild scarlet fever and German measles. Adding to this unpleasantness we have several institutions where both German measles and measles are appearing at the same time. In my personal experience there is no condition which so indelibly impresses itself upon the diagnostician as his weakness in these trying moments when time is all-important. I admit, if given time to fully develop, the accuracy of the most casual diagnosis is often beyond question, but where the case can be seen only once and where it demands immediate segregation or removal the task is by no means a pleasing one.

The multiform difficulties are not always recognized by the profession or the family in their desire

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to "get the case" away from the home or the doctor to get the patient out of his consulting room. The removal to an observation ward would no doubt be a speedy solution but where is the ward? Owing to the limited quarters provided for the true cases special provision is impossible for these. First of all I would ask the members of the profession to relegate *scarlatina* as a descriptive term for something approaching scarlet fever or very mild scarlet fever to oblivion, as frequently by use of such a phrase the family is lured into false hope and deceptive conditions and the little patient is often permitted liberties which reflect unfavorably not only on the patient but on those exposed.

Scarlet fever in its onset can, in my opinion, assume more disguises than can almost any one other disease, presenting oftentimes a wide range of conditions with many differing clinical pictures. There are also many clinical conditions which more or less closely resemble the onset of scarlet fever. The very multiplicity of conditions should mark this disease for special consideration above all others. Therefore when called to observe a child with a rash we should ever be alert and have prominently in our mind this one disease. I have seen cases with sore throats, in which the initial culture had been negative, which were observed for a period of twenty-one days and in which no rash was observed by either parent or physician, yet they gave evidences of desquamation. It is an invariable rule in the Department of Health to have inspectors follow up cases of negative diphtheria to see if they do not peel in a few weeks' time. It is a rule that is well worth while and gives good results. What unspeakable dangers have been given free rein? How many cases similarly escape observation and detection, particularly if there is no peeling, in the very mild cases of scarlet fever?

I would that I could say: "Well, the mild cases do not amount to much anyway; they are so attenuated that they do not do much damage," but such is not the case. I have seen very severe scarlet fever follow very mild cases in a family, and in certain tenements it is not unusual to see at the onset of the epidemic several mild cases followed by very severe ones. It is my invariable rule never to dismiss any rash in a child until it has had at least forty-eight hours of development, unless its associated clinical symptoms make the diagnosis clear. A mild scarlet fever unrecognized and untreated is most often the very commencement of an epidemic; it is frequently the cause of lesions in the patient which last throughout life, deforming and disfiguring. These might have been so easily avoided. Their avoidance meant much not only to the patient but also to the community.

Classical scarlet fever is ushered in with a sudden and often unexplainable vomiting or nausea. The child is weakened and prefers to rest. Headache is often complained of. Sore throat, a stitch-like sensation on swallowing, is of early occurrence. Faucial redness is apparent. The pulse is quickened markedly and the tension is high. The tongue looks as if it were coated with skimmed milk. The glands in the neck quickly enlarge and are tender on pressure. A general erythema, punctate, finely macular, and of a bright scarlet hue (pink), soon appears and rapidly spreads over the entire frame. About the margin of the nose and mouth there is a paleness (the scarlet mask) almost positive in its clinical significance. In a few days the tongue exfoliates some of its coating, the tiny papillæ enlarge and protrude through the coating and the typical "strawberry tongue" with its almost positive clinical significance appears. The tongue is clear of coating on borders and tip and is of deep red color. With such a picture, regular and prominent, scarlet fever is positively simple to comprehend. But do all cases appear so well outlined? No! they do not. I sincerely wish, yes, a thousand times wish, that they did. These symptoms vary in degree and vary in sequence and in some do not appear at all.

Our natures differ. Some express themselves quickly while others as readily do not. Individual symptoms are variable. The degree of intensity is also variable and at times confusing. With this considered it is but small wonder that it is difficult to recognize scarlet fever in its onset. Scarlet fever in certain epidemics will assume one rôle and in another epidemic or locality will assume another rôle, which adds to the confusion not a little. This degree of variability has led to conditions which I have mentioned above, and which result in the failure to recognize this disease early.

Following the advice of that venerable medical philosopher, Fordyce Barker, the consideration of scarlet fever bids one take heed of one of his special truisms, "Young man, if you cannot do good, be sure not to do harm." Therefore in the consideration of scarlet fever in its onset let the observer at once recognize the difficulty of his task and gird himself accordingly, caution and patience being his only key. The rash of scarlet fever concerns us most in our diagnostic work, but he who makes a positive diagnosis on this one symptom alone is going to fail more often than he is going to succeed. The general picture must be carefully studied and the facts gleaned must be sifted until by absolute exclusion an accurate diagnosis is determined. The rash of scarlet fever may be intense or it may be faint. It may be universal in distribution or it may be localized. It may be smooth or it may be uneven. It may be uniform in distribution or in groups. It may be erythematous or it may be ecchymotic. It may last for a few hours or it may last for a week or more. The dermal evidence of scarlet fever is in the nature of a dermatitis. The rash is sometimes distributed so as to make the skin appear as if mottled, not true mottling as generally understood but an eruption in patches of variable size and outline and most often seen on the extremities and trunk, never on the face. In these cases there is as a rule more prominence to other clinical symptoms which aids one in the recognition of this disease. I have never observed the rash of scarlet fever to disappear quickly. It as a rule appears quickly but gradually subsides. In fact the unusually quick appearance is often an aid in recognizing this disease. The exanthem springs from individual foci which in a short time run into others in their area and this commingling with the swelling of the skin gives the dermal lesion the characteristic uniform generalized distribution and the color of a scarlet red, as if the skin had been overheated or burned by scalding water. At certain times and in some cases papules develop, these later forming tiny vesicles (miliaria).

The scarlet fever rash is associated with an itching which at times is very intense and is generally most intense in the areas which the malaria develops. The tiny individual focus is a point about the size of a small pinhead with light red coloring. The points are regular in size and are arranged at about equal intervals. When numerous they form

the characteristic picture. The skin soon swells, the foci commingle, and the dermal coloring is uniform like a blush. With many fine points appearing on a pallid skin the picture of the onset is indeed unique and by reason of the short period at which this stage continues it is most frequently non-recognizable. The rash of scarlet fever never starts to desquamate on the day of subsidence. If irritants are applied, as frequently occurs about the throat, where skin is tender and thin, it will peel early, but this is incident to the treatment and not the course of the malady. The starting of peeling about the margin of the finger nails and the appearance of fine opalescent white pin point areas on the derma is rather indicative of scarlet fever desquamation. Several of these small areas come together and the skin is lifted as it were, the denuded part being easily torn away in small patches or sheets. As a rule scarlet fever starts to peel about the twelfth to the twenty-fourth day of the disease and it generally takes from thirty-five to fifty days to complete the work. The peeling of scarlet fever is not characteristic. It is an error to think so: pemphigus, dermatitis exfoliativa, erythema multiformae, and medicinal eruptions frequently simulate scarlet fever in its desquamation. The peeling may at times be so superficial as to appear furfuraceous, or there may be such a slight amount of exfoliation as to make the skin feel finely granular and roughened with no regular casting off of the top layer. I think that in those cases in which there is no peeling by the twenty-first day of the disease the diagnosis was in all probability erroneous.

Scarlet fever, therefore, with all of its cardinal symptoms following in fairly regular sequence and prominence, may be said to be not ordinarily difficult to recognize; but in the light of twenty years' experience, intimately associated with cases in all stations of life, this regularity is the exception rather than the rule with this disease. Scarlet fever becomes classical in my experience only when it is fully developed, and therefore I say most candidly and with all sincerity that a formally expressed opinion should never be given until it is assisted by such careful observation and development. There is no reason for the non-recognition of this disease. In hospital work, without wards where the cases may be kept under observation for a sufficient time, and in work in which patients are found in temporary places from which they must be quickly removed, the action of the physician should be most guarded and the opinions should be most reserved.

German Measles.—Up to a few years ago the medical profession paid but slight attention to this disease, probably because it was the mildest of the exanthemata and had but slight interest "of itself," except possibly from the viewpoint of an accurate diagnosis. The misadventures following its non-recognition evidently led to its more careful study. This disease has for years been one of the infectious ones, the report of which has been required by the Department of Health, but up to 1904 we do not find that it was reported. Then special attention was taken, and there were reported 1,075 cases, and for the years following there have been reported the following number of cases: 1905, 153; 1906, 360; 1907, 785; 1908, 544; 1909, 270; 1910, 871; 1911, 758; 1912, 697. This year there has been quite an epidemic, as is shown by the reports for January, 226 cases reported; February, 205 cases, and up to date 420 for March, making 851 cases for the year 1913.

The average medical attendant in private practice is not often called in nor does he see many of these cases until the rash is well out, and unfortunately, owing to their short tenure and non-recognition at the initial visit, the memory picture with its hazy tinting has not left a very clear impression on his mind. This I attribute more often to the failure to recognize this disease at the commencement of an outbreak in new localities. Also most often it is classified as a mild scarlet fever and justifiably so, I might add more safely than is the rule.

German measles will run its course in from a week to ten days; by this time with careful, competent observation it should be easy of recognition. I cannot impress, however, too strongly in this disease the care that should guard every opinion expressed before it is fully confirmed by lengthy observation. The avoidance of an error is most necessary and scarlet fever should always be prominent in our mind. The care of the patient and the protection of others from exposure while the disease is developing should be as rigid as if the diagnosis was positively scarlet fever.

A characteristic case of German measles develops something like the following: Children usually from 4 to 10 years of age, though no age is exempt, are the ones attacked. The child sneezed a little during the night, there was a slight dry cough at irregular intervals. The little one did not eat its supper with relish; it slept well but the next morning one noticed that the face was flushed, the tint deepest about the cheeks, near the nose, and particularly about the upper and lower lip. The redness seemed to consist of minute pinkish spots, distinct enough to be observed easily with the eye. To the touch they were not elevated. The skin felt as if fine grains were just under the surface. The little spots ran together forming a blush and as they appeared at other parts they behaved likewise until the face, neck, arms, and body were covered. The rash was fading on the face about the time it reached the lower part of the torso. It took about twenty-four hours to cover the entire body. The patient in proportion to the amount of rash present did not appear as ill as one would have reason to expect. He appeared fairly comfortable and looked as if he was wondering why he caused so much concern. The temperature may be normal, it may be 99° F., or it may rise at most to 100° F.

The sublingual and posterior cervical chain of lymphatics appear somewhat enlarged, they are soft to the touch and are not very sensitive. These glandular chains are very characteristic; they appear early, and should be sought for as the first confirmatory symptom. They are rather uniformly enlarged and are just to the outer edge of the trapezius muscle. They feel like a small string of beads. The conjunctivæ are but slightly, if at all, affected. There is at times some sensitiveness to light. The mucous membrane does not appear affected except on the soft palate where at times small petechial areas of redness are found (Forscheimer's spots) in little masses. There may be subjectively a severely painful throat but objectively there is practically nothing to account for the same. This angina is not uncommon in this disease. In some children, particularly those of a nervous temperament, there may be observed chilliness, loss of appetite, restlessness, thirst, etc., usually in proportion to the amount of temperature present.

During the first day the rash fades and next day

it is gone. The patient is bright, mentally contented, and bodily comfortable. In three or four days there is a fine furfuraceous desquamation which feels finely granular to the touch; it may, however, be so slight as not to be apparent either to the sight or touch. In some of the unusual cases, however, the peeling is quite extensive and closely resembles that of scarlet fever. In the vast majority of cases of German measles, however, the desquamation is slight, it is furfuraceous, and within a week every vestige of the disease disappears and practically without any treatment. German measles is claimed by some to be contagious; it may be so, but to my mind it is like all other diseases of which the cause is known, simply infectious. The infectious material may be more easily carried and be more tenacious than other forms, but contact with a patient is, to my mind, the only way the disease is disseminated. Light and air quickly destroy the infection. Household cleaning, therefore, with ventilation, is ample for cleansing apartments in place of gas fumigation. One-half pound of washing soda in three gallons of warm water applied with energy will clean a place much more satisfactorily than will our modern sealing and fumigating.

German measles occurs as a rule in epidemics and is much less infectious than is ordinary measles. I have never observed a case of German measles in infants under one year of age. One attack of this disease as a rule confers immunity, though there are those who claim it may occur a number of times in the same person. I have seen several persons fairly reliable who claim to have had it under competent observation twice. I have never seen a case of this disease of more than ordinary mildness —though there are those who state that it at times becomes very severe. I have never seen any sequlæ of unpleasant character follow this disease. German measles is infectious from onset to termination of convalescence. The infectious material is probably carried by the material discharged from the nose and mouth. The period of incubation is variable. Usually from five days to surely not more than four weeks. (This is the longest time I have found recorded and I doubt it myself.) Where observation has been practical the period of incubation was found to be from fourteen to eighteen days. The stage of invasion lasts from a few hours to about two days. Usually it is very short and the first thing observed is the presence of the rash on the face. Occasionally there is a slight angina but as has been said the painful throat is out of proportion to the amount of objective manifestations present. In cases of German measles in which the rash is intense it will be found on the palms and soles, and it will be followed by rather profuse exfoliation. The individual lesions of German measles are of a size between the points of scarlet fever and the macules of measles. The coloring of German measles is not a vivid red as is the pink of scarlet fever and yet not of that purplish red distinctive of measles. Seen in bright sunlight it has a violaceous hue. The rash of German measles as it appears is a slightly visible light reddish macule discreetly located and generally distributed. The lesions disappear on gentle pressure and are but very slightly, if at all, elevated. They feel like granulations of fine material just under the skin. At the height of the flush circumscribed darker colored macules develop, giving a rather dark red to a fiery red coloring of the derma. The tiny macules are isolated, they are about the size of a small pinhead, but may at times appear to be as large as a small bean. Between the macules may be observed distended capillaries. The macules disappear on pressure but the coloring almost instantly reappears on removing same. The macules are of two varieties: in one the spot is perfectly formed at the time of appearance, sharply limited, with irregular borders and obtuse or angular surfaces. One macule does not touch another during the entire course regardless of the severity or intensity of the rash. They become numerous and are very close together but are individualized. In the other variety of German measles the macules appear as red pointed with distinct outlines which may spread at the periphery and at times reach a diameter of two or three lines. The first variety is the one most commonly met with and is the morbilli form type. The second variety is the more severe form and usually has the more intense eruption and also closely resembles scarlet fever. It is almost diagnostic and a point to be kept well in mind that, no matter how intensely red the derma may appear, on close examination the rash is seen to consist of tiny red points. Glass pressure (ordinary microscope slide) will reveal the individuality of the lesions. One should press on the part until it is pale, then remove the slide quickly by sliding it off, the paleness departs, the original tiny red points reappear quickly and then the general blush resumes its former tinting. The color spreads at the periphery until the paleness has disappeared. In those cases of German measles closely resembling scarlet fever the skin is red and the macules are haloed, the halo uniting with others in the vicinity in little streaks and forming, as it were, stripes as they join. Elevation is not apparent in this class. The color of German measles is of a slightly darker tint than is the light pink tint of true scarlet fever. The rash of German measles as it fades gives a rather brownish red and then a lighter brown shading and as it disappears leaves no mottling in the derma. An itching of the skin I have never observed in German measles. The cases of German measles in which the throat has simply a diffused redness and in which there is some pain on swallowing are those which form the scarlatinal type of German measles. The desquamation of German measles is usually in proportion to the severity or intensity of the rash and the amount of overheating of the skin surface.

Regarding cases of exanthematous diseases which physicians report as being without a rash, I invariably observe these for confirmatory evidence and if such cases fail to peel by the twenty-first day I feel, in my opinion, that there is an error of diagnosis. Personally I do not believe any more in scarlet fever without a rash than I believe in smallpox without a rash or chickenpox without a rash. There is no one disease whose control and abolition would confer a greater or more lasting benefit upon mankind than scarlet fever. Of all the world's scourges of both modern and ancient times there is none that can claim the ravages through death and deformity that are wrought by scarlet fever.

For the purpose of argument let us consider scarlet fever as being due to a germ. This germ is probably carried by persons who act as "carriers," by mild unrecognized cases, and by intermediary hosts (fomites), and our precaution, if we would control scarlet fever, has got to be through control of these factors. Prompt recognition, practicable segregation, careful and continued isolation, prompt and thorough disinfection, with attention to "car-

riers," will, in my humble opinion, in a remarkably short time control this one great pest.

RECAPITULATION.

Scarlet Fever	*German Measles*
More or less severe constitutional symptoms.	Very slight constitutional symptoms.
The severity and intensity of the rash is in direct proportion to the constitutional manifestations.	The severity and intensity of the rash are in inverse proportion to the constitutional symptoms.
Enlarged glands, usually following onset and evidence of sepsis.	Enlarged post-cervical chain of glands like a string of beads early in onset.
Glands swollen and tender.	Glands enlarged, soft, and not tender.
Confluent scarlet (pink) rash.	Non-confluent, dark-red (violaceous) rash.
Rash punctate.	Rash macular.
Onset sudden and more or less severe.	Onset sudden but not severe
Tongue, milk-coated; later, "strawberry," about third day.	Not affected.
Pulse, high-tension and increased in frequency.	Not materially affected
Circumoral pallor.	Rash starts about the nose and upper and lower lips.
Vomiting.	No vomiting.
Rash appears quickly, spreads rapidly, and disappears gradually.	Rash appears in one part at a time, appears gradually at other parts, fading at place of onset. Covers body in about twenty-four hours.
Rash appears first on neck and about clavicular spaces.	Rash appears about nose and lips.
Scarlet rash fades with yellowish shading. Leaves skin more or less injected.	German measles rash fades with a brownish red, then to a light brown, and disappears, leaving no mottling of skin.
Desquamation in 12 to 24 days.	Desquamation in about 3 days.
Desquamation in sheets. Squamous scales.	Desquamation furfuraceous.
Has more or less severe sequelæ.	Has none.
Itching more or less prominent.	Not present.

143 WEST ONE-HUNDRED-AND-THIRD STREET.

OBSERVATIONS AND SUGGESTIONS REGARDING LOBAR PNEUMONIA.*

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DURING the three months ending April 1, 1913, the writer treated in two hospitals twenty-nine cases of lobar pneumonia; these cases form a continuous series, being all of the cases of that disease treated by him in that period in those hospitals. The ages of these patients were respectively: 3, 3, 3, 6, 6, 9, 10, 10, 19, 21, 21, 22, 22, 23, 26, 30, 30, 30, 34, 34, 35, 36, 38, 38, 40, 41, 44, 52, and 57 years. The lobes affected were as follows: In thirteen cases the left lower lobe; in seven, the right lower lobe; in two, the right upper lobe; in one, the left upper lobe; in one, the right middle lobe; in three, both lower lobes, and in two, both left lobes.

The temperature in five cases rose to 105° F. or higher; in eleven to between 104° F. and 105° F.; in ten, to between 103° F. and 104° F., and in three it did not rise above 103° F. The pulse rate in three cases rose to 160 or more; in four, to between 150 and 160; in three, to between 140 and 150; in six, to between 130 and 140; in nine, to between 120 and 130, and in four it did not rise above 120. The respiration rate rose in five cases to between 60 and 70; in five, to between 50 and 60; in thirteen, to between 40 and 50, and in six it did not rise above 40.

Defervescence took place in sixteen cases by lysis, and in nine by crisis. The average time of defervescence in the cases which showed lysis was 7.7 days from the beginning of the disease, and in those which showed crises, 8.2 days, the variations being between four and fourteen days. There was delayed resolution in four cases, with reinfection in two. In two cases empyema developed. In two cases there was pleurisy with effusion. In one case pericarditis with effusion was present. Two cases developed following an operation for appendicitis, one developed during convalescence from typhoid fever, and one during convalescence from rheumatic fever.

In this series of twenty-nine consecutive cases of lobar pneumonia only one death occurred. The patient who died was a boy of nine years, who defervesced by lysis on the seventh day, and died suddenly the following day, from what cause the writer was not able to discover.

The cases above reported are, of course, too few in number to form a basis on which to build conclusions, and the writer has not presented them for that purpose, but for the purpose of providing a text, a suggestive text, for a few topical remarks on the subject of lobar pneumonia.

The Toxemias of Pneumonia.—The toxins which most commonly make trouble in pneumonia can be divided into three classes: the specific toxin; autotoxins, including those manufactured in the alimentary tract; and pharmaceutical toxins. The specific toxin which is derived from the pneumococcus in the blood does not seem to be regularly a factor of grave pathological importance, though occasionally it may be so. It is an endotoxin, and apparently does not get into the blood stream in dangerous quantity if the leucocytes are active in the performance of their protective function. It is not regularly and habitually a serious disturber of the circulation in the sense that the toxin of diphtheria is such. In a certain proportion of cases, however, the disease does seem to overwhelm the patient, and that sometimes early in its course, in a manner which suggests the presence of a severe specific toxemia. The writer has seen a few such cases. But in none of the series above reported, though high fever and rapid pulse, and even delirium, were unusually prevalent, did vasomotor paralysis appear as a cause of cardiac failure; the circulatory disturbances which were observed could all be accounted for by the mechanical conditions present and by the state of the myocardium.

The autotoxins, we can readily believe, are of many kinds. The disturbances of the physiology caused by the conditions of the disease, both those due to the invasion of the pathogenic microrganism, which introduces into the blood foreign protein and makes a sudden and great demand on the body for biological and biochemical protection, and those caused by a mechanical disturbance of the circulation, may justly be suspected of bringing about perversions of the internal secretions and of metabolism, with resulting changes in the regular or habitual toxic and antitoxic conditions in the blood stream and in the glands and tissues. And it can also readily be believed that the same disturbances lessen the natural resistance of the body to the toxic products of bacterial activity in the digestive tract, and also that they favor the production of such toxic products. The writer is of the opinion that the autotoxins, and particularly the toxins of intestinal origin, constitute a very important element in the mixed toxemia of pneumonia.

The pharmaceutical toxins are, of course, drugs given to the patient. Most of our drugs are poisons. The pharmacopeal alkaloids, drugs belonging to the coal tar, carbolic acid and salicylic acid groups, mercury and magnesium sulphate, all of which are

*Read before the Kings County Medical Society, April 15, 1913.

widely used in pneumonia, are familiar poisons, and even dangerous ones unless used with caution. In view of the wide diversity of opinion which obtains in the medical profession regarding the drug treatment of pneumonia, and the necessarily unripe clinical experience of a considerable proportion of those who treat cases of this disease, and, we may add, the therapeutic prejudices which are so easily and so naturally acquired and from which it is so difficult for any of us to be entirely free, we are bound to include among the toxemias which may be found in pneumonia, drug toxemias.

Of these three classes of toxins, the first, the specific toxin, is, in the present state of our knowledge, beyond our direct control; we can influence it favorably only by supporting the natural resistance of the body, and particularly by improving the hygiene and nutrition of our faithful janissaries, the leucocytes. Of the autotoxins, those formed in the alimentary canal are very largely under our control. It is possible by regulation of the diet to greatly reduce the amount of injurious bacterial activity in the alimentary tract. The third class, the pharmaceutical toxins, are entirely under our control. The proper exercise of that control, however, is not always easy, for some of these pharmaceutical toxins we know can often be used with advantage to the patient. But when we put a drug with toxic possibilities into a patient suffering from such a grave disease as lobar pneumonia, in which a very small thing may be sufficient to turn the scale, we should be reasonably sure that the advantage will be greater than the injury; and when there is any doubt we should give the patient the benefit.

The Blood Pressure in Pneumonia.—H. A. Hare in the 1912 edition of his "Practical Therapeutics," says, "Gibson in Edinburgh, and myself in this country, have shown that danger arises when the pulse rate per minute is equal to or above the blood pressure expressed in millimeters of mercury. Thus, if the pulse rate is 90 and the blood pressure 140, all is well, but if the pulse rate is 110 and the blood pressure 110 the patient is gravely ill, and needs active cardiac and vascular stimulation. If the blood pressure in millimeters of mercury falls below the pulse rate the condition is desperate."

The writer's experience does not support these conclusions of Gibson and Hare. In seventeen of the twenty-nine cases above reported, the blood pressure was taken by a sphygomanometer, along with the temperature and pulse rates, and in fifteen of the seventeen it fell below the pulse rate, yet all recovered, and in eight more the blood pressure could easily be appreciated by the finger to have fallen below the pulse rate, yet all recovered. The writer is of the opinion that the systemic blood pressure in pneumonia differs very little from the normal for the individual, as a rule, and that when it does fall this usually happens as a result of the mechanical failure of the overworked heart, and that the collapse of the circulation through specific-toxemic vasomotor paralysis, of which so much has been said of late, does not regularly belong to the disease, being an occasional occurrence and not always clearly distinguishable from collapse of the circulation due to myocardial failure. The terminal collapse of the circulation in fatal cases may not differ essentially from what happens at the end of a losing fight by a patient with any fatal cardiac disease, except that the specific toxemia is added to other habitual toxemias which are present in excess on account of the general circulatory stasis.

The Hygiene of Pneumonia.—The most important point in the hygiene of pneumonia, next to keeping the patient in bed, is to supply him with plenty of cold, fresh air. The writer will not discuss this generally accepted proposition, but he wishes to emphasize a germane point which he believes is not sufficiently regarded, viz., the necessity for protecting the patient from cold and drafts after defervescence. While his fever endures, the patient can come to no harm from exposure to cold air, in fact, is benefited by it; but after his fever has gone, and he lies weak, possibly perspiring, a reinfection of the lung or an attack of pleurisy can be induced by such exposure.

The Diet in Pneumonia.—In lobar pneumonia, as in other acute infectious diseases, the digestive organs are less active than normal, and are in a condition which can be easily disturbed by any but the most simple food. The liver is less capable than in health of performing its important and complicated functions, particularly its antitoxic function, on which unusual demands are being made. The kidneys, with reserve power lessened, are called on to eliminate an increased amount of waste and toxic material. In the condition of the heart and blood vessels indications for regulating the diet are found which are of the greatest importance. The unstable condition of the heart makes particularly dangerous disturbances due to nervous reflexes from the abdominal viscera, and especially those due to mechanical pressure from the abdominal cavity, which are caused by flatulent distention of the stomach or intestines. Abdominal distention, so dreaded in pneumonia, depends largely on indigestion and harmful bacterial activity in the intestinal contents.

The dietetic indications above suggested can be met, according to the experience of the writer, by giving, during the febrile period and for a few days after, food of a fluid, antiputrefactive character, consisting of modified milk, thin cereal gruels and fresh fruit juices, in quantities which will supply a daily ration of not more than 40 grams of protein and possess a fuel value of not more than 1,250 calories, and, in addition, full rations of the food salts required by the body. The twenty-nine cases above reported were so fed and no marked tympanites developed in any of them, nor any serious symptoms referable to the alimentary tract. Among the food salts, those of calcium call for special consideration in pneumonia. Calcium, which in certain amount is required by all the fluids and tissue of the body to maintain their healthy condition, and particularly by the muscle of the heart to enable it to contract in its best manner, and by the leucocytes to increase their functional activity, is regularly deficient in pneumonia. A condition of calcium starvation exists to a greater or less degree in this disease, which is brought about by the withdrawal of the stores of that element in the body to supply extraordinary requirements, viz.: to coagulate the fibrin in the consolidated lung, to feed the large number of new leucocytes which have made their appearance on the field of battle, and even to feed the invading pneumococci, which seize calcium in the enemy's country for their own use. Unless this calcium deficiency is made good by the addition of a sufficient quantity of that element to the diet, there is reason to believe that the patient is handicapped in his struggle with the disease. The writer has included calcium chloride in the diet of nearly all of his patients with pneumonia since his attention was called to the importance of this article of food

in pneumonia by Mitchell a year and a half ago.

The Use of Cathartics in Pneumonia.—Hippocrates, in his second *aphorism,* says: "Artificial evacuations, if they consist of such matters as should be evacuated, do good, and are well borne; but if not, the contrary." Who will deny the soundness of the teaching of this aphorism? While unnecessary or excessive catharsis may not do serious harm in many conditions, in a disease where failure and recovery are often so delicately balanced as they are in lobar pneumonia, it is quite possible that they may do so, and that they may even be fatal factors. The propriety of moving the bowels at the beginning of the disease if they have not acted within a reasonable time is unquestioned, but there seems to be no reason why this procedure should be made a violent one, thereby possibly disturbing its intestinal mucosa and impairing its resistance to the absorption of toxins; or that it should be indulged in more than is necessary; and especially to be condemned, in the writer's opinion, is the custom, so prevalent, of giving a dose of calomel followed by magnesium sulphate at the beginning or at any time in the disease. Mercury is of great value in many conditions, but the writer sees no reason why it should ever be used for the primary purpose of a cathartic and some why it should not; and magnesium sulphate is a toxin of so great cardiac depressant power, and so difficult to eliminate by the kidneys after absorption, which takes place in direct proportion to the strength of the solution, that he holds it to be a dangerous drug to use in pneumonia. The writer prefers to use, in most cases, castor oil or a vegetable cathartic at the beginning of the disease, in sufficient dose to insure a thorough but gentle evacuation, and after that, in general, to use simple enemas; and he believes that if the bowels are moved every second day that will be quite often enough, provided the patient's diet is so regulated as to minimize putrefactive and fermentative processes in the alimentary tract which are of a menacing character. At or near the time of defervescence, or at any time if the heart is in distress, he prefers not to disturb the bowels at all.

The Use of Morphine in Pneumonia.—Pain, restlessness, and sleeplessness are common symptoms in pneumonia, and it is highly desirable, especially during the early days of the disease, that they be relieved so that the patient will get such an amount of sleep that he will be able to approach the crisis of his struggle without the handicap of nervous exhaustion. For the relief of these symptoms no drugs are so efficacious, and at the same time safe, as the alkaloids of opium. The writer believes that in the early days of the disease morphine or codeine should be given in moderate doses to secure a fair amount of sleep if the patient is suffering for lack of it; and later in the disease these drugs may also be given if needed, though with caution and in very small dose, because it is undesirable to severely depress the respiration if the respiratory area is extensively encroached on, and especially is it undesirable to give opiates in any but small doses, if in addition there is circulatory failure and general pulmonary congestion. Analgesics and hypnotics other than opiates the writer does not at present employ in his treatment of pneumonia.

The Support of the Heart in Pneumonia.—The heart in pneumonia, except when the disease occurs in young children, nearly always needs direct support at some time during its course. This support consists mainly in judicious stimulation. In the aged, in alcoholics, and in those with preexisting myocardial weakness, stimulation is usually required from the beginning. In young adults with originally healthy hearts it can usually wait until signs of strain appear, but it should not be delayed too long; it is better to give help before it is needed than to withhold it until after damage has been done. In most cases, on the third or fourth day, even if no symptom of circulatory disturbance appear, it is reasonable to suppose that the right heart is getting tired and would be benefited by a gentle stimulant. The amount of stimulation should, of course, be regulated by the requirements of the circulation, and the best guide to those requirements is the condition of the right ventricle, on which rests the burden of overcoming an obstruction in the pulmonary circulation. The most distinctive signs of failure of the right ventricle are: increase to the right of the area of deep cardiac dullness, and diminution in intensity of the closure sound of the pulmonary valves, and, in addition, when failure is pronounced, cyanosis and other evidence of venous stasis. When the failure of the heart is due to vasomotor paralysis there is apt to be a grayish pallor instead of cyanosis. While stimulation of the heart is very often called for, and sometimes a large amount of it, special care should be taken not to exhaust the heart by the excessive use of stimulating drugs. Complete relief of the cardiac symptoms when extreme should not always be attempted; it is often sufficient for our purpose if we can keep the patient from dying for a few hours or days, until his disease has run its course; and it is easy to precipitate a circulatory collapse by over-stimulation. The temptation, however, is very great to use extreme, even desperate measures of stimulation, when weakness and irregularity of the pulse appear before the crisis, with a steadily increasing pulse rate, a dilating right heart, an inaudible pulmonary second sound, and moist râles all over the lungs. But even of such cases the writer believes that more will be saved by keeping the stimulation of the heart within conservative limits than by yielding to desperate impulses. One method of treatment which has been recommended for cases of extreme right heart dilatation, viz., venesection, appeals strongly to the writer, though he has used it only once, and then with success. Among the numerous drugs which are used to stimulate the heart in pneumonia there is considerable choice. The writer has found the best results from the judicious use of strychnine and strophanthus as primary heart stimulants, with caffeine, digitalin, and aromatic spirits of ammonia as secondary or reserve stimulants.

In closing these few topical remarks on lobar pneumonia, the writer would like to repeat and emphasize the following suggestions regarding the treatment of that disease: (1) Give the patient plenty of fresh, cold air, but after defervescence protect him carefully from being chilled. (2) Keep down the production of toxins in his intestines, which form a very important element in the toxemias of pneumonia, by giving him a fluid, antiputrefactive diet, supplying not more than 40 grams of protein daily, and possessing a fuel value of not more than 1,250 calories. Do not hesitate to give much less than the above quantities should abdominal symptoms appear. (3) Include in his diet sufficient quantities of the salts needed by the body, particularly the salts of calcium. (4) Do not delay too long stimulation of his heart; regulate the

amount of the stimulation by the capacity of his heart muscle to respond as well as by the requirements of his circulation. (5) Do not move his bowels unless they need it, which they will not be apt to do oftener than once in two days, if his diet is regulated so as to minimize injurious bacterial activity in his intestines, and let the methods used to move them be gentle.

1218 Pacific Street.

OBSESSIONS IN MEDICINE.

By BEVERLEY ROBINSON, M.D.,

NEW YORK.

Presumably these have always existed to a greater or less degree—and yet, it seems to me, so far as my own life and experience are concerned, they exist to-day to a greater extent than heretofore. If it be true, why is it? Two reasons may be given; no doubt there are others.

The first is, exaggerated specialism; the second, an undue estimate of science, passing though it be, as opposed to wise empiricism—*i.e.*, the experience of decades, not to say centuries.

In every field we should have experts, namely, men of highest attainment in their special field of knowledge. While this is true, their number should be limited, partly because we should recognize peculiar fitness only when based upon excellent training and much later work and experience. With this we must demand very great consideration for the wider knowledge and experience of the all-around physician. Common sense in both must be considered a very important additional quality. This common sense means really sound judgment. If this be present, both men—specialist and general physician—will regard the patient as a whole, and hence will advise in accord with this idea, so essential to the ultimate well-being of the patient.

As to science, as it is termed, what is it in fact, in medicine? To-day it is and to-morrow is not. It is ever changing, at least much of it. Illustrations without number could be given to prove it. It is only a few years since that the revelation under the microscope of the tubercle bacillus pointed to the disease with unerring certainty and not only that, but in it was the cause—indeed, finally, the only one. Now, not a few think of the tubercle bacillus as a scavenger, not a direct and efficient cause. Again, presuming it is found, are we to attach the same importance to it invariably? Evidently not. In some instances it may have an absolutely similar appearance as in others, but it has relatively very little virulence. This is shown first by the results of inoculations in animals, especially guinea pigs; secondly, by reason of the manner and duration of cure, if there be cure. In certain cases we know, once the disease is firmly established, cure does not take place. The germ is virulent and the soil in which the germ is planted is of the sort to support and propagate this virulence.

Where do we find obsessions which are familiar to all at the present time? One is, and, to my mind, greatly to be deplored, the exaggerated and widespread notion of the marked contagiousness of consumption, *i.e.*, pulmonary tuberculosis. This prevailing conviction, which extends among doctors and laity, causes great anxiety and harm, and moreover is not true. Only under certain circumstances is pulmonary tuberculosis carried from one person to another—usually in the advanced stages—and almost invariably it may be obviated by certain and a few careful observances and by intelligent, simple treatment.

Again, many doctors, and many people, are obsessed with the idea that rest, fresh air, good food, will cure the disease and that drugs are relatively inert or useless. The result is that in one, not to say several, of our well known sanatoria, very little, or no attention, is paid to the use of drugs. What a lamentable error! Is all the work and wisdom of men who preceded us to go for naught? Are creosote, the hypophosphites, cod-liver oil, worthless and simply to be thrown aside? I do not believe it, and I am sure I state the truth. They have their time, their place, their indications, and should be used advisedly and to the great advantage of many.

Immediate operations for appendicitis are now urged at home and abroad, and by very many of the best surgeons and physicians. I protest against any such rule of practice because I believe it to be woefully wrong. I have watched the trend of practice for many years and have been a frequenter of the dead house in large hospitals. Of course patients did die and would die because of general peritonitis, due to perforation, and when not operated upon. As a fact, patients not infrequently die subsequent to, and because of operation, who, if managed sanely and by the old-time practitioner, would recover. I do *not* affirm that the cure in bad cases, and by these I mean perforation and general peritonitis, or, indeed, where it is shut off and limited by adhesions, would be as rapid if it occurred, but I do mean to affirm it would be quite as safe and sure. I am quite aware that this statement, if considered and answered, will meet a storm of contrary judgment, but I state my belief all the same, unwaveringly. One method used nowadays, before operation, I deplore, and that is the use of the ice-bag. It may diminish pain, but little more than alcoholic applications locally, and codeine internally, and surely, to my mind, it prevents the re-establishment of circulation in the appendix and adjacent colon, which is usually implicated in the disease. I still believe, and despite all manner of invective against purgatives, in threatened or declared appendicitis, that a dose of castor oil rarely does harm. The amount of increased peristalsis caused by it may, indeed, occasionally determine a rupture of the appendix a little sooner than it would otherwise occur, but in the majority of cases it will help prevent an unnecessary operation. However, in order to avoid the minimum additional risk of which I speak, and out of regard for a widespread obsession, as I believe, I would be content very frequently with large and repeated oily enemata.

Another obsession in medicine is the idea that little can be done to reduce the mortality of pneumonia. Nothing is more foolish, more wrong-headed. If the patient is put to bed as soon as threatened, and creosote inhalations started and other judicious medical treatment employed, he will recover, provided he is not already much handicapped by previous disease, or by reason of great weakness, or old age, or because the poison is very virulent.

While I believe firmly in the value of warm creosote inhalations from the croup kettle, I acknowledge that it is difficult to have it carried out when most valuable, namely in the initial stage of the attack, by reason of the lack of confidence in its utility on the part of the patients and physicians, and, also, because of the unpleasant odor of creosote

to many persons. This latter objection can be in a measure overcome by the addition of compound tincture of benzoin to the water in which the creosote is also vaporized.

42 West Thirty-seventh Street.

TUMOR OF OMENTUM WITH TWIST OF PEDICLE, GIVING SYMPTOMS OF ACUTE APPENDICITIS.

By C. LEGIARDI-LAURA, M.D.,

NEW YORK.

Solid tumors of the omentum are of very rare occurrence, and many tumors at first described as omental were later found to be of intestinal origin with secondary omental connection.

These pseudo-omental tumors are differentiated from the true omental tumors by the intimate connection of the former with the walls of the stomach or intestine, and, therefore, not being separable, unless through a resection of a portion of the gastric or intestinal wall.

The usual site of a true omental tumor, according to the authors, is the mesogastrium and the symptom complex is very obscure; especially so if the tumor has contracted adhesions and lost mobility.

Going over the medical literature of omental tumors I was not able to find a single case occurring with twist of its pedicle. This fact, together with a rather peculiar symptomatology, has induced me to report the following case:

Mr. L. B., 48 years, tailor. Never had any illness of importance, except repeated acute tonsilitis, and never any abdominal complaint except a habitual constipation of mild character. On February 26, 1913, he had a friendly tussle with another man, in which his body was briskly rotated and strong contraction of his abdominal muscles occurred. A few hours afterward he began to complain of a pain in the lower right quadrant of his abdomen. The next day the pain was much increased and at night the patient felt feverish. I was called in to see him on the third day of his illness. He complained of sharp pain over McBurney's point, radiating to the front of the abdomen. The examining hand found at McBurney's point a tender nonmovable mass, about the size of a small orange, and apparently neither smooth nor completely traceable. Temperature was 101° F., pulse 110, respiration 28. He was admitted the next day to the Washington Square Hospital, where I immediately operated on him for supposed appendical abscess.

Upon opening the abdominal cavity by the pararectal route a mass presented itself, oval in form, about the size of a goose egg, congested, and of fleshy consistency. I found it very easy to free the mass from slight, recently formed adhesions and bring it out of the incision. It then appeared to be a tumor on the anterior aspect of the great omentum and near the free border and connected with the omentum by a thin vascular pedicle, which was twisted.

The pedicle was apparently the only source of blood supply for the tumor. The omentum itself appeared normal except for a slight thickness all around the tumor which it embedded, and some recently formed adhesions to the contignous structures. There was no difficulty in ligating the pedicle and removing the tumor.

Right beneath the omentum a rather large but otherwise healthy looking appendix was found; it was amputated by the usual method.

The patient left the hospital thirteen days after the operation. Gross and microscopical examination of the tumor showed it to be a lipoma with a well-developed fibrous capsule. Two small hemorrhagic infarcts into its substance revealed the beginning effects of the twisting.

A somewhat similar case clinically, though not pathologically, was reported by Cullen of Johns Hopkins Hospital, where symptoms of acute appendicitis developed after a sudden rotation of the body, and were caused by a torsion of the omentum itself.

In my case, the location of the tumor on the anterior aspect of the omentum from which alone it derived its blood supply through the omental pedicle, and the absence of important adhesions to any portion of the intestine, prove that the tumor was in the strict sense of omental origin. Again, its fixation by recent adhesions, its location near the appendix, the acute attack of pain caused by the twisting, and an accompanying elevation of temperature explain the clinical peculiarity of the case with its resemblance to appendicitis.

135 Macdougal Street.

The Clinical Diagnosis of Latent Hereditary Syphilis.—A. Goldreich calls attention to the importance of this subject, inasmuch as in one-third of all cases of latent inherited syphilis the Wassermann reaction is negative. The most distinctive sign is enlargement of the cubital lymph nodes. These were palpable in 104 out of 130 of the author's cases of latent syphilis. In non-luetic infants these were palpable in from 15 to 17 per cent. of the cases.—*Zeitschrift für Kinderheilkunde.*

Immunity of the White Rat to the Diphtheria Toxin.—A. Pettit reported before the Société de Biologie, June 7, the results of his investigations on this subject. He found that this animal possesses a resistance to the diphtheria toxin to an extent greater than any other mammal. Whereas a dose equal to one fifteen-thousandth of the body weight kills in less than forty-eight hours, it is necessary to give an amount exceeding one one-hundredth of the body weight to accomplish this result in the rat. This resistance is not dependent upon the antitoxic properties of the blood serum or upon the power of leucocytosis, but is the result of the natural immunity of the bodily cells.—*Gazette des Hopitaux.*

High Blood-Pressure.—W. Edgecombe presents the following summary of his experiences: The measurement of blood-pressure by the mercurial manometer is, on the whole, reliable, and furnishes a useful clinical guide. There is a condition of "functional" or "neurotic" high blood-pressure not due to arteriosclerosis and distinguishable from hyperpiesis. In the majority of cases of "functional" high blood-pressure, direct treatment is unnecessary and may be harmful. "Functional" high blood-pressure does not readily lead to arteriosclerosis. The significance of high blood-pressure as a symptom is less serious than is usually supposed. The treatment of early cases of hyperpiesis is imperative and is usually satisfactory. Spa treatment gives the best results. The treatment of developed arteriosclerosis is unsatisfactory and should be mainly by general measures and periodic spa treatment rather than by drugs. Excess of treatment may be harmful as liable to accelerate cardiac defeat. The prognosis in cases of high blood-pressure is less gloomy than usually considered.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE PATHOLOGY OF THE LIVING.

IN reviewing the history of surgery for the past half century one dwells with wonder and almost awe on its operative successes and on the daring of its votaries in entering new fields which were formerly in not only an unknown but a forbidden land. The fathers of men still living might have been among those who are said to have gathered at the house of the woman from whom Ephraim McDowell had removed an ovarian tumor, ready to take his life to atone for hers if she succumbed to his daring assault; now no embryo surgeon three weeks graduated from his hospital interneship would hesitate to open the abdomen merely to give temporary relief from suffering even when there was no question of saving life by the operation. Dazzled by the brilliancy of surgical therapeutics one often fails, however, to recognize the services that surgery has rendered to pathology and diagnostics. The internist, complaining that the surgeon has invaded his field, forgets that were it not for the surgeon this field might still be as barren as it was fifty years ago.

In the address in Surgery before the British Medical Association at Brighton last week, for an advance copy of which we are indebted to the editor of the *British Medical Journal*, Sir Berkeley Moynihan directed attention to this aspect of modern surgical achievement. In his address, entitled "The Gifts of Surgery to Medicine," the speaker showed how surgical research had solved many of the problems of internal medicine and cited a number of illustrations to demonstrate the gradually widening knowledge of morbid abdominal conditions based upon the study of what he called the "pathology of the living." In the pre-anesthetic and pre-antiseptic days "an acquaintance with the morbid processes attacking internal organs was based," he said, "upon two sources of information only—upon an inquiry into the details of the clinical history of any disease as it developed, waned, or progressed, and upon the examination of the parts involved after the death of the sufferer." Much no doubt was learned in this way, but the knowledge was based largely upon intuition and conjecture and it was subject to revision at any time; it lacked the certainty of that founded upon inspection of the living organs and tissues. The pathologist in those days was much like some biochemists of our time who think that once they are able to synthetize protoplasm they can create life, ignoring the fact that their analyses, upon which their syntheses must be based, are of dead protoplasm. That there is a wide gulf between the pathology of the living and that of the dead is as certain as that there is a cleavage in the chemistry of those two states. An instance of the latter is adduced by Sir Berkeley Moynihan in respect of the pancreas: "We know well," he says, "the great change that comes over all parts of the body after death; the face changes, wrinkles are smoothed away, the cheeks sink in, the eyes are lusterless, the orbits hollow. Other parts change equally, and among them the pancreas, perhaps, most of all. In a case of acute pancreatitis the gland at the moment of operation, seems one massive phlegmon—tumid, doughy, and with no abrupt margin. After death it appears to be merely a bruised and blood-stained organ. So with the gland in a state of chronic inflammation. To the hand of the operator it may feel large and densely hard, and it may be responsible for the obstruction and a considerable dilatation of the common bile duct. After death it seems hardly altered from the normal, and certainly in earlier, less exact days would not have attracted close attention."

We can notice only briefly a few of the changes in our knowledge of chronic abdominal disorders, effected by a study of the "pathology of the living," cited in this most interesting address. To refer to the pancreas again, the knowledge of the frequency of chronic pancreatitis and of its mimicry of carcinoma has come to us through observation made during operation upon the gall-bladder. The doctrine of gastric ulcer has been established by intraabdominal study; it is now known that the clinical picture of ulcer of the stomach, of a photographic accuracy such as would deceive the most acute diagnostician, may be due to infection or obstruction in the appendix or other part of the intestinal tract; it is known also that in 70 per cent. of the cases of cancer of the stomach the malignant process originates at the overhanging edge of a long-standing ulcer. An inspection by the surgeon of the abdominal organs during life has shown the internist that his former conception of dyspepsia as a functional or nervous disorder was erroneous and that in almost every case there is some real organic change in the stomach itself, or, more often, perhaps, in some other of the abdominal organs. Another lesson learned by pathological study *in vivo* is that the belief that gallstones usually or even frequently cause no symptoms is erroneous. The symptoms may not be such as the inexperienced would naturally refer to the gall-bladder, but they are almost invariably present, and "we now know that the earliest symptoms, the 'inaugural symptoms' of cholelithiasis are just as characteristic, just as certainly to be recognized, as those of the later sequels and avoidable complications. And more than this: the very little that was known of cholelithiasis in its clinical aspects has undergone a complete revision, with the result that we are often able to declare not only the presence of stones, but often the position of that which is causing the most serious trouble."

This study of pathology in the living, Moynihan says, has been made possible by three men—Morton, Lister, and Crile; the first introduced ether, the second taught us antisepsis, and the third abolished the pain of abdominal operations. To the latter Moynihan pays a warm tribute of praise. There was formerly, he said, one serious objection to abdominal operations in that they were always followed by more or less pain and shock. Now, the administration of a small dose of morphine and scopolamine before the operation, and the erection of a barrier around the field of operation by means of local anesthetics, so that for the time being no nerve impulses can be conveyed thence to the brain, make it possible to carry out with thoroughness any operative procedure within the abdomen without serious shock and without any intolerable postoperative pain. "We owe this entirely to Crile. The debt of surgery to this most acute, most versatile, and patient investigator was already a heavy one, but I think that to the surgeon of tender heart—and all surgeons surely are tender hearted—his latest work must bring the most profound satisfaction. . . . To the great discoveries of Morton and of Lister this of Crile seems to be the fitting completion."

POLIOMYELITIS AND ITS PERIODICITY.

Poliomyelitis is again knocking at the gate. There are indications that the unerring biennial periodicity of this disease will again become painfully manifest during the present summer. In 1907 New York with its 2,000 cases first felt the widespread ravages of a disease that heretofore had dealt its maiming blows chiefly in sporadic outbreaks. Since that year the arch-enemy of childhood has not been entirely banished from its lurking places. In 1909 and 1911 it again assumed epidemic virulence. This periodic recrudescence is not peculiar to any one locality, but is apparently a worldwide phenomenon. Thus epidemics occurred in Stockholm, Sweden, in 1887, 1895, and 1899; in Göteborg, Sweden, in 1903; in Sweden generally in 1905, when Wickman made his classical study of 1,025 cases; in New York in 1907, 1909, and 1911; in Steiermark, Austria, in 1909, and in Germany in 1909. Smaller epidemics have been reported from different places during the intervening years, but an examination of the above dates will show that although in the earlier years, beginning with 1887, there are gaps in the periodic repetition, nevertheless the disease returned with a rhythmic precision that cannot be regarded as accidental. There is a law governing the epidemiology of infantile paralysis, analogous to that controlling the periodic outbreaks of measles, scarlet fever, and meningitis.

The epidemic of poliomyelitis that prevailed in New York during the fall of 1911 strikingly illustrated one fact which has been observed in other epidemics and in other parts of the world, namely, that localities in a given city that are visited by the disease during one epidemic are practically spared when the disease returns two years later. A plausible explanation of this phenomenon is the hypothesis that the population in general in a given neighborhood during an epidemic acquire a relative and partial immunity, which protects the individuals and particularly the children during the next epidemic, which is compelled to expend its virulence on adjacent districts.

Poliomyelitis has been regarded as a disease of hot weather. But there is no direct correspondence between the height and persistence of the atmospheric temperature and the prevalence of the disease. For example, in the 1911 epidemic in Brooklyn the largest number of cases occurred during the month of September when the weather was fairly cool, and cases continued to be reported until early winter. In 1910, during an outbreak of poliomyelitis in Bristol, England, there was noted at the same time an unusual prevalence of typhoid fever. No such correspondence was to be observed in the last New York outbreak. Thus, whereas typhoid fever and diarrheal diseases reached their climax in August, poliomyelitis did not attain its maximum until September.

With the knowledge that poliomyelitis has followed a definite law of periodicity, one should be able to predict and to be prepared for future epidemics and more particularly for an impending one. There are signs, as stated above, that one is on its way. The Public Health Service reports for June the presence of 3 cases in New Jersey, 2 in Iowa, 2 in Michigan, 2 in Minnesota, 11 in Virginia, 5 in Ohio, 1 in Massachusetts, 2 in Wisconsin, and 1 in Louisiana. In the week ending July 12 1 case was reported in California. It is to be hoped that public health authorities will be alert to see that all cases of this disease are reported. Physicians in general should bear in mind the possibility of poliomyelitis in the presence of an obscure febrile illness in a child, even before the onset of paralysis, particularly if hyperesthesia and profuse sweating form part of the clinical picture.

ORGANOTHERAPY.

The physician is a hopeful creature, full of confidence in the future of the healing art, but just by reason of this somewhat prone to let his imagination outrun his judgment. He is apt to be sceptical as to the value of a new mode of treatment, but once this method has been shown to be really efficacious in the case of one disease he gives rein to his faculty of generalization and often overestimates the worth of the remedy and its scope of therapeutic activity. Thus, when the curative and prophylactic virtue of diphtheria antitoxin was demonstrated it was believed that the final victory over infectious diseases of whatever nature was in sight. Two decades have passed and infectious diseases are still with us. So again, when nearly a quarter of a century ago, George R. Murray cured a woman suffering from myxedema by means of an extract of the thyroid gland of a sheep, the belief spread that defects in any gland or organ might be compensated by feeding with the corresponding toxin from a sheep, an ox, or a pig. The animal extracts had a wide vogue for a time, but the hope of the medical profession in their universal applicability has not been realized.

Dr. Murray, to whom with Sir Victor Horsley, we owe the beginning of thyroid therapy, delivered the Address in Medicine at the meeting of the British Medical Association in Brighton, taking as his subject "Some Aspects of Internal Secretion in Disease." In this address, for an advance copy of which we are indebted to the *British Medical Journal*, Dr. Murray reviewed the progress made in our knowledge of the ductless glands and in the therapeutic application of their secretions and of those of other glands which have dual functions. It is not very encouraging to be reminded of the extremely limited application of this therapeutic method. The only really brilliant successes have been obtained in the thyroid treatment of myxedema and cretinism, for the results of the administration of parathyroid and pituitary extracts are very uncertain, and wonderful indeed as is the action of adrenal extract and invaluable as it is in medicine, its therapeutic value in Addison's disease is practically nil.

Returning to the use of thyroid extract in myxedema, it is of interest to learn that Dr. Murray's first patient with myxedema treated by thyroid extract is still alive and well, complete absence of myxedematous symptoms being maintained by a dose of 10 minims of liquid thyroid extract six days in the week, or 6½ ounces in the course of the year. Less than an imperial gallon of thyroid extract has therefore kept her in health for twenty-two years.

Notwithstanding the only partial success of organotherapy, as reviewed in this address, Dr. Murray is bravely hopeful of the future. "What we most desire," he says, "is to find satisfactory means by which we can supplement deficient secretion on the one hand and control harmful overactivity on the other. We have seen how far these objects have been attained in some cases. It is dangerous to attempt to forecast future possibilities, but it is not unreasonable to hope that in the light of further knowledge it may be possible to adequately supplement suprarenal insufficiency and so relieve the symptoms of Addison's disease. The treatment of Graves' disease and acromegaly will become more satisfactory as we acquire more adequate methods of checking the abnormal flow of secretion, when it is to be hoped that surgical measures will become unnecessary. Pancreatic diabetes may also prove to be more amenable to treatment by methods at present beyond our reach. Clinical medicine has already gained enormously from results obtained by experimental pathology, and we may look to the future with confidence for still further advances which will place more simple and efficient methods of treatment within our reach."

SANITARY RETROGRESSION.

After years of patient labors, finally culminating in an almost universal realization of the sanitary disadvantages of an atmosphere adulterated by smoke or other noxious matters, the decision of a lower court in New York declaring the smoke ordinanace of the Board of Health unconstitutional because too sweeping in its terms, and an unreasonable exercise of the police power of the State, because such conditions become necessary for the proper enjoyment of property in civilized communities, is, indeed, very discouraging. On the other hand nothing but such a radical decision can fully arouse the public, which has now been educated to a taste for better sanitary conditions, to their danger if this decision goes unchallenged. From this standpoint the decision is fortunate, since it affords the health authorities an opportunity to investigate more thoroughly the ill effects of a smoke-ladened atmosphere on the health of the community, and the best methods of remedying this evil, and then to formulate definite laws on the subject, covering every detail. At least on technical grounds, then, for lack of specificity, these ordinances cannot be attacked. Up to the present time no very definite laws could be framed because the question did not come up as strongly as other matters, though it was obvious to every one, layman or sanitarian, that so unnatural a condition as an adulterated atmosphere could not be anything else than harmful, depending in degree only upon the magnitude of the adulteration. Why make laws against food adulteration, in the consumption of which there is at least some choice, when air adulteration is allowed to go unmolested?

More recently, however, a great deal of material has come out on this subject, placing the knowledge on a more definite and scientific basis. It has been found that not only is plant life inhibited thereby, but that infant mortality as well as the general mortality has been heightened in the industrial centers where smoke-filled air is the rule rather than the exception. The mere fact that property cannot be enjoyed without defiling the air is hardly a sufficient defense, since civilization now understands that the enjoyment of life is the one all-important aim.

Surgeon J. B. Stoner of the U. S. Public Health Service, writing in the April, 1913, issue of *The Military Surgeon*, gives an interesting review of the subject of smoke nuisances. He points out the ill effects of a smoke-filled atmosphere upon the mental as well as the physical health of the community. Catarrhal affections, with their train of sequelæ, especially tuberculosis, are increased. The general efficiency of a community is appreciably lowered under these conditions, and the expense to the community in the increase of death and disease far overbalances any gain to the industries from the methods causing this condition.

These are tangible effects and well worth considering before putting the use of private property above the health of the community. Besides, the use of smoke-consuming devices would greatly lessen the nuisance; and since dense smoke is also a sign of imperfect combustion, more scientific stoking should be used. The greater cost of hard coal as a fuel, while an item in the industries, cannot be considered to the detriment of the health of the community, when the tendency now is to put even the convenience of the public ahead of all monetary or industrial advantages. The use of oil as a fuel,

which is now rapidly replacing other materials, will of itself solve this question, but until then the industries which must smoke should take themselves outside of the large cities.

Open-Air Schools for Healthy Children.

An interesting experiment was made last year in one of the public schools of Philadelphia in order to determine what advantage, if any, there was to the normal, not tuberculous or near-tuberculous, child in an open-air school life. Two rooms were selected having each about the same number of children of the same grade and age, of the same social standing, and living under similar home conditions. In one room the windows were kept widely opened, top and bottom, and the artificial heat was shut off except when the temperature fell below 50° F. The other room was ventilated and heated in the usual way and the windows were kept closed on most days. In the room with open windows the children wore extra wraps and had frequent drills and exercises. Dr. Walter W. Roach, the medical inspector, by whom the experiment was made (*American Journal of Public Health*, Vol. III, No. 2), found at the end of the school year that the pupils in the closed-window room had gained an average of one pound in weight, while those in the open-window room had gained two pounds. The latter kept wholly free from colds, were quicker to learn, more alert, needed less review work, were better behaved, and were more regular in attendance. The superiority of the children in this room was so noticeable, not only to the medical inspector but to the visiting school board, that the latter authorized the establishment of open-window classes in several other Philadelphia schools. It will be interesting to know the result of this second year's trial of the fresh-air school for healthy children.

News of the Week.

Reorganization at Tulane.—As a result of recent adjustments at Tulane University, New Orleans, announcement was made on July 14 that the medical department had been reorganized and would be known henceforth as the Tulane College of Medicine, consisting of four schools, each with a separate dean and staff. The four schools are the School of Medicine and Pharmacy, Dr. Isadore Dyer, Dean; the Post-Graduate School, Dr. Charles Chassaignac, Dean; the School of Hygiene and Tropical Medicine, Dr. Creighton Wellman, Dean; and the School of Dentistry, Dr. Andrew G. Friedrichs, Dean.

Examination Announcement.—An examination of applicants for appointment as Assistant Director of Educational Hygiene in the schools of the City of New York will be conducted by the Board of Examiners on Monday, September 29, 1913, at 9 A.M., at the Hall of the Board of Education, Park Avenue and 59th Street, Manhattan. Applicants must be of good moral character, graduates of medical schools recognized by the Regents of the University of the State of New York, and with one year of specialized experience in pediatrics. The present salary schedule for the position is as follows: First year, $2,500, with an annual increase of $100 until the maximum of $3,000 is reached, which shall be the salary for the sixth and succeeding years. Further details may be obtained upon application to Dr. William H. Maxwell, City Superintendent of Schools, Department of Education, New York.

Death Rate in New York.—For the week ending July 19, 1913, the death rate in New York City was 12.14 per thousand, representing a total of 1,250 deaths, as compared with a rate of 13.20 and a total of 1,309 for the corresponding week of last year. There was a considerable decrease in the infant mortality, the number of deaths of infants under one year of age totaling only 259, as compared with 328 for last year.

Mme. Curie's Plans.—The report that Mme. Curie intended to abandon her work in Paris and undertake the direction of an institute for work along her present lines in Warsaw has been denied. Mme. Curie states that the organization of the laboratory at Warsaw, her native town, will occupy her only during her vacation period, and that in the fall she will resume work at the Sorbonne.

The Parasite of Oroya Fever.—It is announced in the *Boston Medical and Surgical Journal* that Dr. R. P. Strong and his associates from the Harvard department of tropical medicine, now at work in Peru, have discovered the parasite of Oroya fever in the presence of minute intracorpuscular bodies in the red blood cells. These bodies have been previously observed, but their nature had not been proved. It is probable that they belong to the genus *Theileria*. The importance of this discovery is enhanced by the announcement that Oroya fever is a distinct disease from verruga peruviana, and not merely a severe initial fever of the latter, as has been generally held. Of general interest to parasitologists is the discovery that *Theileria* has been found pathogenic for man.

Marriage Reform Laws.—The State Legislature of Wisconsin has taken a radical stand on the question of the regulation of marriage and of the safeguarding of the race, and recently passed a bill making the granting of a health certificate a necessary requirement to the issue of a marriage license. Another bill passed in the closing hours of the session provides for the sterilization of criminal, insane, feeble-minded, and epileptic persons confined in State institutions.

Governor Tener of Pennsylvania on July 24 signed a bill passed by the Legislature, which provides that marriage licenses shall in future be issued only to those able to show that they are exempt from transmissible disease. Also such licenses will not be issued to imbeciles, epileptics, those of unsound mind or to a man who within a period of five years has been an inmate of a home for indigent persons unless he can show that he is physically able to provide support for a family. Furthermore, a marriage license may not be issued if at the time of application either of the contracting parties is under the influence of liquor or any drug.

Bequests to Charities.—The Hospital of the Protestant Episcopal Church of Philadelphia receives a bequest of $5,000 under the will of the late Rev. Dr. L. T. Chamberlain, to be used for the endowment of a bed in memory of his wife.

By the will of the late Rev. Leander Trowbridge Chamberlin, of New York, the sum of $5,000 is bequeathed to the Hospital of the Protestant Episcopal Church of Philadelphia for the endowment of a free bed.

By the will of the late Catharine H. Craig of Philadelphia the sum of $2,000 is bequeathed to the Children's Ward of the Presbyterian Hospital of that city.

A bequest of $6,748 will be paid to the New York Orthopedic Hospital under the will of the late Mr. O. E. Schmidt of New York.

By the will of the late Francis Way Smith of Philadelphia the sum of $47,000 is bequeathed to the Seaside Home for Children at Atlantic City, and the sum of $6,000 to the Chelsea Home for Children at Philadelphia.

The Thomas Morgan Rotch, Jr., Memorial Hospital for Infants, Boston, receives a bequest of $10,000 under the will of the late Mr. Charles D. Sias of that city.

Prof. A. von Wassermann of Berlin has been appointed director of the Kaiser Wilhelm-Gesellschaft für experimentelle Therapie at Dahlem, which was founded recently by the Kaiser Wilhelm-Gesellschaft zur Förderung der Wissenschaften.

Ophthalmic Institute.—The New York Ophthalmic and Aural Institute, now at 44 and 46 East 12th Street, which was founded by Dr. Herman Knapp in 1869, will move to its new building at Tenth Avenue and 57th Street on October 1, 1913. The new hospital building is a seven-story structure, especially planned for the treatment of diseases of the eye.

Washington State Medical Association.—At the annual meeting held on July 14 to 16 in Everett, the following officers were elected: *President-elect,* Dr. C. W. Sharples, Seattle; *President,* Dr. Cornelius J. Lynch, North Yakima; *Vice-Presidents,* Dr. J. R. Brown, Tacoma, and Dr. John Palmer, Seattle; *Secretary-Treasurer,* Dr. C. H. Thompson, Seattle. The next convention will be held in North Yakima.

Obituary Notes.—Dr. Samuel Blume of Riverhead, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1867, and a member of the New York State and Suffolk County Medical Societies, died at Baker, Ore., on July 18, aged 68 years.

Dr. William Floyd Randall of Dushort, Pa., lost his life on July 16 as a result of injuries received in an effort to save a laborer who had fallen into a well and been overcome by gas. Dr. Randall was a graduate of the Baltimore University School of Medicine in the class of 1890 and of Jefferson Medical College in the class of 1892. He was a member of the Sullivan County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. Jerrold D. Ball, of Toronto, Ont., a graduate of the Toronto School of Medicine in 1874, died at his home on July 5, aged 67 years.

Dr. Charles S. Penfield of Spokane, Wash., a graduate of the Hahnemann Medical College and Hospital of Chicago in 1880, and a member of the Washington State and Spokane County Medical Societies, died at his home suddenly on July 7, aged 56 years.

Dr. Thomas Wilson Monroe of Milford, Mass., died at his home, after a long illness, on July 10, aged 67 years.

Dr. George T. Kimball of Kenosha, Wis., a graduate of the University of Pennsylvania Medical Department, in 1881, and a member of the American Medical Association and the Wisconsin State and Kenosha County Medical Societies, died suddenly of paralysis, on July 10, aged 55 years.

Dr. Abraham P. Frick of Aransas Pass, Tex., a graduate of the University of Pennsylvania, Medical Department, in 1861, died at his home on July 11.

Dr. William Taussig of St. Louis, Mo., a graduate of the University of Prague in 1844 and of the St. Louis School of Medicine in 1850, died at his home, from pneumonia, on July 10, aged 87 years.

Dr. Harry Daniel Abbott of Danvers, Mass., a graduate of Tufts College Medical School, Boston, in 1904, and a member of the American Medical Association and the Massachusetts State and Essex County Medical Societies, died at his home on July 16, aged 33 years.

Dr. Charles Reed Pratt of Bridgeport, Conn., a graduate of the Yale University Medical Department, New Haven, in 1905, and a member of the Connecticut State and Fairfield County Medical Societies, died at his home after a short illness from malignant endocarditis, on July 15, aged 34 years.

Dr. Charles McAllister of Spencer, Iowa, a graduate of the Berkshire Medical College, Pittsfield, Mass., in 1865, and a member of the American Medical Association and the Iowa State and Clay County Medical Societies, died at his home in South Lee suddenly, on July 20, aged 73 years.

Correspondence.

RÖNTGENOSCOPIC EXAMINATION IN GASTRIC DISEASE.

To the Editor of the Medical Record:

Sir:—It is to be hoped that many more clinicians will follow, in a way, the example of Dr. John Dudley Dunham, in regularly submitting their patients with gastrointestinal symptoms to Röntgenologic examination (Medical Record, June 14, 1913). I am sure, however, that a wide experience with expertly made Röntgenologic examinations will finally lead to conclusions very different from some of those which Dr. Dunham has so far formed.

The experience of our German confrères, who have made such an extensive research in this department, as well as that of several skilled American Röntgenologists, has led them to place great reliance upon this method; my own experience, while greatly limited as compared to that of many others, is such that I am thoroughly convinced of the exceeding value and importance of Röntgenology here.

Dr. Dunham places so much emphasis upon the fluoroscopic method as the one to be employed, that his attitude as formulated in his conclusions cannot be regarded as entirely justifiable, at least in the opinion of those who are fully familiar with gastric Röntgenology. Fluoroscopy is of a certain value here, but my own opinion, and I believe this will be coincided in by the majority of Röntgenologists, is, that fluoroscopy is decidedly secondary in importance to the method of serial Röntgenography, especially after the technique of Holtzknecht and Haudek. For one thing, it is impossible to make an accurate tracing of a fluoroscopic image of the stomach; while one is making a line six inches in length upon one side of the stomach, the organ has completely changed its outline on the other side by reason of peristalsis.

A series of "moment Röntgenograms," however, presents an exact outline. From these one can

study at leisure the appearances presented, consider the whole field shown, and assimilate the relationships existing between things seen in different parts of the fields; this cannot be done during fluoroscopy; the eye which is fixed upon the peristalsis of the body of the stomach does not see what is going on in the duodenum, or at the ileo-coecal junction; if I had to choose between the two expedients, I would unhesitatingly cast out fluoroscopy in favor of serial Röntgenography. The very nature of the fluoroscopic examination; its fleeting duration; the fact that so many different movements are going on at once in different areas; the impossibility of taking in and correlating the appearances in different and distant parts of the field, all render this method incomplete as a diagnostic procedure, even in the hands of the experienced Röntgenologist; the clinician cannot give the time to educate himself in gastric Röntgenology if he is busy enough to have a use for it, and he will find himself unable to devote the required time to the art itself if he attempts to carry out the procedures thoroughly.

I would change Dr. Dunham's conclusion No. 9 to read: "The *worst* results in gastric diagnosis will be attained when the clinician himself employs the fluoroscopic examination as one of his own clinical methods."

G. H. Stover, M.D.

Denver, Col.

LUNAR CEREBRATIONS.

To the Editor of Medical Record:

Sir:—I was very glad to see an article by Dr. C. P. Oberndorf in the July 5 Medical Record inasmuch as it mentioned the full moon in relation to certain human phenomena.

Some time ago this seemed so ancient an expression that the editor of the Medical Record declined with thanks some lunar observations made by me in relation to menstruation and labor. The article was sent to several editors, but they would not permit pale Cynthia to enlighten their readers. She would have told them not to expect confinements at the time of the full moon, but for gynecological examinations, unless there is need of haste, to select the period of the full moon as giving surety that the patient would be free of menstruation. Not that the moon produces effects more than the clock produces time. In this connection an ancient writer wrote: "The moon is an excellent clock, if not the cause of many surprising occurrences, it gives a just indication of them." There are probably certain electrical conditions which are coincident with the phases of the moon. It is certain that when it is full all human creation is more or less stimulated. The woman appears more so than the man. She is the first to notice the full moon. It is probable that in cases of great illnesses the vital spark is more apt to be retained at that time, so that we can sometimes gain credit for prognosis within limitations at that time. The full moon is the time for courtship and marriage, and Easter, and the most ancient celebrations and saturnalia were set at that time. There was a sexual cause for this. The majority of women were and are free of menstruation at that time, so that they were free to enjoy themselves by the light of the moon. The period of the dark moon is one of more or less depression. It is most frequently at such a time that we read of suicides.

Thos. R. Evans, M.D.

Fayette, W. Va.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HOSPITALS AMALGAMATING—ANOTHER HOSPITAL DISSENSION—ROYAL SANITARY INSTITUTE—INSURANCE ACT, FIRST REPORT AND CRITICISMS ON ITS WORKING—RED CROSS AND QUEEN ALEXANDRA.

London, July 11, 1913.

Two of the London hospitals which have schools attached are about to amalgamate, sell their sites, which have increased enormously in value, and erect a joint hospital in a neighborhood where they will probably be more useful. They are St. George's and the Westminster. St. George's occupies a site at Hyde Park Corner, now the center of a most fashionable district, though when first opened it was near a poor, overcrowded part whence many patients came, but that has been completely transformed. Yesterday a special court of the governors agreed to accept an offer made of £460,000. This with the amount expected to be realized by the Westminster's site will enable a joint hospital to be built on a site of eight acres offered and have a considerable amount of their investment funds untouched. Possession may be retained for two years while building their new hospital. From a financial point of view the transfer seems a beneficial one, as it certainly would be for the poor for whom the hospitals are maintained. Resolutions empowering the committee to carry out the sale and amalgamation were passed *nem. con.* It is said that a fine modern hotel will be built on the site.

I told you last week about the trouble at St. John's Hospital for Skin Diseases. This week a similar one has been made public concerning Mount Vernon Hospital for Consumption with its branch or sanatorium at Northwood. Again the lay managers have dismissed two of their physicians not only without consulting the medical board but in direct opposition to it. This seems the immediate grievance though others are alleged. The other members of the staff, consulting and active, have sent in a joint letter resigning their appointments as from the 20th of July next. Report says that the committee meant to replace the two physicians they dismissed by two others who are known. Of course the dismissal is illegal and after the judgment in the other case the committee must see that and ought not to waste public money in another appeal to the law courts. The committee refused to meet the Medical Board in a conference respecting the above named and other questions.

The Royal Sanitary Institute's annual congress was opened on Monday at Exeter where about 1,000 experts and persons interested in hygiene attended. The Mayor of Exeter gave an official reception and Earl Fortescue delivered his presidential address in the evening. He dealt with the question of rural housing and the responsibilities of county authorities for sanitary defects. He combated the notion that bad cottages were the cause of migration to the towns—a movement so marked 500 years ago that an act was passed to check it. The self-same exodus was observable in Europe, America, and the antipodes. It was the landowner's business to build cottages for his laborers and the majority did so. But it seemed nobody's business to house the other villagers who worked for the community at large. Cost was at the root of the problem. If the combined wisdom of scientists and hygiene experts could devise cheaper materials and methods of building cottages healthy as well as cheap they would add one more

to the many obligations already owed to them by the public.

On the second day Dr. Wynter Blyth gave an address on Immunity, after which Dr. E. Latham read a paper in which he pointed out how far we are from the results which were promised from the Insurance Act and the establishment of the Sanatorium system. He thought it very doubtful whether any progress had taken place during the past year with regard to tuberculosis. The sanatorium benefit in London was in a state of hopeless muddle. He gave instances from his patients in St. George's Hospital—one he had to keep in St. George's from December to June waiting for steps to be taken in spite of repeated applications to the Insurance Committee; another was kept four months before receiving the benefit provided by the Act. They were told that thousands were in the sanatoria—an answer which might satisfy politicians but not men who knew what sanatorium treatment was. The net result was that the so-called benefit was Poor Law medical relief under another name. One reason for so deplorable a state of things was the employment of administrative officers and advisers to the committees and in many cases committing the treatment to men with no special experience of the disease. Still he would not despair that some orderly scheme might be evolved.

Dr. Boobbyer, of Nottingham, said his experience was that patients in the sanatoria regarded themselves as State prisoners on a holiday and all work as an evil to be avoided. So far, too, patients had been kept for too short periods to be of use.

Dr. Sandilands, of Kensington, blamed misguided public opinion leading to wholesale admissions and exhaustion of funds. Dr. Macfie, tuberculosis officer of Essex County Council, said that the only way of dealing effectively with the disease was domiciliary visitation and examination of every certified case.

The first report of the National Insurance Act, Part I (Health Department), has appeared in the form of a bulky blue-book of 700 pages. It is crowded with statistics relating to the approved societies, trade unions, deposit contributors and other persons. Up to the end of May last the amount paid to societies was £3,934,042. Of this more than £3,600,000 was paid to them in advance. An account of the normal work of an Insurance Committee is given from which it seems that the administration of sanatorium benefit is growing rapidly. Claims coming in each day are registered and a visit from the tuberculosis officer arranged after which applicants are informed whether they are recommended for treatment, doctors are notified of those who are to have domiciliary benefit and traveling managements made for those who are to go to sanatoria. Details are also given respecting the entrance of doctors on the panel and the keeping and correcting the list of these gentlemen.

During the first four months after July 15 last year, 2,865 applicants received sanatorium benefit. By April 30 this year the number had increased to 7,464 of those who were or had been in institutions, while 2,167 were treated through dispensaries, and 4,993 at home. The cost chargeable to the sanatorium benefit fund (excluding administration of the benefit) on April 30 was £122,123. At present in England alone over 200 residential institutions have been approved for the reception of insured persons and their dependents, providing for about 8,000 cases, and 189 dispensaries have also been approved.

The agreements with doctors for the panel were at first for three months, at the expiration of which nearly all were voluntarily continued. It is estimated that between 80 and 90 per cent. of the doctors in industrial practice are available for the insured population.

A conference of approved societies was held last week when the president said though the Act was imperfect it was too early to commend it. But some of the proposed changes were excellent; *e.g.* a six-month's card instead of the present was not only desirable but necessary. But to make the Act compulsory "would both mend and end it."

The issue of this report has excited criticism of many of the managements and restatement of various complaints, some of them involving the panel doctors. The Stepney medical health officer says that 90 per cent. of those certified for sanatorium did not apply for the benefit. Inquiring into this he found that they were required to go to the West of London to be examined and thereby lost a day's pay, no arrangement being made to admit in the evening. Further they were required to produce their insurance cards which were kept by the employer. To ask for it excited suspicion, and if the reason were stated many employees objected to employ consumptives. Some cases, too, were not fit to leave their homes, much less travel across London. The sub-committee, which considers complaints against panel doctors, has dealt with several unimportant cases and reported them groundless. In a case of one practitioner about whom a number of charges of neglect were made he was advised to arrange to transfer his list to a neighboring panel doctor. In another a severe reprimand was passed notifying that any other charge if substantiated would be reported to the commissioners with a recommendation to remove him from the panel.

A Committee of the General Medical Council has had under consideration some of the complaints that have been brought under the notice of the Insurance Commission by Sir D. MacAlister (President of the Council). The most important is the charge that practitioners have been required to furnish certificates not only of incapacitating illness but of its exact nature. That the council say would involve a breach of confidence. So obvious is this that Sir R. Morant, replying for the Commission, says no instance of such a demand has come to his knowledge. The misconception arises from the fact that some societies make such a condition with their members and certificates of the kind are of course at the discretion of the members holding them so that breach of confidence cannot occur. He adds that probably the societies would assent to a uniform wording showing the certificate to be confidential. It is thus seen desirable that the doctors should combine to press on the societies a reasonable solution.

On Monday a meeting in London decided to form an association of nonpanel doctors, who will accept no service under the act unless the following amendments are made: Free choice of doctor, an income limit, no section to be in a permanent majority on any insurance committee. There are local nonpanel societies in several districts, and it is hoped the London medical committee will act as a co-ordinating central body.

The Hearts of Oak Benefit Society's council has

protested against Mr. Lloyd George's "misleading statement" that his amending bill had been drafted after consultation with the Friendly Societies. They had had no invitation, direct or indirect, and anyone attending such consultation, "if it were held, had no authority to speak for Friendly Societies in general."

The movement for opening "tuberculosis dispensaries" in many districts is making some progress. A meeting was called at Lady Robert Cecil's house in support of one in St. Marylebone, of which the Mayor expressed approval and Dr. Squire pointed out that poverty—one cause—prevailed in some part of the district. Dr. Halliday Sutherland said the Edinburgh system was a result of voluntary effort, whereas the state "had created a howling wilderness" of legislative enactments. In Chelsea the advocates of the system seem to have formed a league for its promotion and they secured the presence of Princess Marie-Louise of Schleswig Holstein at a drawing-room meeting in its support. At this Drs. Cunnie McCall, McKeith, and Camac Wilkinson spoke. The last-named said he was chairman and director of the league and declared himself responsible for the introduction to London of a special form of treatment. It is said this is a modification of the method of using tuberculin. It is to be hoped we are not to be troubled with claims for recognition of every deviation of usage or repetition as a specialty.

There was a baby show in East London last week, where Dr. Carter, who judged the infants, reported a deterioration from last year's show. Of fifty-five babies forty-four were naturally fed by their mothers; twelve per cent. below last year's figure. He had noticed in another part of London the same depreciation, where 1,000 had been shown, and he attributed it to the "national calamity under which they lived—he meant the Insurance Act." When the fathers could not get their cards stamped the mothers had to go to work and leave the children unattended.

Queen Alexandra on Tuesday presented the British Red Cross badge to the medical men, nurses, and orderlies who had voluntarily gone to the Balkans during the recent war there and established hospitals for the wounded in the several countries.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 17, 1913.

1. Certain Features of the Work of the Late J. Hughlings Jackson of London. J. J. Putnam.
2. Addison's Disease: Clinical and Pathological Observations. G. M. Piersol.
3. A Preliminary Note of the Experimental Production of Gastric Ulcers by the Intravenous Injection of Clumped Colon Bacilli. E. C. Steinharter.
4. The End Results of Operative Treatment in 33 Cases of Spastic Paralysis. H. E. Harris.
5. A Study of 179 Cases of Endocarditis in Children at the Massachusetts General Hospital; with Special Reference to the Treatment of Acute Endocarditis. L. W. Gilbert.
6. Fracture of the Carpal Scaphoid in Childhood and Adolescence. W. P. Coues.
7. An Unusual Case of Fracture of the Patella (Treated by Immobilization). D. P. Penhallow.

2. **Addison's Disease.**—G. M. Piersol reports four cases of this condition. He states that the most frequent pathological change noted in the suprarenal capsules in this condition is tuberculosis. Other lesions observed in these organs are simple and inflammatory atrophy, carcinoma, sarcoma, melanotic tumors, hypernephroma, and even gumma and echinococcus disease. Necrosis such as was observed in one of the author's cases is not mentioned as a usual adrenal lesion. It is interesting in connection with the chromaffin theory to recall that the lesions in this case involved chiefly the medulla. It is pointed out that there exists a form of Addison's disease apparently dependent upon a primary atrophy of both the adrenals, in which there is an absence of pathological processes in other organs. In this condition the true adrenal tissue has almost entirely disappeared and the glands are converted into thin parchment-like structures. This form of the disease has been investigated by several observers and is emphasized by Strümpell, who regards it as the only true primary type of Addison's disease. It is possible, therefore, that it is incorrect to consider such cases as have been described by the author as Addison's disease, and that one should look upon them merely as examples of a secondary symptom-complex resulting from accidental adrenal involvement.

3. **Experimental Production of Gastric and Duodenal Ulcers.**—E. C. Steinharter points out that many facts suggest the theory that the colon bacillus is in some way causally related to the production of gastric ulcer in man. Up to the present time, however, although numerous experiments have been made by many investigators, no etiological connection could be established. It has long been known that an emulsion of colon bacilli in the presence of free hydrogen ions is agglutinated in from one to four hours when incubated at the body temperature. Gastric juice of high acidity possesses this agglutinating power. It occurred to the author to investigate the results of injecting intravenously emulsions of clumped colon bacilli. Active strains of colon bacilli in broth emulsion were accordingly agglutinated with weak solutions of acetic acid and hydrochloric acid. In some of the experiments a weak alkali was added. When 2 c.c. to 3 c.c. of such an emulsion were injected into the ear vein of rabbits, such an injection was uniformly followed by the formation of a gastric or duodenal ulcer within 24 hours.

4. **Operative Treatment of Spastic Paralysis.**—H. E. Harris, generalizing from his observations, concludes that excellent results have followed subcutaneous tenotomies, whether they were zigzag or otherwise, and this has an important bearing on the question as to whether there is danger of permanent and undesirable lengthening of the tendo-achillis after free division; such conditions were especially looked for in the 22 cases discussed and none were noted. It would seem, therefore, that the open operation is not at all necessary. It also seems that alcoholic injections have not in the cases reported prevented the return of spastic contractures. Children who have not taken a step, have been able to walk as a result of simple division or resection of the adductors and hamstrings, and apparently much can be expected from the Tubby procedure of transferring the pronator radii teres to work as a supinator. Although the operative procedure may be that properly suited to the individual case, it has also been shown that without careful after-treatment and the long-continued after-use of plaster and apparatus the various operations are likely to be of little use.

5. **Endocarditis in Children.**—L. W. Gilbert believes that acute endocarditis should be considered as acute over a much longer period than has been the custom. Treatment should be carried out for months and perhaps years, until all possible signs of acute disease have disappeared, and even then, until adolescence is passed, at least a certain amount of restraint should be exercised.

6. **Fracture of the Carpal Scaphoid.**—W. P. Coues notes that fracture of the carpal scaphoid in childhood or young adolescents is one of the rarest of injuries. The developmental conditions of bone about the wrist at these ages are probably largely responsible for this. When children receive injuries to the wrist the possibility of this fracture must be thought of. Particularly is this true in cases where there is no tenderness over the lower end of the radius and ulna but pain and tenderness over the dor-

sum of the hand just distal to the lower end of the radius and in the snuff box. A marked swelling of the dorsum of the hand, stopping abruptly at the radius and ulna, which was present in the author's case, may be of considerable diagnostic importance. A radiograph should always be taken of these injuries and the scaphoid scanned searchingly for possible fracture.

New York Medical Journal.

July 19, 1913.

1. A Case of Dementia Præcox with Autopsy. C. W. Burr.
2. The Internal Secretions as They Concern the Gynecologist. S. W. Bandler.
3. The Faculty of Paris in the Seventeenth Century. F. Baker.
4. The Sense of Smell as an Aid in Diagnosis. R. E. Coughlin.
5. Creating False Motor Paths. M. Strunsky.
6. Tuberculosis in the United States Army. I. W. Brewer.
7. Causes of Crime. P. E. Bowers.
8. Diabetes Mellitus. J. W. Beveridge.
9. Work of Women in Department Stores. Josephine Goldmark.
10. A Suggested Improvement in the Allis Ether Inhaler. N. Du Val Brecht.

2. The Internal Secretions as They Concern the Gynecologist.—S. W. Bandler states that the age at which genital maturity takes place has an important influence on skeletal growth, and early maturity is associated with short legs, for the ovaries elaborate a hormone which stimulates the process of ossification. The effect of late maturity of the ovaries is to increase the height, especially the length of the legs. The element of the ovary which is responsible, directly or through modification of the hypophysis or other gland activity, for the constitutional physical changes which characterize puberty is not known, but some assert that it is possibly the interstitial gland structure. The author next discusses the question of relative and actual amenorrhea, especially when this condition is associated with obesity and occurring, as it often does, many years before the awaited climacterium approaches. It is recognized by all that the ovaries preside over menstruation and exert a trophic influence on the uterus, senile atrophy and lactation atrophy being simply physiological processes due to the cessation of ovarian activity. There is a certain type of case in which menstruation gradually diminishes, the menstrual molimina become less pronounced and the uterus and ovaries smaller; associated with which there is a progressive gain in weight. Little can be done to reduce such patients in weight or to restore their menstrual function. The author characterizes these cases by the term "precocious menopause," and has previously explained them on the basis of an equal and harmonious diminution of function of the thyroid and ovaries. A lowered function of the posterior lobe of the hypophysis, with a coincident disturbance in metabolism, is responsible for the gain in weight and for the ovarian atrophy, and in all probability is in many cases associated with lowered thyroid function. The ovaries bear some relation to certain excessive uterine bleedings. They are, after all, the cause of menstruation, and the vast majority of cases of relative or absolute amenorrhea are due to involvement of the ovaries, directly or through the influence of other glands or certain diseases. Why may one not expect symptoms of the opposite extreme with overfunction on the part of the ovaries, if they produce a congestion or hyperemia of so marked a nature that only slight disturbances in the uterus are necessary to result in menorrhagia or metrorrhagia? In diseases involving the thyroid or hypophysis, inaction on the part of the cilia is regarded as a possible cause of sterility, and the ovary and thyroid or some of the other internal secretions are regarded as possibly responsible. The intimate relation between the ovary and thyroid is such that it is more than probable that changes occurring in the ovaries themselves influence the thyroid to underfunction or to overfunction. These anomalies in thyroid secretion, whether in the way of amount or quality, concern the gynecologist because of the alterations which they produce in the digestive system, in the nervous system, and in the psyche. One is concerned in the climacterium with a progressive failure on the part of the ovaries to produce their normal secretion. Coincidentally, and because of this failure, there occur alterations in other glands in the body, the thyroid being the one most particularly involved.

4. The Sense of Smell in Diagnosis.—R. E. Coughlin points out that the odor about a typhoid fever patient is quite marked, owing to the emanations from the body and the discharges, especially if there be diarrhea. In smallpox there is said to be a peculiar odor, especially during the stage of suppuration, like the odor of sweet potatoes, according to some. In scarlet fever the breath often has a heavy, sweet odor. In diphtheria there is a very characteristic odor about the patient, depending upon the severity of the infection and the extent of the membrane. The odor is fetid, as a rule, when the membrane reaches the back of the nose. In septicemia and pyemia the odor of the breath is foul. In pulmonary tuberculosis there is a characteristic odor about the patient, aside from the odor of the breath. This odor is pungent and emanates from the skin of the patient. It may be perceived on the underclothing after removal from the body. In rheumatic fever there is an acid sour smelling odor from the sweat glands, which is not noticed in any other disease. In diabetes mellitus there may occur the sweet odor of the breath sometimes called "the acetone breath." In ulcerative stomatitis there is a fetid or putrid sore mouth condition, with a very bad odor to the breath, and this is also the case in mercurial stomatitis or ptyalism. In suppurative tonsillitis the odor of the breath is foul, and the odor of the discharge is very characteristic. Dyspepsia in itself may produce a bad odor to the breath, as will any of the toxic conditions affecting the alimentary canal. In cancer of the stomach the vomited matter consists of food and mucus in grayish or dark sour smelling fluid. Children with gastrointestinal conditions have a sour smelling odor about their mouths and bodies. In some appendicitis cases there is the characteristic odor of the discharge, denoting ulcerative gangrenous appendicitis. In severe toxic conditions affecting the peritoneum the odor of the breath is foul, and this condition also obtains in intestinal obstruction. Bronchiectasis is also accompanied by a foul breath; likewise abscess of the lung and empyema. Gangrene of the lung has the distinction of producing the worst odor of all.

6. Tuberculosis in the United States Army.—I. W. Brewer presents statistics which show that for the ten years ending with 1894 the average admission rate in the United States Army for tuberculosis of the lungs was 3.24 in a thousand. There was a decline in the rate until it reached 1.59 in 1896. With the advent of the war with Spain the rate ran up to 3.70, increasing to 4.92 in 1900. By 1903 it had fallen to 3.89, but up to and including 1907 it remained above four in a thousand. In 1908 it fell to 3.81, but there was a slight rise in 1909, followed by a marked fall in 1910, when the rate of 3.12, the lowest since 1896, was reached. During 1911 there was a slight rise.

9. Work of Women in Department Stores.—Josephine Goldmark points out that the New York law provides that women may not be employed in factories more than ten hours in one day and fifty-four hours in one week; but that for adult women in department stores there is no legal limitation of work whatsoever. New York is almost the only great industrial State which thus discriminates against the girls and women in department stores. In twenty States the law governing factories governs employment in department stores also. Three States (California, Colorado and Washington) prohibit more than eight hours' work in one day; other States like

Illinois, Louisiana, Kentucky, Maryland, Michigan, Wisconsin, and even New Jersey, prohibit more than ten hours in one day. New York provides a limit only for girls under twenty-one years; and, since no proof of age is required, this law is practically impossible of enforcement. It is true that girls in department stores are not subjected to the speed, monotony, and complexity of machinery, but the girl behind the counter suffers greatly from the constant standing, continuing at any rush season literally throughout the day. Many girls complain of broken arches and varicose veins. There is also a great nervous strain in being always on one's good behavior, and of an even temper, suiting the tastes and whims of customers. The girl needs the protection of the law as urgently as the factory worker. Injuries to the pelvic organs result from long hours of standing.

Journal of the American Medical Association.

July 19, 1913.

1. The Qualifications of the Surgeon. W. D. Haggard.
2. One Hundred and Seventeen Cases of Infantile Diarrhea Treated by Intestinal Implantation of the Bacillus Lactis Bulgaricus at the Babies' Hospital of the City of New York. R. O. Clock.
3. Skin Diseases Among Full-Blood Indians of Oklahoma. E. S. Lain.
4. Study of the Collateral Circulation in Some Cases of Spontaneous Gangrene of the Foot. J. E. Thompson.
5. Mid-Operative Diagnosis in Urologic Operations. G. Kolischer.
6. Cutaneous Affections of Childhood. A. Schalek.
7. Occlusion of the Posterior Inferior Cerebellar Artery. G. W. Robinson.
8. The Solubility of Lead Silt in Human Gastric Juice and Its Bearing on the Hygiene of the Lead Industries. A. J. Carlson and A. Woeffel.
9. Phenolsulphonephthalein in Estimating the Functional Activity of the Kidneys. A Further Contribution to Its Value. C. Goodman.
10. Carelessness in Pharmacy as a Reason for a Restricted Materia Medica. M. L. Wilbert.
11. A Case of Coccidioidal Granuloma (California Disease). G. R. Carson and W. T. Cummins.
12. Luminal, Its Toxic Effects. With the Report of Two Cases. F. J. Farnell.
13. The Treatment of Anginal Pains. C. L. Greene.
14. Potassium Permanganate as a Local Anesthetic to the Genito-Urinary Mucous Membranes. A Preliminary Communication. W. M. Barton.
15. New Style Drain-Pan for Operating-Table. W. M. Hayes.
16. Simple Electric Attachment for Ophthalmoscope. M. H. Todd.
17. Report of a Case of Hematospermia Due to High Blood-Pressure. Associated with Chronic Interstitial Nephritis. R. B. Scheier.
18. Infant Disemboweled at Birth—Appendectomy Successful. E. N. Reed.

1. Qualifications of the Surgeon.—By W. D. Haggard. (See MEDICAL RECORD, July 5, 1913, page 37.)

3. Skin Diseases Among the Indians.—E. S. Lain points out that the full-blood Indian is not subject to the variety of dermatological lesions found in the white race. Full-blood Indians are almost free from such skin diseases as may be produced or excited by menstrual disorders or an overtaxed nervous system. Though their food is limited in variety and poor in quality, they do not have many of the skin lesions which are ordinarily attributed to such causes. Previous to civilization, baldness was probably unknown among the American Indians. While syphilis is common among the different tribes, it is not as prevalent as is generally believed. Tuberculosis of the lymphnodes, particularly of the cervical region, is very prevalent and might be largely prevented if more prophylactic measures were enforced by the United States Indian Service. The uncivilized Indian apparently is yet free from pellagra and almost immune to cancer. Might we not find in a study of his simple outdoor life, limited foods, the character of his skin, etc., a clue which may lend material aid in the discovery of the etiology and propagation of these diseases among the white races?

4. Collateral Circulation in Gangrene of the Foot.—By J. E. Thompson. (See MEDICAL RECORD, July 5, 1913, page 37.)

6. The Cutaneous Affections of Childhood.—A. Schalek lays down two general rules that should govern the treatment of these conditions. The first is the correction of any causative or aggravating complication. There are only a very few drugs which have any direct action on the skin. Those used for adults, such as arsenic, mercury, iodides, etc., must be used with great caution, partly on account of their general effects, partly because the child's skin is much more liable to drug dermatitis, which might complicate or disguise the original trouble. The drugs usually needed are simple and are indicated by the internal complications. An occasional purge with calomel or some other laxative, an iron tonic, and possibly a diuretic are usually all that is necessary. Antipyretics and opiates should be avoided as much as possible. The second general rule applies to the local management. It should be rather conservative than aggressive. The natural tendency of the skin is to recover to a normal condition if given a chance. Protection of the diseased skin is of the utmost importance. This means avoidance of irritations of whatever nature, exposure to air, water, heat or cold, scratching, the action of physiological and pathological secretions, and old and dried-up applications, etc. The number of the local applications which are necessary is limited. The tender skin of children does not tolerate and does not need any strong and stimulating action. The efficiency of the treatment does not depend so much on the knowledge of a great many different remedies as on the skill to recognize the indications and the proper method of application.

8. Hygiene of the Lead Industries.—A. J. Carlson and A. Woelfel offer two practical suggestions: (1) The lead carbonate is so much more toxic than the lead sulphate that lead workers as well as the state should aim at the elimination of the use of the carbonate in all industries in which this is possible. (2). In addition to taking other prophylactic measures, the lead workers should drink a glass of milk between meals (say, 10 a. m. and 4 p. m.), in order to diminish the chances for any swallowed lead to be dissolved by the free hydrochloric acid of the gastric juice, as in some persons there is a considerable secretion of gastric juice in the empty stomach.

13. The Treatment of Anginal Pains.—C. L. Greene concludes that while recognizing its wide variability, one should assume the unity of pain of cardiac origin and base the therapy on the chief causative factor—the cardiac exhaustion. The wide distribution of cardiac pain in the superficial sensory areas has led to misinterpretation of the lesser degrees of pain of the same origin and, hence, to excessive neglect and diagnostic error. The efficient treatment of cardiac pain in the broader sense resolves itself into the management of an insufficient, overfatigued heart muscle. Mental and physical rest and regulated exercise offer the best means of restoring a proper circulatory balance. A proper valuation of the subjective symptoms of cardiac overstrain, early oversight, and the timely and judicious treatment of cardiac lesions is quite as important as is the early recognition and treatment of tuberculosis.

The Lancet.

July 12, 1913.

1. Observations on the Toxemias of Pregnancy, and on Eugenics from the Obstetric Standpoint. A. Routh.
2. Esophagoscopy, Laryngoscopy, and Bronchoscopy as an Aid to the Detection of Disease and Removal of Foreign Bodies Impacted in the Food and Air Passages. W. Milligan.
3. The Process of Digestion Illustrated by the Action of Stains on the Living Tissues. E. E. Goldmann.
4. The Blood of the Cerebrospinal Fluid in Mumps. A. Feiling.
5. Operation and After-treatment of Fistula in Ano. P. Lockhart Mummery.
6. Graphic Records of Respiratory Paralysis. G. A. Sutherland.
7. A Routine Method of Examination in Gornorrhea in the Male as a Guide to Treatment. F. H. Pickin.
8. Elimination of Errors in the X-Ray Diagnosis of Urinary Calculus. E. W. H. Shenton.

3. The Process of Digestion.—E. E. Goldmann finds that the process of digestion coincides with a cellular reaction which takes place in the connective tissue of the mucous membrane, a reaction having for its principal feature an immense concourse of two kinds of cells, phagocytes capable of being stained during life and acidophile

cells. The author has found a similar reaction in the animal body under the most varied conditions. If, for example, a rat is purposely infected with trichinosis, masses of pyrrol cells and acidophile cells are found in the tissues surrounding the trichinous deposit and even in the trichinous capsules. In the neighboring lymph glands all those changes take place which occur in the cecal glands during digestion. In a prepared specimen of carcinosis of the peritoneum of the mouse, it was seen that the carcinomatous nodules lying in the mesentery are dark blue, whereas the intestine has taken the stain lightly, and microscopical examination proves that there has been a great accumulation of pyrrol cells on and around the carcinomatous nodules, whereas the intestine is almost quite free from these cells. The carcinoma has therefore diverted the pyrrol cells from the intestine and drawn them to itself. This cellular reaction is very similar to and perhaps identical with the one which Schlecht, Schittenhelm, and their co-workers have recently brought about by the parenteral administration to an animal of albumin derived from a different source and by anaphylaxis both in the blood and also locally. All these various conditions have a basis in common—namely, that the organism resists the entrance not only of foreign bodies but also of blood or cells from foreign sources, and when they have entered it may endeavor to convert them respectively into a part of its own fabric or into its own blood and cells.

4. **The Blood and Cerebrospinal Fluid in Mumps.**—A. Feiling reports a case in which a clinical picture strongly suggestive of meningitis was presented, and the clinical diagnosis was supported by the examination of the cerebrospinal fluid. The two together constitute a fairly complete proof of the existence of an inflammatory lesion of the meninges of the brain and spinal cord which undoubtedly followed mumps and for which no other cause could be found. From this case and from the accounts of the other quoted cases the following conclusions seem justifiable: (1) that a lymphocytosis of the cerebrospinal fluid occurs in mumps, when that disease is complicated by meningitis or by lesions affecting the cranial nerves; and (2) that a lymphocytosis has been found in cases of mumps which have presented no clear clinical symptoms of any organic lesion of the nervous system. Finally, from a consideration of the changes found in the blood and cerebrospinal fluid, one is justified in assuming that the virus of mumps excites an inflammatory reaction in the body whose characteristic feature is a great aggregation of lymphocytes.

British Medical Journal.

July 12, 1913.

1. Cancer of the Colon. S. White.
2. Carcinoma of the Prostate Gland: A Study of Thirty-three Cases. R. J. Willan.
3. Surgical Milestones. R. C. Brown.
4. The Defects of the Insurance Act and Their Remedy. W. Stanger.
5. Acute Endocardiitis following Gonorrhea. A. Wilson Gill.
6. Spontaneous Reduction of a Dislocation of the Cervical Vertebræ. W. C. Bentall.
7. A Note on Local Anesthesia. H. S. Souttar.
8. On Dilatation of the Fallopian Tubes for Sterility. T. Hope Lewis.

2. **Carcinoma of the Prostate.**—R. J. Willan presents a study of this subject based upon thirty-three cases. The average duration between the onset of symptoms and the patient seeing a surgeon was fourteen and a half months. The average age was 61. The onset symptom was increased nocturnal frequency of micturition in 40 per cent., and gradual obstruction to urination in 30 per cent. of the cases. Pain was variable and not characteristic. Urinary obstruction was a marked feature—72 per cent. had complete retention, and a further 24 per cent. partial retention. Hematuria was not common; probably 82 per cent. were without bleeding. On rectal examination 70 per cent. showed hard nodules, with fixity of the gland. The average duration of the disease from onset of symptoms to death was twenty-eight months. Young's statistics that 21 per cent. of removed prostates show a malignant tendency cannot be ignored. If these figures are accepted, it is a surgeon's duty to remove the gland by operation immediately it begins to cause symptoms. The risks of the operation then are smaller than the risks should malignancy supervene. The treatment recommended when a diagnosis of carcinoma has been made is as follows: In the absence of residual urine, give a urinary antiseptic, with opium for the pain when necessary. If there is residual urine, begin catheter life, using a large-sized hard catheter; give a urinary antiseptic, with opium if necessary. If there is obstruction, or, if catheter life is intolerable, establish a permanent suprapubic drainage.

3. **Surgical Milestones.**—R. C. Brown describes five important surgical milestones, marked by the years 1836, 1847, 1867, 1892, and 1895. The modern system of nursing had its commencement in 1836. The credit of inaugurating the new order of things belongs to Germany, for it was at Kaiserwerth that the institute for training deaconesses was founded, and it was at this institute that Florence Nightingale acquired the practical knowledge which enabled her afterwards to turn her remarkable gift of organization to such brilliant account. Chloroform was used for the first time in a surgical operation in the Edinburgh Royal infirmary on November 15, 1847. Sir James Simpson made the first experiment with chloroform in his own house on November 4, 1847. In 1867 the antiseptic or aseptic method of treatment was introduced by Lord Lister. In 1882 very valuable information was communicated by Koch in reference to the tubercle bacillus, although its existence had been discovered by Baumgarten a few years previously. The *x*-rays, one of the most important auxiliaries to the surgeon of the present day, were discovered in 1895.

Berliner klinische Wochenschrift.

July 7, 1913.

Serodiagnosis of Pregnancy.—Veit, the old master of obstetrics, having given a brief outline of Abderhalden's methods, expresses himself very favorably on these and analogous resources for the future. The clinic alone must decide their value. We have already had methods for the diagnosis of early pregnancy and Abderhalden's method is simply such another with a good theoretical justification. The entire subject of early pregnancy, whether normal or pathological, must be restudied from this viewpoint. Aschner, one of Veit's assistants, who has recently made elaborate investigations into the serodiagnosis of pregnancy, comes to the following conclusions: The serum of healthy gravidæ reacts positively to the Abderhalden test at all stages. Extrauterine and pathological pregnancies also react positively whenever a living ovum or living placental tissue is present. Serum from healthy nongravidæ invariably reacts negatively. In gynecological affections he found here and there a weakly positive reaction in disturbances of the ovarian function and cancer of the uterus. As yet he cannot say whether these are due to technical errors or to something which militates against the possibility of a universal law. The methods should be investigated with reference to ovarian disturbances (chlorosis) and with disintegration of protein with especial reference to eclampsia. The author would always check the optic with the dialysis procedure.

Dietetics of Cardiac and Vascular Disease.—Vaquez and Cottet conclude their serial article as follows: In the normal condition the daily excretion of water and chlorides must greatly exceed the nocturnal excretion. There is a diurnal polyuria and polychloruria. In subjects with disturbances of the renal functions corresponding to the old clinical type of interstitial nephritis, the nocturnal excre-

tion of chlorides greatly exceeds the diurnal secretion of water and chlorides during the day. There is therefore a nocturnal polyuria, and polychloruria. In persons who have disturbances of circulatory hydraulics, especially cardiac insufficiency, supposing that contracted kidneys do not coexist, the relations of water and chlorides are quite different. More urine is passed at night than during the day, but the differences are not as marked as in kidney disease. There exists a nocturnal polyuria and a diurnal polychloruria. Induced polyuria is often a valuable test in excluding organic disease.

Phylogenetic Significance of Spastic Paralysis.—Foerster, the chief student of spastic paralysis and its surgical treatment appears to believe that these children relapse into an atavistic state, as far as motor activities are concerned. Many comparisons of afflicted children and the anthropoid apes show strong postural resemblances. The positions in the children show marked analogies with the climbing posture of the apes. Thus in both the legs are flexed, feet supinated, toes flexed, abduction of the upper arms, etc., etc. In brief, the innervation current which in spastic paralysis proceeds from the subcortical centers and grey matter of the spine to the muscles, thereby causing the contractures, moves the same muscles which are innervated in the ape in the quiescent climbing posture.

Münchener medizinische Wochenschrift.

July 8, 1913.

Extraction of Foreign Bodies from Children's Lungs.—Sehrt considers the entire subject in a case history. A child had inhaled a portion of a whistle, shown by the *x*-ray to have lodged in a main bronchus. There was not much suffering associated, although it was clearly indicated to remove the object at once. The boy was fragile, six years of age, and without the presence of authority to transfer him from the throat clinic to the surgical wards. Professor Kraske, as surgeon in charge, authorized the author to operate. A tracheotomia superior was first done, and the tracheal mucosa anesthetized with cocaine. Brüning's electroscope was then introduced into the trachea—the patient being under chloroform narcosis—and the foreign body accurately located. Efforts to remove it with Brüning's needle forceps failed. More chloroform and more cocaine were applied. The foreign body was then liberated, and extracted with Pfeiffer's forceps. The question of superior or inferior bronchoscopy is a subject of vivid discussion. Superior bronchoscopy through natural passages must only too often be followed by tracheotomy. The author insists that at the present time, when there is the least suspicion of status thymicolymphaticus or thyroid anomaly, tracheotomy with inferior bronchoscopy should be the method of choice. It is not a question of "operative elegance" in extraction, but of warding off certain causes of death.

Syphilis and Tuberculosis in German Southwest Africa.—Scherer found that in the interior of German Southwest Africa tuberculosis does not exist; but if consumptives do sojourn there the result is unfavorable. A "coast tuberculosis" does not exist. In the strains of aborigines known as Ovambo and Bushmen syphilis has never been diffused to any notable extent. Both syphilis and tuberculosis have been diffused by commerce and travel. Into the German coast the two diseases have been smuggled, syphilis doubtless from the marine ports, tuberculosis from the Cape region.

Relation of Colipyelitis to Fecundity.—Mayer refers chiefly to females as he is using the material of Sellheim's clinic. He appears to have reached no definite conclusions because of the coexistence of other factors. Nevertheless some strong affiliations have been brought out. There is in fact a coli puerperium which may end in various ways, and there is a coli infection starting in the nongravid under a variety of circumstances. These seldom seem to be typical but paradoxical and cropping out most unexpectedly. Because of the presence of the *B. coli* at the vulva, it is advisable to refrain from digital examinations during labor. It is also easy to cause propagation of the *B. coli* upward into the kidney by straining at stool compressing the ureter. Colipyelitis may also simulate peritonitis and cases are known in which the pus in a kidney pelvis has ruptured into the peritoneum. Again the pressure of the diaphragm on a colipyelitis might suggest a pneumonia. In fact, we sometimes have to decide between pneumonia, puerperal fever, appendicitis, and pyelitis. Finally pyelitis in pregnancy may simulate uterine hemorrhage. The general inference is that the occurrence of suppurative pyelitis resulting from colon bacillus infection is inimical to conception and may interfere with the normal course of pregnancy.

Deutsche medizinische Wochenschrift.

July 3, 1913.

Can Cancer Heal Spontaneously?—Theilhaber quotes von Hansemann as stating that two kinds of cancer can heal spontaneously, to wit: chorioepithelioma and epithelioma of the face. Of course, it can be stated that these growths are not true cancer; but it has further been claimed that individual cancers of the uterus have never reappeared after simple means of treatment. In regard to modern teachings the author does not believe in the alleged radium, *x*-ray, and mesothorium treatment as curative; for common sense assures us that of the millions of cancer cells attacked by the rays, by no means all can be influenced. The beneficent influence of the destruction of hosts of cells is doubtless due, not so much to the crippling of tumor cells as to the stimulation of the connective cells. Any arrest of cancer growth he believes to be due to the latter cause which may hinder and sometimes prevent the cancer elements. Very recently C. Müller following out the author's suggestions brought about a cure or arrest of twenty cases of cancer of the breast. All available resources were applied and up to the present time not a single case of relapse was in evidence.

Quinine Ointment and the Prophylaxis of Syphilis.—Schereschewsky refers to the history of this phase of prophylaxis. In 1909 a 40 per cent. quinine ointment had been recommended. The method worked out completely in animal experiment. A series of apes inoculated with syphilis was quickly submitted to quinine ointment frictions before chancre could develop. The results on the whole were very favorable and no specific lesions appeared. The author, making no reference to calomel frictions, expresses his belief that the use of quinine should be of great value in the prevention of venereal diseases in prostitutes, soldiers, etc.

An "Error of Sex."—Zurhelle relates a case which is of interest because of the legal component in fixing the status of the sex of the individual. The subject was a "woman"—with a male habitus—who had been married twice and had been a widow for 5 years. She had never menstruated. Now at the age of 57 she showed more mannish traits than on any previous occasion, including a chin beard. Her hand and wrists were large and bony. The shoulders were masculine, while the genitals showed the ordinary penoscrotal hypospadias. Testicles and epididymi were plainly palpable. There was no evidence of a vagina or of uterus or ovaries. Both her husbands had been very well satisfied with her as wife, perhaps because she was a great worker. There was, of course, no issue nor was any desired. The "woman," on her part, was attracted by womanly females. The constituted authorities pronounced the subject a male legally.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

ELEMENTARY PRINCIPLES OF LIFE INSURANCE.

Adapting the Policy.—(The first part of this contribution appeared in MEDICAL RECORD, July 12.)

Ordinary Life Policies.—In this class the premiums are paid during the entire life of the policyholder and are calculated upon the entire mortality from the age at which the insurance is put into force. This policy is adapted to the individual who wants protection for the whole life at the least possible average annual cost during life. The policyholder receives his portion when the surplus is distributed at stated intervals and may elect to draw the dividend in cash, apply the dividend toward paying the premium, apply the dividend to the purchase of a paid-up addition to the policy, or let the dividend accumulate at the rate of interest assumed by the company in building up its reserve.

When the premiums for at least three full years have been paid, there is a stated loan and cash value. Furthermore, in the event of default of the premium, after the premiums for three full years have been paid, and there is no loan thereon, the policy will usually be automatically continued for the full amount insured, non-participating and without right to loans, for a definite period stated in the policy.

Limited Payment Life Policies.—The premiums are based upon the same data as in the ordinary life, but are arranged so as to be paid within a limited number of years, usually ten, fifteen, or twenty, instead of being distributed through the entire life. At the end of the stated period the policy becomes paid-up: *i.e.* although it still remains in force and the face value will not be paid until death, no more premiums will be called for. The holder of this form of policy has all the privileges that go with the ordinary life policy. He necessarily has to pay a larger premium but is entitled to a correspondingly larger amount of cash or paid-up insurance than in the case of an ordinary life.

This policy enjoys a well-earned popularity, for the holder pays up all his premiums during his younger and active days and may enjoy an ease of mind through the possession of a considerable amount of paid-up insurance for protection purposes on arriving at the age when care and stress should be things of the past.

Endowment Policy.—This policy is for a term of years and the premiums are based upon the mortality of those years, not of the entire life. It is, like the life policy, payable at death but has a further provision that the face amount shall be payable to the insured himself while living, if he survives a certain period, usually stated as either ten, fifteen, or twenty years.

The privileges are similar to those in the life plans with the exception that any additional insurance bought with dividends, or any extended insurance in case of lapse must terminate at the end of the period named in the contract.

This form of policy is suitable for the person who can spare a considerable part of his income for protection purposes and, at the same time, for a safe, sound and conservative investment.

Continuous Instalment or Life Income Policy.—This policy provides for an annual income after the death of the insured for twenty years certain, and for so much longer as the original beneficiary may live.

If the beneficiary dies within the twenty years the income for the remainder of the twenty years will be paid to the person or persons named by the original beneficiary, or one sum equal to the commuted value may be taken if preferred. If the beneficiary dies before the insured, the future premiums are rearranged on the basis of an ordinary life or limited payment life policy, according to form of contract, for an amount of insurance equal to the value of the life income policy or one sum equal to the commuted value may be withdrawn.

The object of this form of policy is to assure absolute protection to dependents and to prevent the early loss or dissipation of funds left to women and children who have no experience or business training. A too frequent event is the loss of such a fund through ill-advised investments, speculation, or extravagance of the beneficiaries. A multitude of advisers almost invariably appear whenever some person, especially a woman, inherits an estate and as a result of their interested or disinterested efforts, as the case may be, the proceeds of many an insurance policy, which has, perhaps, been maintained through a lifetime of toil and self-denial on the part of the husband or father, have been swept away.

By means of the continuous instalment or life income policy the insured may provide the dependents with absolute protection which the latter cannot frustrate. The beneficiaries will, furthermore, not have the care or worry incident to the investment of money, and will have an assured income as long as they live. They may waste one instalment but there will be another next year which cannot be anticipated or discounted in advance.

The Ideal Medical Director.—Mr. T. W. Vardell, president Southwestern Life Insurance Company, Dallas, Texas., pictures the ideal medical director as a man who is able to select the risks properly—one who has the ability to decline risks as well as issue the business. The medical director who, when he declines a risk, and it is on such grounds that full information cannot be given the agent, does it in such a manner that the agent appreciates what he has done—that man comes pretty near the ideal medical director.—Medical Section, American Life Convention.

Conservation of Public Health and the Insurance Companies.—Dr. W. A. Peterson, Medical Director Scandia Life Insurance Company, Chicago, holds the opinion that it is outside the province of the insurance company to carry the work of health conservation to the extent of invading the home of the individual in order to regulate health matters. He considers that the medical director of a company should devote his time to medical selection for life insurance, and that he is not the proper person to direct public health; a practical physician is needed for that work, and medical directors cannot well do both. Another point, many people belong to various companies, and if all companies were looking after the health of the same families, there might be an overproduction of good will towards men. He considers that the insurance companies are trying to do too much along these lines. Conservation is good, but it should be studied carefully before insurance companies undertake work which may not belong rightfully to them.—Medical Section, American Life Convention.

Book Reviews.

Les stenoses inflammatoires, chroniques de la region cardiaque de l'oesophage. By Dr. Georges Riebault, former interne of Paris hospitals. Bordeaux: Gounouilhon, 1913.

This book is divided into two parts, dealing respectively with anatomy and pathology. As to the first the author describes the intraabdominal part of the esophagus and speaks rather of it than of a "cardiac end" playing a separate rôle. There are numerous good diagrams and cross sections. Under pathology he discusses "those stenoses which are not neoplastic or traumatic or acute." Symptoms, prognosis, treatment are given and observations of some 27 cases are added, mostly from the literature.

The Carrier Problem in Infectious Diseases. By J. C. G. Ledingham, M.B., D.Sc., Chief Bacteriologist, Lister Institute of Preventive Medicine, London; Reader in Bacteriology, University of London; and J. A. Arkwright, M.D., Assistant-Bacteriologist, Lister Institute of Preventive Medicine, London. Price, $3.50 net. London: Edward Arnold; New York: Longmans, Green & Co., 1912.

This is one of the most recent and important of the International Medical Monographs edited by Leonard Hill and William Bulloch, and although it has been out less than a year, the work of Ledingham and Arkwright is generally recognized as an authority on the subject of the carrier problem in infectious diseases. The importance of the control of the disease carrier as a factor in efficient sanitary administration is gaining recognition every day. The authors present all the known data on this subject with reference to the following diseases: typhoid fever, paratyphoid fever and the infections caused by organisms of the Gaertner-paratyphoid group, diphtheria, epidemic cerebrospinal meningitis, dysentery, and cholera. One hundred and thirty-five pages are devoted to the problem of the carrier in typhoid fever: this liberal allotment is justified by the overwhelming evidence of the epidemiological rôle of the typhoid carrier. Following a historical review the authors discuss the general facts regarding typhoid carriers, their types, classification, age, sex, frequency, etc.; they cite instances of the infectivity of carriers, of milk-borne cases, of institutional cases, and of army carriers; they discuss the pathogenesis of the typhoid carrying state with particular reference to the intestinal carrier; they also point out the important relation between carriers and gallstone disease, and discuss the physical disabilities of the carrier state including the subject of autoinfection. The treatment of typhoid carriers, a vexing problem in sanitary administration, is gone into at length. The treatment includes chemotherapy, sour milk therapy, surgical treatment (as the removal of the gall-bladder), and vaccine therapy. The fact is deplored that as yet the attempts to cure intestinal carriers have as yet failed to yield convincing evidence of their success. Various other aspects of the typhoid carrier problem are fully discussed, including diagnostic methods, the infectivity of the carrier, immunity questions, and administrative measures. The desirability of the future enactment of legislative measures in the control of carriers engaged in the handling and sale of foodstuffs is emphasized. A complete bibliography is appended to this section. The rest of the volume follows out this comprehensive method. The book is a mine of information, gathered from many sources, and interpreted by those who have had practical experience in facing the many problems.

Bovine Tuberculosis and Its Control. By Veranus Alva Moore, B.S.M.D., V.M.D., Professor of Comparative Pathology, Bacteriology, and Meat Inspection, New York State Veterinary College at Cornell University, and Director of the College. Thirty full page illustrations. Price $2.00 net. Ithaca, N. Y.: Carpenter & Company, 1913.

The subject of bovine tuberculosis is one that has justly attracted considerable attention within recent years, particularly since it touches so many interests, the farming and the dairy industries, the medical profession, public health authorities, and, most important of all, the public itself. The economic loss alone in the United States is $14,000,000 annually. It is therefore gratifying to note the appearance of a volume that sums up all modern knowledge upon this subject. No one is more competent to write upon bovine tuberculosis than Professor Moore, who devoted many years to its study and who has made substantial contributions to its experimental investigation. The scope of this volume is amply indicated by its chapter headings, which are as follows: history of tuberculosis in cattle; distribution, economic and sanitary importance of bovine tuberculosis; the cause of tuberculosis in cattle; the nature of tuberculosis and the changes produced in the tissues by tubercle bacteria; symptoms of tuberculosis in cattle; methods of dissemination; the diagnosis of tuberculosis in cattle; tuberculin and its use; physical examination in detecting tuberculosis in cattle; immunization of cattle against tuberculosis; the control of bovine tuberculosis; and report of the International Commission on the Control of Bovine Tuberculosis. Of considerable interest is the chapter on the diagnostic use of tuberculin. It is pointed out that infected cattle do not react when the disease is in the period of incubation, when it is arrested, and in certain cases where the disease is very far advanced. According to Carin 17 per cent. of infected cattle fail to react. This percentage is larger than the author's experience indicates. The various methods of controlling bovine tuberculosis are fully described. The report of the International Commission on the Control of Bovine Tuberculosis is given in detail. This report is found to meet the conditions as they prevail in America. When it is understood that 10 per cent. of the dairy cattle of the country are infected the extent of the problem of eradicating the disease may be fully realized. According to Moore the secret of accomplishing this control is to prevent the spread of tubercle bacteria from the present infected cattle. At present there is no successful method of immunization. The author has written a book of eminently practical value to the veterinarian and to the physician. There are appended to the volume thirty full-page plates illustrating the different phases of tuberculosis in cattle and cultures of tubercle bacilli. These plates are superb in their artistic execution.

Die Tabes der Frauen. Von Kurt Mendel und Ernst Tobias, in Berlin. Preis 2.50 M. Berlin: S. Karger, 1912.

This is a monograph of 70 pages containing much that is of interest and value. Statistics as to the frequency of tabes in women are very variable. The statistics of this monograph are based on 163 cases, 12 only in private practice. The 151 clinic cases occurred at the same time as 279 cases among the men, making the percentage as 1 to 1.85. Sterility among the women was five times as high as among normal women. The important question of the relation of syphilis to tabes is fully discussed. The symptoms of tabes in men and women are compared. The incubation period of tabes is stated to be shorter where an underlying syphilis has been treated than when it has remained untreated especially by mercury. Other interesting facts are brought out respecting crises, complications, etc.

Minor Maladies and Their Treatment. By Leonard Williams, M.D., M.R.C.P., Physician to the French Hospital; Physician to the Metropolitan Hospital; Late Assistant Physician to the German Hospital; and Hon. Medical Officer to the Sidmouth Cottage Hospital. Third Edition. Price $2.50 net. New York: William Wood & Company, 1913.

Minor maladies still constitute the great bulk of all human ailments, and a book such as this, which in its two previous editions has achieved a wide popularity, cannot but fill a distinct gap in medical literature. The lesser complaints of humanity are accorded scant attention in the regular textbooks, and are dealt with in a stepmotherly fashion by the majority of medical teachers. The result of this pedagogical neglect is that many practitioners know little more about the treatment of such common disorders as indigestion than the average layman. The scope of this book may be gleaned from an enumeration of the chapter headings: colds, coughs, and sore throats; indigestion; constipation, diarrhea; vomiting, and giddiness; rheumatism, neuralgia, headache; goutiness; change of air; general health; some drugs, and their uses; and insanity. Goutiness is not a common disorder in this country, nor is insanity as common as some would have us believe. At any rate it is difficult to conceive insanity as a minor malady. The author admits this fact, but includes the subject of insanity because the ordinary text-book on medicine gives but scant attention to the practical phases of this subject. The book is admirably written, and the practitioner will find in it a great deal that will help him in his daily work. It contains a large number of useful prescriptions. Among some of the subjects that are fully discussed may be mentioned the following: hiccough, flatulence, and seasickness. The chapter on change of air contains a good deal of information on the subject of European watering places. A perusal of the chapter entitled "Some Drugs and Their Uses" ought to prove an efficient antidote to therapeutic nihilism.

Society Reports.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-eighth Annual Meeting, Held at Washington, D. C., May 6, 7, and 8, 1913.

THE PRESIDENT, DR. HENRY C. COE OF NEW YORK, IN THE CHAIR.

Uterine Inertia; Its Treatment.—DR. GEORGE TUCKER HARRISON of Charlottesville, Va., said that when the uterine muscle showed feebleness in the beginning of labor and during dilatation this condition of atomy was called primary uterine inertia. The cause may be due either to anatomical changes in the uterine muscle or in disturbed innervation. Secondary inertia was a condition of exhaustion which came on during the period of expulsion from various causes. Before rupture of the membranes in primary inertia there was no indication for active intervention. After rupture, if there was danger to life of the child from the discharge of liquor amnii, or the mother's life was imperiled from danger of septic infection, dilatation should be brought about by the metreurynter (rubber bag) version followed by extraction then being employed. In secondary inertia a too protracted labor was dangerous to the mother and child, active intervention was indicated; if the head was well down in the pelvis and resting upon the perineum, the forceps was applied. It had been recently proposed to perform Cesarean section in certain cases of uterine inertia, especially in the interests of the mother. The obstetric resources at our command were amply adequate, and there was no indication for such operative procedure in inertia *per se*. In primary inertia a combination of morphine, atropine, and strychnine often had an excellent effect when given hypodermically. After dilatation pituitary extract had found favor with some obstetricians.

Pituitary Extract in Uterine Inertia.—Dr. J. CLIFTON EDGAR of New York City reported 70 cases of which records had been kept, and these cases were from two hospital services, namely, Bellevue and Manhattan Maternity and from private practice. They included in the first and second stages of labor, 39 cases; immediately after the third stage, 19 cases; in Cesarean section, 6 cases, and for the induction of abortion, 6 cases. He drew the following conclusions: 1. Ampoules or vaporoles of the drug should alone be employed, as in his experience, constant results failed when the pituitary extract in bulk solution was used. 2. There were three reliable proprietary preparations of the drug now on the market; all of these were used at different periods in his cases. 3. For decided action, 0.4 gram of the drug was usually called for, although in ordinary cases, with little obstruction, half that dose was found sufficient. 4. As the effect of the drug lasted but 30 minutes, repetition of the dose was often called for. 5. Intramuscular injection was usually satisfactory; causing no local reaction or pain. Further, no toxic symptoms were observed from the use of the drug even in maximum doses. 6. Pituitary extract might be combined with ergot when the action of the former failed, and with heart stimulants in shock cases, without compromising the actions of these drugs. 7. Pituitary extract had no place in normal labor, the administration should be confined in obstetrics to instances of primary and secondary inertia, to postpartum hemorrhage and cesarean section, in the last as a substitute for ergot. 8. The drug produced strong intermittent uterine contractions often prolonged for several minutes. He had never observed true continuous tetanic uterine contractions (tetanus uteri). 9. Although theoretically the uterine contractions were intermittent, practically in the face of resistance, the contractions approached to the continuous in character and clinically might be so reckoned with. 10. Full and even small doses of the drug in the first stage of labor had caused in his cases fatal compression of the fetus, premature separation of the placenta and deep rupture of the cervix. 11. In the first stage or where some obstruction existed in the second stage, he gave small tentative doses of pituitary extract, not with complete delivery by means of the drug in view, but to bring the head in easy reach of a simple forceps operation. Seven of his 39 cases were thus treated. 12. Pituitary extract acted promptly and efficiently in most of the 39 cases of inertia in the second and first stages. Its actions were more positive in multiparæ than in primiparæ; it acted better at full term than in premature cases; also better in the second than first stage of labor, and when administered shortly after the spontaneous artificial rupture of the membranes.

In 18 postpartum cases he found no effect of the diately after the third stage for postpartum hemorrhage due to inertia, his results were disappointing. So much so that he considered its action here most unreliable and not as positive as the ergot preparations.

In the 18 cases in which the drug had been used, immedrug in two cases; it was necessary to use ergot in two instances; hot acetic acid douche in two more; to pack the uterus in seven cases, and in the remaining six cases only were good uterine contractions observed. 13. In Cesarean section he could not observe any advantage of pituitary extract over ergot, aside from the observation that the former acted more promptly and hence need not have been administered so early in the operation. 14. In induction of labor the drug failed to initiate contractions, but apparently initiated them after the use of gauze, the bougie or hydrostatic bag for inducing labor. His belief was the drug strengthened already existing contractions not yet apparent to patient or physician. 15. For primary inertia in abortion cases, his results with the drug were disappointing. 16. For atony of the bowel and bladder and as a galactagogue his results were frankly negative. 17. The dangers to mother and child in the indiscriminate administration of this drug for primary or secondary inertia of the first or second stage of labor must be reckoned with.

Only a few of his 39 cases of inertia were frankly in the first stage of labor and these were earlier cases. The remainder were of the second stage or borderline cases just merging into the second stage.

He considered the use of the drug in the first stage a dangerous practice, liable to cause death or deep asphyxia of the fetus, separation of the placenta, uncalled-for laceration of the cervix and possible uterine rupture.

18. He had to report of his 39 cases of inertia in the first and second stages two and probably four stillborn children due, in his opinion, to the use of pituitary extract, before full dilatation, and three instances of deep laceration of the cervix requiring suture to control the bleeding. 19. He looked upon the use of pituitary extract before full dilatation or dilatability of the cervix as equivalent to the use of ergot at this time. In fact, it was probably more harmful than ergot, by reason of the more powerful contractions produced, and the uncertainty of it action. 20. He had repeatedly observed prolonged tempestuous contractions when the drug was given in the face of too much resistance, closely simulating tetanic contractions of the uterus (tetanus uteri). 21. The action of the drug was most uncertain. One could never predict in a given case, either from the amount of the drug administered or from the character of inertia and the obstruction to be overcome how powerfully the drug would act upon the uterus. 22. He had repeatedly observed both in private and hospital practice that 0.2 gram of pituitary extract, half the usual dose commonly employed, produced such prolonged and powerful uterine contractions that uterine rupture was imminent and anesthesia was required to control the action of the drug on the uterus. 23. In his opinion the drug should never be employed for inertia in any stage of labor, unless anesthesia was at hand for immediate use and preparations were complete for immediate operative delivery, if necessary, to avoid uterine rupture. 24. Finally, with due regard to its action and possible dangers, pituitary extract was a most valuable addition to the resources for the treatment of primary and secondary inertia.

Under What Conditions Should Uterine Inertia Be Treated by Artificial Delivery?—Dr. EDWIN B. CRAGIN of New York City said uterine inertia was of greater importance in the second stage of labor, especially if the membranes were ruptured and the pressure of the uterus came directly upon the child than in the first stage, yet in several cesarean sections performed during a prolonged first case the presence of meconium in the liquor amnii and the marked slowing of the fetal heart prior to the operation had convinced him of danger to the fetus from uterine inertia even during the first stage of labor.

Uterine inertia associated with fetal heart sounds indicating danger to fetal life was one of the first types of inertia indicating artificial delivery. His plea was for studied, skilled, artificial assistance in the delivery before the mother and child were exposed to these dangers.

There was one condition not usually classed as uterine inertia which the writer called attention to before closing his paper. It was the long delay which sometimes intervened between the rupture of the membranes and the uterine contractions of the first stage of labor. Patients sometimes presented themselves at the hospital with a history that their membranes had ruptured, three, four, or

even five days before their labor began. An unfortunate experience several years ago in which the fetal heart ceased before the labor was completed, and a study of the temperature charts of a number of these cases convinced him that in many particulars they resembled cases of uterine inertia during actual labor; that there was fetal danger from interference with fetal circulation from prolonged pressure and that maternal morbidity was common from sapremia, if not from bacteriemia. For these reasons he had made it a rule in recent years, both at the Sloane Hospital and in his private practice, to introduce an elastic bag into the cervix if uterine contractions had not started at the end of 24 hours from the time of the rupture of the membranes. The elastic bag, as a rule, not only brought on uterine contractions, but lessened the further escape of the liquor amnii, and the results both fetal and maternal had seemed to justify the procedure.

Dr. Edward P. Davis of Philadelphia stated that from the accumulated experience of the profession it seemed pituitrin came into practical competition with strychnine, opium, and ergot, and Dr. Edgar had given a very valuable hint as to the danger of pituitrin. We all recognized the fact that in many cases opium to the point of lessening nervous excitability and securing rest was of the greatest value in bringing about the development of the physiology of labor, and we were all aware of the very frequent experience of the unexpected and rapid delivery of multiparæ, to whom we had given opium to secure rest, and how frequently the woman surprised herself and us most of all when we were caught napping, but certain was opium in the general experience of the profession was the one sedative which was a stimulant to the ganglion which controlled the action of the uterus.

As regards strychnine in comparison with pituitrin it seemed to him the difference between the two might be stated in this way, that strychnine, given in moderate doses was a physiological stimulus to the ganglion supporting and maintaining uterine action, while pituitrin, and especially as indicated by Dr. Edgar, was a matter of more brief and more stormy result, and hence much more uncertain, and personally he had not felt that he could substitute pituitrin for the use of strychnia as a physiological stimulant or aid in labor.

The use of ergot was a thing to be carried out with great caution, aand he still adhered to the belief that ergot should be given upon the emptied uterus only, and in Cesarean section one might lay aside ergot entirely, oftentimes with advantage.

As to contracting the dilating bag with the bougie as an inducer and promotor of labor in connection with strychnia or pituitrin, it was of advantage in that it decidedly stimulated the mucous secretion of the cervix and was less apt to alter the mechanism of labor.

Dr. John O. Polak of Brooklyn, N. Y., stated that no discussion of pituitrin in this society should go out without sounding a word or two of warning. He had had within the last three weeks a case of rupture of the uterus from the use of pituitrin. He had also seen within a month a case that was thrown into such violent uterine contraction that anesthesia and morphine had to be used to control the spasm of the uterus; consequently from his experience, which was comparatively limited, only 76 cases, he had drawn some conclusions that were only tentative, that pituitrin had little or no place in the first stage of labor; that it was dangerous so far as one's experience was concerned unless there was absolute knowledge of the pelvis, particularly in outlet contractions and particularly in borderline contractions.

Furthermore, in order to get the best use from pituitrin there should be a dilated or at least a dilatable cervix, because injuries to the cervix had been just as Dr. Edgar had stated. He had found, furthermore, that it had no value, as far as his limited experience had gone, in establishing uterine contraction, in emptying the uterus in cases of incomplete abortion.

Another observation he had made was that where it was used in the third stage of labor, he had gotten secondary relaxation in a sufficient number of cases to warn him that when he used it in the third stage it should be combined with ergot.

Dr. Henry T. Byford of Chicago stated there was a mild form of inertia which in primaparæ meant a great deal perhaps in some cases, due to general exhaustion from muscular exercise of the prolonged first stage, or want of rest and exhaustion of the nervous system. He had seen many cases in which there was inertia of the cervix. The patient had an irritable condition of the parts and would have if the first stage of labor was unusual in its length. At one time, when investigating the function of the membranes in labor with a view to preserving them, he got in the habit of using opium frequently, and in these cases the administration of opium would give rest, particularly as it acts in contrast to the advice so often given to women to get around and try to stimulate labor.

Dr. Robert L. Dickinson of Brooklyn, N. Y., said that between foreign and American obstetrics there was one great distinction. Dr. Kerr read a very able paper before this society on waiting or long delay in the second stage of labor. The German practice of delay in the use of the forceps or the infrequent use of the forceps as compared with the American was most striking. He believed the particular type of American woman, neurotic, easily tired from vigorous muscular exercise and anxiety, was a type to which the pituitary extract particularly applied. It was most fortunate to have had so lucid an exposition of the exact therapy of pituitary extract as Dr. Edgar had given.

Dr. William E. Studdiford of New York City said one of the most important points in these three papers was that of calling attention to the dangers of pituitary extract. Enthusiastic reports sent around by the manufacturers led to the promiscuous use of pituitary extract with many unfavorable results. His own experience had been very much the same as that of Dr. Edgar. The pituitary extract was so uncertain in its action in the first stage of labor that it was apt to cause such bad results in the cervix that the cervix, it seemed to him, should either be fully dilated or dilatable, and was many times, but where the diagnosis was positive that there was no obstruction to rapid delivery, delivery could be brought about promptly. Therefore, the question of diagnosis was important in the management of these cases as well as the indication for treatment. An accurate diagnosis should be made before any line of treatment was followed out.

Dr. Charles M. Green of Boston stated that these radical papers were going out to influence general practitioners, and in the subsequent discussion something ought to be said as to what should be done in the way of prevention of uterine inertia. The average woman who was going to have a baby should be trained to go through the ordeal just as a good athletic trainer would teach men on a football team. We should train her for the condition, and if this was done in a large proportion of cases the inertia would disappear. Furthermore, there were a great many women who were benefited during the last two months of pregnancy by systematic treatment with iron, arsenic and strychnia. He gave strychnia in small doses to women in the last two months of pregnancy. If a woman was in pretty good shape physically, was not tired, if she had a fair nervous system, she would go through labor pretty well if she kept moving around.

Dr. J. Clarence Webster of Chicago said that in cases of uterine inertia associated with rigid, elongated, or hypertrophied cervix, he believed that the important measure of treatment was vaginal Cesarean section, and not abdominal Cesarean section unless there was contraction of the pelvic outlet.

As regards the use of pituitrin, he had been using it in the Presbyterian Hospital, Chicago, and his experience harmonized with that of Dr. Edgar, although he had not used it perhaps in as many cases as he had.

Demonstration of the Infant Pulmotor, with Remarks on Its Use in the Treatment of Asphyxia Neonatorum.—Dr. Henry D. Fry of Washington, D. C., said the introduction of the infant pulmotor into obstetric practice was so recent that he had not been able to collect any statistics of the value of the apparatus. Certainly it was vastly superior for resuscitation to the ordinary methods of artificial respiration. He had had no opportunity to test it in a serious form of asphyxia, the so-called asphyxia pallida, but in the livid form it had acted promptly and resuscitated the infant in about 5 minutes. Edgar said he had used the apparatus six or seven times in both asphyxia pallida and livida. The results were good, much better than he had anticipated because, at first, he was doubtful of the value of the apparatus. Communication from Rochester reported the use of the pulmotor in five cases. In Case II. it was unsuccessful. There was no heart action detected when the infant was born. In Case IV. it was likewise unsuccessful but there was no mention of the heart action. In Case I. the infant was born with marked asphyxia, but cardiac pulsations were detected. The labor had been prolonged but was terminated by midforcep application. The ordinary methods of resuscitation

were employed for 10 minutes without results. The pulmotor restored life in 10 minutes and the infant lived. Case III.—Pronounced asphyxia of the infant with heart action. After failure to resuscitate the infant breathed after 3 or 4 minutes of the application of the apparatus. Case V.—A labor of 30 or 40 hours duration was terminated by a difficult, high-forcep application. The infant had deformities of the extremities and had been born 30 minutes before the use of the pulmotor. The heart action was slow, 80 to 90 per minute. After 40 to 60 minutes' use of the pulmotor the infant breathed but died 2 hours afterward. The condition of the infant suggested strongly the existence of intracranial pressure.

Efforts to resuscitate the infant should not be abandoned as long as there was any heart action.

Dr. James C. Edgar of New York City stated that he believed he had the first infant Draeger pulmotor that came into this country. It was more than a year ago. At first he looked upon the machine with more or less skepticism, thinking it was more of a plaything than anything else, but having used it for some time he found there was some value to it. They had one at the Manhattan Maternity which was ready for use in every operative case. They had had several cases which illustrated the value of the machine, but as Dr. Fry had said, the inspiratory force should not be run up to 25. He thought 10 or 12 cm of force was sufficiently high. Although he had made no autopsies to prove it, he believed there was some likelihood of rupture of vessels when they ran the inspiratory force up to more than 10 or 12 cm.

Dr. John O. Polak of Brooklyn stated that he would like to ask Dr. Fry if the pulmotor could be attached to the ordinary oxygen tank in case of emergency.

Dr. Fry said they had an extra attachment so that it could be put on an ordinary oxygen tank.

Factors in the Formation of Skin Striations During Pregnancy.—Dr. Frederick J. Taussig of St. Louis, Mo., said only thirteen out of sixty primiparæ were free of skin striations. Skin striations occurred most frequently at several points and usually made their first appearance about the sixth or seventh month of gestation. In girls under 20 years of age they were decidedly more pronounced and more frequently found than in older women. Obesity, particularly rapid increase in weight during pregnancy, predisposed to the formation of striæ, especially those about the breast and thighs. Lack of abdominal support during pregnancy, as in those who wear no corsets, favored the formation of abdominal striæ. On the other hand, the tense and inelastic skin in which such striæ were found was to some extent a factor in subsequent abdominal relaxation. At any rate, abdominal muscular relaxation and abdominal skin striation went hand in hand. Perineal tears had apparently no relationship to skin striation. Finally the persistent employment of proper skin massage would, in the great majority of cases, prevent the formation of the slightest skin striations.

Uterine Carcinoma; Another Hypothesis as to Its Cause and Prevention.—Dr. A. F. A. King of Washington, D. C., spoke first of having converted the somatic epithelial cells into reproductive cells by abnormally rapid cell proliferation produced by continued irritation. Second, he referred to the fertilization of these transformed cells by spermatozoa. Third, of the pseudoembryonic structures of cancer produced by segmentation of these fertilized epithelial cells. Fourth, clinical facts and observations were advanced in support of the hypothesis. Speaking of prevention he said that there should be an avoidance of contact of the sperm with irritated, senescent tissue. Finally, he considered the question of whether we should amputate the cervix before cancer and whether or not we should advise against marriage after the menopause.

The Menace of Cancer.—Mr. Frederick Hoffman, statistician of the Prudential Insurance Company of America, gave an address on this subject in which he summarized the results of his investigation as follows: On the basis of trustworthy official data it was safe to estimate the annual mortality from cancer in the United States as 75,000 and in the civilized world at half a million. The cancer death rate in the United States was increasing at the rate of 2½ per cent. per annum and a corresponding increase was taking place practically throughout the civilized world. The average age of death cancer in all forms was 59 years, or respectively 60.4 years for males and 58.2 for females. Cancer was largely a disease of adult life and of the total mortality from cancer, 90.7 per cent. were deaths of ages of 40 and over. The male cancer death rate in the United States, ages 25 and over, had increased 29 per cent. during the last decade and the female cancer death rate had increased 23 per cent. On the basis of past experience the distribution of cancer deaths in the United States during 1913 would be about as follows: Cancer of the stomach and liver, 30,105; cancer of the female generative organs, 11,235; cancer of the rectum, intestines, and peritoneum, 9,608; cancer of the breast, 9,817; cancer of the mouth, tongue, etc., 2,880; cancer of the skin, 2,670, and cancers of other organs and parts, 11,685.

These statistics fully sustained the conclusion that cancer was a most serious menace to the American people and that the tendency was toward an increase in the mortality, regardless of the cancer deaths prevented by early surgical operation. The cancer death rate of large American cities had increased from 37.2 per 100,000 of population during the 5 years ending with 1876 to 80.5 during the 5 years ending with 1911. The cancer death rate of the City of New York had increased from 37.5 per 100,000 of population during the 3 years ending with 1872 to 81.4 during the 5 years ending with 1912. The corresponding increase in the cancer death rate of Philadelphia during the same period of time had been from 41.3 to 86.3. At ages 60 and over in the State of Massachusetts the mortality from cancer of the external organs for males had increased from a rate of 65.1 during the 5 years ending with 1910. The corresponding increase for females, ages 60 and over, had been from 85.6 to 122.3. Aside from the observed increase in the mortality from cancer, there had been an increase in the mortality from biliary calculi in the registration area of the United States from 1.5 per 100,000 of population in 1900 to 3.0 in 1911. All the facts available for the different sections of the country and the principal cities throughout the world sustained the conclusion without qualification, that the menace of cancer was much more serious at the present time than it had been in the past. Since, as far as known, the disease was invariably fatal unless the cancer was removed in its entirety in the very early stages of the disease by qualified operative treatment, it was obviously of the utmost importance that the elementary facts concerning cancer should be better known and understood than they were at the present time.

The only hope for the patient lay in the early possible recognition of the symptoms of cancer, when operative treatment was a comparatively easy matter, with a practical certainty of success. Neglect, on the other hand, was absolutely certain to result in death from one of the most awful conceivable afflictions, summed up in the following descriptive statement by one of America's foremost surgeons, who himself had saved a large number of valuable lives by early operative treatment. "To relieve the horrible sufferings of prolonged nausea, the intolerable distress of continuous vomiting, the excruciating pain, the keen distress of abdominal tension, the indescribable torture of protracted insomnia, the unparalleled agony of a living death, are all worthy of consideration."

The cancer problem as thus stated, emphatically suggested the intelligent coordination of all possible agencies for the control of what had properly been called a national scourge and the deliberate reduction of the death rate of what was stated to be a preventable disease when subjected to early operative treatment. There was, therefore, urgent need for a national society for the study and prevention of cancer, and it was a gratifying fact that such a society was in course of formation. Looking back over the results which had been achieved through the nation wide movement in the prevention of tuberculosis, there were strong reasons for believing that equally satisfactory results would, in the course of time, be secured in the prevention of cancer.

President's Address: Pathology the Basis of Gynecology.—Dr. Henry C. Coe of New York City said our knowledge of tubal disease had made rapid strides through the aid of bacteriology. The etiology and treatment of pelvic suppuration, so familiar to every medical student, had been long obscured by the famous pair-pelvic cellulitis and peritonitis. But however crude may have been the old pathology, we should not forget that the treatment was sound—to incise and drain a pelvic abscess through the vagina. When, with increasing boldness, they began to open the abdomen in acute inflammatory affections, they paid for their experience at a fearful cost. Even the general practice of drainage did not avail, and in fact they now know that probably the majority of the patients who recovered did so in spite of it. The necessary association of pain, of a so-called lancinating character, with internal malignant disease was an idea so firmly established, that it was difficult to eradicate it from the minds of the

profession as well as of the laity. How many women with cancer had been allowed to reach the inoperable stage because of the absence of this symptom they dared not conceive.

They were still in the dark as regards the etiology of various pelvic pains, when an opportunity was not afforded by exploratory section to verify our doubtful diagnosis of localized adhesions, twists of pedicles, minor degrees of systic and other chances in the ovary.

More intelligent study of the parametria had shown that many cases were rejected as unfavorable when the disease was really confined to the uterus, inflammatory exudate being mistaken for cancerous nodules. The limits of the radical operation had been greatly extended by Wertheim, whose experience and technical skill enabled him to deal with cases formerly regarded as inoperable.

We could not be indifferent to the earnest efforts of pathologists to discover the ultimate cause of cancer, and by careful experimentation to find a cure, either a serum or some metallic compound analogous to salvarsan. It could not be possible that the efforts of the many devoted workers in the laboratory would not eventually be crowned with success. While we pinned our faith at present to surgery, so far from any antagonism existing between the laboratory and the operating room was concerned, we were essentially inter-dependent.

Further Report of Cases of Dysmenorrhea Relieved by Nasal Treatment.—Dr. Joseph Brettauer of New York City, said after an experience of two and one-half years with the nasal treatment of dysmennorhea, the final results showed that in about one-half the number of cases so treated, the results were favorable. In some cases the benefit was temporary, requiring another course of nasal treatment. In other instances the relief was prompt and permanent after three or four caustic applications to the nasal spots during a menstrual interval.

In his paper he reported 66 cases so treated.

Dr. Emil Mayer of New York City stated it had been his privilege to see these cases reported by Dr. Brettauer, and also quite a number of others which he had not seen fit to include in his report, because he was not aware of some of the conditions presented. Some of these cases were patients of his own. In following out the treatment of these cases occasionally a young woman would come to his office with intranasal difficulty, and naturally being interested in the question of painful menstruation, he elicited from some of them that they had suffered a great deal, and following treatment of the nasal conditions he was able to benefit them, so that his own statistics which he hoped to publish later would be more favorable than those of Dr. Brettauer, although it must be said that he put his patients through a very severe test and did not accept his conclusions until he had seen the patients themselves.

As to amenorrhea, he had had several young girls who had not menstruated at all for three or four months, but after applications to the nose, menstruation became established.

Dr. E. C. Dudley of Chicago said he would like to ask if he understood the author of the paper to say that this cauterization treatment of the nose should be used in all cases in which there was neither pelvic nor nasal lesions? In other words, if examination of the pelvis and of the nasal passages was found negative, would he then empirically cauterize?

Dr. Henry T. Byford of Chicago stated one of the chief objections he had to this method was the indefiniteness in regard to the kind of dysmenorrhea and the condition of the nose. As he understood, there had been no study made of the kind of dysmenorrhea to be helped. There were no lesions of the nose except during the menstrual period, or when congestions appeared during their menstrual period, and they were usually regarded as a result, and not as a cause of something, and when women had pain in their breasts every month, we did not treat the breasts, thinking we would cure any disturbance in the pelvis. There were a good many kinds of dysmenorrhea, one of which had not been described, namely, nervous dysmenorrhea. He was willing to concede that the treatment outlined by Dr. Brettauer would help patients who had this form of dysmenorrhea.

Dr. Robert C. Myles of New York City said he found many cases of serious local irritation in the nose, where the central nervous system seemed to be in a state of aggravation or irritation as a result, with phenomena in other parts of the body being created, and when that irritation in the nose was relieved the other symptoms or phenomena disappeared.

Dr. W. Gill Wylie of New York City stated after a long study of this subject he had come to the conclusion that in many of these cases the underlying cause was imperfect development of the lining membrane of the uterus. A peculiar case came under his observation not long since. A mother brought her child to him. He asked her what was the trouble. She said that about the time of menstruation, or when it was approaching, her daughter could not appear in company, especially if there were gentlemen about, because suddenly her lips became so large and her face so red that she felt very uncomfortable and uneasy. He studied the case and told the mother he thought he could make a diagnosis. The girl was put on the table, with the mother and nurse present, and on examination he found little or no abnormal changes in the vulva except the girl was not fully developed. He did not detect any gross disease, but he noticed the secretions about the vulva became very profuse. He found when examining women, if there was a neurotic feeling that developed or arose, if he examined the cervix uteri or the condition of the uterus, there would be found marked changes in the erectile tissue.

Dr. Brettauer, in closing, said in answer to Dr. Dudley's question, he would say by all means touch the nose in the absence of any pathological condition in the nose and the pelvis. He would do so on an experiment, as it could do no harm.

The Conduct of Gynecological and Obstetrical Operations in the Presence of Acute or Chronic Endocarditis.—Dr. John Osborn Polak, Brooklyn, N. Y., said to summarize his experience in gynecological operations, he would conclude: 1. That pelvic conditions necessitating operation may be done after proper cardiac preparation. 2. That the cardiac symptoms, blood pressure and the functional activity of the liver and kidneys were the only indices of when it was time to operate. 3. That these cases should always be seen and treated in conjunction with a competent internist. 4. The operation should be rapid, bloodless, and done under combined local and general anesthesia, morphine, novocain, ether and oxygen. 5. That the Trendelenburg posture should be used only until such time as the field might be properly isolated, when the patient might be gently lowered out of it. 6. That phlebotomy should be done promptly on signs of right heart engorgement. 7. That postoperative distention must be avoided. 8. That morphine was the mainstay in therapeutics.

The Influence of Ectopic Pregnancy on the Blood Supply of the Uterus, with Special Reference to Uterine Bleeding: Based on the Study of 25 Injected Uteri Associated with Ectopic Pregnancy.—Dr. John A. Sampson of Albany, N. Y., stated that as a result of ectopic pregnancy the uterus was enlarged, due mainly to hyperemia and a thickening of the endometrium. The changes in the latter were similar to those found in the decidua vera of early uterine pregnancy and apparently due to its arterial invasion from the terminal branches of the radial artery. The venous spaces of the endometrium were dilated and this dilatation was most marked in the superficial portion of the compact layer and at its junction with the spongy layer. The termination of the pregnancy was followed by involution of the uterus.

The first step in the involution of the endometrium was seen in the greater dilatation of the venous spaces, probably due to regressive changes in the stroma and apparently dependent upon a diminished supply of arterial blood. The arteries were less evident during involution of the uterus. The dilatation of the venous spaces was followed by the escape of venous blood in the tissues of the endometrium. If the superficial venous stasis of the compact layer gave way, the blood would escape into the uterine cavity, without the formation of a decidual cast. On the other hand, if the venous spaces at the junction of the compact and spongy layer gave way, the extravasation of blood would occur mainly between these two layers and the compact layer would be expelled as a decidual cast. In time the regressive changes ceased and were followed by a reparative process which was apparently dependent upon the respiration of the arterial supply of the endometrium. The involution following the termination of tubal pregnancy was very similar to that following uterine pregnancy, differing only in degree.

In the vast majority of cases of ectopic pregnancy the complete termination of the pregnancy was a gradual process often taking several days or weeks, four weeks or more in seventeen of the twenty-five cases studied. When operated upon the uterus had been and might still receive stimuli from two distinct antagonistic sources, namely, pregnancy and involution. The condition present in any case depended upon which of these sources predom-

mated and to what extent it had been and was influenced by the other.

The uterine bleeding was of venous origin from the venous plexus of the endometrium due to regressive changes in the latter, apparently dependent upon a diminished arterial supply. Muscular insufficiency might also contribute to this. The bleeding continued as long as the pregnancy (products of conception) interfered with the process of involution. It was probably analogous to the bleeding in sub-involution of the uterus due to an incomplete uterine abortion.

Dr. Philander A. Harris of Paterson, N. J., said to one who had performed a good many operations for ectopic gestation, to be specific 228, it was interesting to have this unquestionable demonstration of the changes which occurred in the uterus. It would not have been possible for him to have exhibited uteri from the cases on which he had operated for ectopic gestation, excepting those uteri that were also the seat of some neoplasm or fibroid or something of that kind. This brought up the question of what practical use was the uterus after operating upon a patient for a single gestation? Dr. Smith of the Society collected a good deal of valuable information along this line, and he hoped he might be pardoned for saying he had not had time to find out how many women in the 228 operations for ectopic gestation really gave birth to children, but according to Dr. Smith and others the number was exceedingly small. There had been only four or five women who, after being operated for ectopic gestation, gave birth to children. Possibly there were four out of the 228 on which he operated. In thirteen of these the ectopic gestation was recurrent. The only point which came to his mind now was whether, in order to secure only four or five offsprings in possibly 228 cases, we should save the uterus, not sacrificing menstruation, for the little interest in future offsprings.

Dr. Hiram N. Vineberg of New York City said he would like to ask Dr. Sampson how he would explain those cases of uterine hemorrhage, so far as symptoms go, that had occurred probably before the termination of pregnancy? The first symptom might be uterine hemorrhage. Perhaps a day or two later the woman might have an abdominal cramp showing that tubal gestation had taken place. Probably it was digressing from the purpose of the paper in discussing the necessity of removing the uterus in such a large number of ectopic pregnancies, and it would not be in the trend of conservatism which we were trying to follow so as to retain menstruation and the ovaries in as many cases as we possible could. In a large number of cases he could only recall two instances in which he felt the condition was such that surgically it was necessary to remove the uterus. In the other cases the uterus was retained. He could recall at least six cases of normal pregancy following previous ectopic pregnancies.

Dr. Sampson in closing the discussion said in eleven cases of the series the uterus was retained when the opposite tube was examined, because the women wished to have children. In every case he talked over the possibility of children before operating. He had followed the future history of these eleven cases; five of them had not become pregnant, although in two of them only a few months had elapsed since the operation. Two had borne children, one two and the other one, and the one who had one child subsequently had tubal pregnancy in the opposite side. Three had had miscarriages, although they claimed they desired to have children. One had three miscarriages and the other two had one each. Another, the sixth one, had tubal pregnancy in the opposite side, making two cases of repeated tubal pregnancy in the eleven cases in which at the time of operation the tube, which was the seat of the second ectopic gestation, was apparently normal, and which was retained with the hope that the woman would have a child subsequently. He had encountered two other cases of repeated ectopic pregnancy in which the first operation was done by another operator, so that he did not know the condition of the tube at that time. He was perfectly willing to preserve the tube and the possibility of future conception in every patient who desired to have children. On the other hand, if he found the opposite tube was diseased, and especially if a number of these women were fairly well advanced in years, that is thirty-five or forty, and had had their share of children, he thought we should in every way make these patients just as well as we possibly could for the rest of their lives, and save them all future trouble. He could see very little use in leaving behind a uterus which might have been the seat of inflammatory trouble or adhesions about it as the result of operation if it was only going to cause trouble.

In regard to bleeding without pain, all but one of these patients gave a history of uterine bleeding at some time during the illness. In one case the bleeding preceded the pain for three or four weeks, and he could not account for it except probably there was the beginning of the termination of pregnancy in which the bleeding between the gestation sac and the wall of the tube was not sufficient to give rise to any serious symptoms. In regard to preserving the ovaries, in nearly every instance one ovary was preserved.

Operation for the Cure of Rectocele and Restoration of the Function of the Pelvic Floor.—Dr. George Gray Ward, Jr., of New York City, said the operation was especially applicable to cases of large rectocele. The conditions present in a rectocele were the same as in a cystocele. There was a true hernia or prolapsus of the rectum just as in the bladder. Likewise the bowel had been enlarged and pouched by distension, so that there existed an actual increase in size of the gut similar to the condition at the base of the bladder in cystocele. The same principle was applied in this operation to cure the rectocele as was employed in the modern radical operations for the cure of cystocele, the rectum was completely separated from the entire posterior wall of the vagina and was placed higher up in the pelvis. The author described the operation and gave the technique used by him in perineorrhaphy.

The Relation Between the Blood Pressure and the Prognosis in Abdominal Operations.—Dr. George W. Crile of Cleveland, Ohio, stated that the relation between the blood pressure and the prognosis in abdominal operation was based upon two extremes, namely an extremely low blood pressure and an extremely high blood pressure. Providing the heart was normal, they could now control the low pressure phase by transfusion of blood, by mechanical means or by saline infusion. The high blood pressure was far more difficult to control because it was difficult to control the factors that produced this condition. If there was cardiovascular disease due to infection or to lues, nitroglycerin might exert little control, although there was a type of cardiovascular disease that was controlled by nitroglycerin. It was not wise to reduce the blood pressure by bleeding, and aside from nitroglycerin and hygienic measures, there were no other remedies. Therefore, as a matter of fact the high blood pressure was likely to be a mor dangerous factor than was low blood pressure. Whether the blood pressure be abnormally high or abnormaly low the patient was more apt to have complications such as thrombosis, emboli, pneumonia, nephritis, bronchitis, indeed, the abnormal pressure played into the hands of the usual dangers and complications of abdominal operations.

If operation be so performed that the nervous system remained uninjured, the blood pressure unaltered, then the maximum degree of safety would be reached. This he had found could be done on the principle of anoci-aassociation.

Studies in Blood Pressure Before, During and After Operations Under Local and General Anesthesia.—Dr. Joseph C. Bloodgood of Baltimore, Md., said even today, with better anethesia, with better technique, we had a mortality. The mortality was not from simple appendectomy and from other simple operations, but it was from the graver operations, such as resection of the stomach, resection of the colon, the more extensive operation for cancer of the uterus, and the more difficult operation of myoma of the uterus. There was a mortality, and if there was an autopsy on such a patient we would find no infection of the wound, no break in the technique of the intestinal suture, no hemorrhage from the pelvic operation, but still the patient died. Carefully followed, they died as a rule within forty-eight hours or three days with a gradual lowering of blood pressure, with a gradually increasing pulse, with little or no fever, or they died of complications, which in the healthy indivdual were not serious. Patients died from complications of the kidney, and anuria, complications of the heart, complications of the stomach, such as dilatation. There was this mortality in surgery today which had no relation to infection and no relation to faults in technique in the sense of hemorrhage, in the sense of faulty suture of intestine where there would be peritonitis, in the sense of incorrectness which would produce intesinal obstruction, but in the sense of death and shock or death from complications that were due to shock of the operation. These complicataions were chiefly dilatation of the heart, dilatation of the stomach, and faulty kidney function. He was trying to give in a practical way how they were being forced to investigate and to adopt the method of Dr. Crile.

In the last four or five years due to the investigation of

the literature on the subject, and stimulated by Dr. Crile's work in the laboratory and clinic, he had attempted to follow his technique, and he thought the most practical thing he could say to them was to follow his technique in every case. We must remember, however, that to accomplish something that was difficult, something that was more than ordinary, we must practice. From his experience now covering three years, if he wished to develop the technique of anesthesia and operation and to give these handicapped patients with an extraordinary operation the best opportunites for reccovery, we must practice this newer technique in every case until we had gotten it fully developed.

The Diagnostic Value of the Electrocardiograph Before Gynecological and Obstetrical Operations.—Dr. Hugo H. Freund of Detroit, Mich., gave a short description of this instrument and described the various waves. He spoke of the application of the electrocardiograph to hospital cases, especially those in which the patient's cardiac condition was in doubt. He showed lantern slides deonstrating the various forms of cardiac irregularities as recorded with the electrocardiograph. The advantage of this form of graphic work over that of clinical bedside examination and over certain forms of syhpgmographic tracings was discussed. Some stress was laid upon the type of electrocardiogram that called for operative interference in pregnant women.

The Conduct of Gynecological Operations, also of Pregnancy and Labor in Acute and Chronic Affections of the Heart.—Dr. J. Clarence Webster of Chicago said operations should be avoided in active or recent valvular diseases, dilatation or myocardial degeneration, except in conditions of extreme emergency. General anesthesia might greatly increase the risk by causing coughing, straining, vomiting, respiratory embarrassment. Slow administration with free admission of air or oxygen was necessary. Local anesthesia was of importance in such cases. In slight or well compensated affections, regular methods of anesthesia should be employed.

As regards pregnancy, women with heart disease should not become pregnant. If pregnancy occurred it was on the side of safety to advise early abortion, especially if there was recent acute disease of any variety, old or mitral disease or old lesion with failure in compensation.

With reference to labor, if the patient's condition was good, the first stage, as in normal cases, all strain and excitement should be avoided. It was advisable to avoid straining in the secondary stage by artificial delivery, forceps or turning under anesthesia. In the third stage, it was best to separate the placenta annually allowing some lots of blood. A woman at term with failure in compensation or embarrassed circulation probably had the best chance if delivered by vaginal or abdominal Cesarean section.

The Significance of Anemia as an Operative Risk.—Dr. Henry T. Byford of Chicago stated that for surgical purposes we might divide anemia into two groups, namely those with compensation, and those without. The former class were good operative risks, the latter poor ones. He pointed out the characteristics of the former, likewise the characteristics and complications of the latter, and cited illustrative cases.

Treatment of Puerperal Thrombophlebitis.—Dr. Palmer Findley of Omaha, Neb., reported ten cases, reviewed the literature on the subject and said: "With this review of my recent personal experience with puerperal thrombophlebitis, together with the expressions of opinions of many of our workers in the field of obstetrics, I submit the following for consideration: 1. The Trendelenberg operation is surgically correct in theory, but as a practical proposition it is a questionable procedure. 2. The difficulties involved in the making of an accurate diagnonis before opening the abdomen are as yet insurmountable; furthermore, it is not possible to judge with accuracy the extent of the infection within the veins or elsewhere after the abdomen is opened. We cannot rely upon the sense of touch to locate with certainty the limits of a thrombus, nor can we judge with certainty the presence or absence of pus within the veins. Failure to find bacteria in the general circulation gives no absolute assurance of the localized character of the infection, nor can a physical examination of the lungs and other viscera exclude the possible presence of metastatic foci. 3. It is in direct violence to our rules of practice to traumatize tissues in the immediate neighborhood of a virulent infection.

"In reviewing the reports of cases I have been seriously impressed with the boldness with which some operators violate this time-honored principle of surgery. If the infected veins are not dissected out, have we not locked the thief in the stable when we do no more than ligate above the zone of the infection, and if we do dissect out the infected veins do we not incur serious hazards in the way of disseminating the infection? Furthermore, the risk of dislodging a thrombus in exploring the pelvic veins should be reckoned with. 4. It is a physical impossibility to ligate all the veins leading from the genital organs, and unless all channels are blocked there can be no assurance of checkmating the infection. Among the ardent supporters of the operation are those who would ligate the lower end of the vena cava and both spermatic veins, claiming that the collateral circulation can be depended upon to re-establish the return circulation. Is this not an argument in favor of the contention that the venous channels leading from the infected uterus cannot be wholly controlled by ligatures? 5. The physical resistance of all cases of puerperal infection is far below par, a fact which makes us cautious in adding further to their burdens. We might well rob them of the little resistance they possess. 6. Little dependence can be placed upon serum and vaccines in these cases. 7. Whatever may be our views on the question of ligation of veins or upon the administration of serum and vaccines, we are all agreed that the body resistance may be supported by fresh air and nourishing food."

The Calcium Content of the Blood During Pregnancy, Labor, and the Puerperium.—Dr. W. H. Morley of Detroit stated that calcium was a normal constituent of the blood. Its function in promoting clotting of the blood was explained. The determination of the amount of calcium in the blood was usually done by the volumetric or by the gravimetric methods. Either of the two mentioned methods required a large amount of blood in order to lessen the percentage of error. The author described a simple yet accurate method of determining the amount of calcium in the blood. He presented a short report of cases in which this method had been applied, and stated what it had accomplished and what the knowledge of the calcium metabolism might show in physiology and pathology of pregnancy, labor, and the puerperium.

What Are the Best Methods of Educating American Women Concerning Cancer?—Dr. Frederick J. Taussig of St. Louis, Mo., stated it was almost impossible to have printed in a lay periodical intended for general distribution any article upon so distasteful a subject as cancer of the uterus. The only way it could be done was to incorporate it in a general article on cancer and couched in special paragraphs referring to uterine cancer in such words as not to give offense. In spite of the wide circulation thus obtained through some of our women's magazines, he did not specially favor this method as its lack of directness tended to diminish its effectiveness. He suggested an occasional article in the journals of nursing, besides the distribution of special leaflets giving concise information as to early symptoms. Such leaflet had better be given in person by the doctor, the nurse, or the social worker to the laity. Leaflets that supplied the necessary information were more apt to be read if presented personally than they were if sent by mail. Much could also be accomplished, in his opinion, through the agency of womens' clubs in the distribution of literature and pamphlets.

There was a directness in knowledge acquired by word of mouth that ordinarily made it better retained. Hence he believed much could be accomplished by lectures and personal conversation that mere printed matter failed to bring about. The lectures might be given either directly to the laity, before women's clubs, or social settlement organizations, or they might be given before groups of such persons as would be most frequently called upon for advice, such as nurses, midwives, teachers, social workers, ministers or druggists. He recommended that special stress be laid upon the early symptoms of breast and uterine cancer in the curriculum of all nurses' training schools and all colleges of midwifery.

Report of the Committee on Ways and Means in the Matter of Impressing Physicians and Educating the Public in the Necessity of Early Diagnosis and Operation in Cancer.—This committee consisted of Drs. Howard C. Taylor, Frederick J. Taussig, and Leroy Broun, who reported that to accomplish these ends they were convinced that little could be done of lasting value excepting through an organized body, the sole purpose of which would be to conduct the needed campaign of education, of scientific assistance, and collection of data. They further believed that such a society should be of national scope, embracing all interested societies and organizations together with lay people throughout America. The work of this society should be carried on by a competent paid executive secretary and his office corps under the guidance

of a central committee of surgeons to be appointed by its Board of Directors. The need of such an organization and the possible good to be accomplished through its labors were presented to certain public spirited women of New York City. Through their efforts and the hearty co-operation of the members of the American Gynecological Society, together with prominent surgeons and lay people, a meeting was held in New York City. At this meeting the present needs and status of the cancer problem were presented in full before them.

At a later meeting of a committee on organization consisting of lay men appointed by this body the sum of $5,000 was guaranteed towards the expense of such a society for the first year. The committee was authorized not only to make a statement to the American Gynecological Society of this guarantee, but also to present the following resolution:

Resolved, That we request the American Gynecological Society to present the matter to each of the branches of the said congress interested in the subject and ask each of them to appoint a committee of two or more members to cooperate with them in forming a national organization for educational and publicity work with the recognition and treatment of cancer, and that they meet in such committees as soon as possible after the meeting of said Congress of Physicians and Surgeons to be held during the week beginning May 4, 1913.

The committee recommended the endorsement and the enthusiastic cooperation of the society in the formation of such a national body. The committee further recommended that the American Gynecological Society appoint committees of two each to present this resolution to such component societies of the Congress as they might deem interested in this matter, with a request for their co-operation.

The resolution was adopted and the committee was appointed.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. J. Whitridge Williams, Baltimore, Md.; *Vice-Presidents*, Dr. Thomas J. Watkins, Chicago, Ill., and Dr. Howard C. Taylor, New York City; *Secretary*, Dr. Leroy Broun, New York City, re-elected; *Treasurer*, Dr. J. Wesley Bovee, Washington, D. C., re-elected.

Place of meeting, Boston, Mass.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Washington, May 6, 7, and 8, 1913.

The President, Dr. Charles L. Minor of Asheville, N. C., in the Chair.

Tuesday, May 6—First Day.

On the Auscultatory Determination of Early Pathological Changes in the Lungs.—Dr. Henry Sewall of Denver, Col., read this paper, and briefly summed up the evidences that had been presented as follows: (1) Auscultation was capable of giving the earliest objective information of physical changes in the lungs. (2) Such a study demanded analysis of the sound into those vibrations due to resonance of the viscera and those of the chest wall, and that the latter vibrations could be damped by pressure of an appropriate form of stethoscope. (3) Vibrations transmitting the whisper were confined almost wholly to the viscera. (4) The modifications of the voice sounds by which their quality became more amphoric and their duration prolonged into an echo were the striking characters which, when accentuated by stethoscopic pressure, indicated pathological changes in the viscera. (5) The character and distribution of vocal signs over the normal chest were sufficiently constant, so that a topographic study of the chest by auscultation might definitely suggest, through recognition of departures from the normal, the intensity and distribution of morbid changes within the lungs, even when these changes were too slight to appeal to the senses through any other methods.

"Auricular Flutter" with a Report of Three Cases.—Dr. Frank Taylor Fulton of Providence, R. I., said that auricular flutter was a term applied to a condition which was characterized by an extremely rapid action of the auricle, the rate being usually somewhere between 200 and 330 per minute. It was the result of some pathological impulse formation. The ventricular action might be varied. As a rule, there was always some grade of heart block. Most commonly the ventricle rate was one-half that of the auricle; it might, however, be one-fourth that of the auricle, or the transmission of the impulse to the ventricle might be very irregular, so that the pulse might closely resemble the pulse of auricular fibrillation. Flutter was closely related to fibrillation, as well as to regular tachycardias of less rapid rate than itself. The condition had been considered as rare, but the electrocardiograph had demonstrated that it was probably not very uncommon. It might be detected by the use of the polygraph, although the tracings made by this means were sometimes extremely difficult to interpret. It was not necessarily a permanent condition; the heart action might return to normal and remain so for a long time. It sometimes occurred in paroxysms; the case in point was paroxysmal in type and had been under observation for seven years, during which the patient had many attacks, the paroxysms lasting at times for ten or twelve hours or more, but more lately had been less severe and lasted only for an hour or so. Tracings were presented showing the radial and venous pulse during the paroxysm, and at the time of transition to the normal rhythm. The following was a summary of the three cases he reported:

Case I.—A man of forty-eight suffering from progressive, chronic nephritis with paroxysmal dyspnea and considerable edema, suddenly developed an irregular heart action after nearly three months in the hospital. This lasted for a month when the rhythm suddenly became normal. There were no noticeable symptoms with the onset or end of the attack, but the edema was considerably more marked while the irregularity persisted. Cheyne-Stokes breathing was present at the time of the return to the normal rhythm. Digitalis in moderate doses of the tincture was being administered during most of the irregularity, but there was no evidence of its having any effect.

Case II.—A man of fifty-four with gradually increasing dyspnea and edema for a year came under my observation with chronic nephritis and an enlarged heart in a stage of decompensation and a pulse of from 136 to 138 uninfluenced by posture or exercise. The auricular waves were present in the venous tracings at the rate of 272 per minute. With rest in bed the improvement was steady but the pulse was not slowed until after eight doses of digitalis when it became regular, the latter being due to an increased grade of heart block.

Case III.—A retired business man of seventy, with neurotic tendencies, under observation for seven years, had had attacks of palpitation for ten years. These followed a nervous breakdown. The attacks came on at irregular intervals every few weeks and were characterized by a slight sensation of oppression in the precordium, apprehension, tendency to cough, and an irregular pulse of about 100 per minute. There was no marked disturbance of the circulation. The onset and end of the paroxysms were generally definitely recognized unless the end came during sleep. Between attacks there was no evidence of any cardiac or renal insufficiency. The patient thought they usually came on as the result of some emotion or indigestion associated with gas. He had been on small doses of digitalis for about fourteen months. During that time he had had five attacks. Four of these were observed and in two a polygraph tracing was obtained showing the transition from the abnormal to the normal rhythm. The transition was marked by a very long standstill of the heart, in one instance more than five seconds. Twice at the change, the patient had spoken of feeling faint and the sensation of things growing black. The pulse tracing was very irregular but there was occasional evidence of spacing and the C-waves in the venous curve were complicated by A-waves, so that often the former could not be identified. There were occasional runs of auricular waves at the rate of about 330 per minute.

Richie divided the cases of flutter into four groups, this division being based on the symptomatology. First, those in whom there might be or might not be other signs of cardiac disorder but in whom the symptoms could be ascribed to the increased auricular rate and the consequent rapid ventricular action. In these cases the ventricular rate was generally one-half the auricular, though rarely it was the same as the auricular. Such cases might also develop some irregularities. Second, cases with a history of old standing cardiac disease with general edema and dyspnea and in whom flutter developed. With the onset of flutter the condition in these cases usually became worse. Third, cases in which there was a fairly marked degree of heart block as in the case of Hertz and Goodhart, so that the ventricular rate from the onset was slow. Fourth, cases in which flutter might develop where there was complete dissociation of the auricular and ventricular rythym.

Presidential Address. A Retrospect and a Prospect.—Dr. Charles L. Minor of Asheville, N. C., said that a

whole generation had elapsed since the founding of this society and in so progressive a profession as theirs twenty-nine years brought changes so great as to almost revolutionize it, through the opening up of new territories and the development of new ideas. Bacteriology, asepsis, antisepsis, the whole brilliant hypothesis of immunity and its evolution of serum and vaccine therapy, laboratory diagnosis and their knowledge of tuberculosis, marked the steps in their progress. When such changes occurred in so short a time it was evident that only by constant growth and by adaptation to new conditions could medical men and medical societies hope to keep abreast of the times. It seemed to him that he might well devote the time of the Presidential Address, not to the consideration of medical topics, but rather to a review of their past that, from it, they might draw inspiration and suggestions for their future. Few of them had had time to inform themselves of the work that their predecessors had done in this society; if they did they would be surprised at the amount of valuable material that had first seen the light here. The study of tuberculosis had taken a large place in their work and the future historian of the tuberculosis campaign in the United States could not afford to ignore what had been done by the members of this society. But they should not be chiefly a society for the study of tuberculosis; they should take pride in the fact that they had been active and prominent in founding the National Association for the Study and Prevention of Tuberculosis. Again they had a right to feel proud of the admirable work in diseases of the lungs and heart which had been done here, and especially on the physical diagnosis of those diseases. Again their various mineral springs had been carefully studied and much information as to their qualities had been collected, though they were far from having the full information obtainable about the various European hydrotherapeutic resorts and there was a movement in Congress now, for which their support was requested, to have the springs of the United States carefully analyzed. If they desired in the future, as in the past, to hold an honorable place among American medical societies they should critically study present conditions in order to see what they could do to advance their association. They should admit only men whose positions were established and who had a right to apply. They had reached a critical period in the history of this society, and climatology, even with the powerful addition of diseases of the lungs and heart, no longer offered a sufficient field for the activities of the society. They must widen their borders and let it be known that climatology was not the chief center of their interests. They must feel themselves free to study all subjects within the realms of clinical medicine; only so could they hope to keep up with the march of modern medical progress. There was, therefore, a very real demand for a society strictly clinical in its aims and scope and where all men interested in general clinical medicine, of which climatology was only a small part, could bring their problems for discussion. The members of the society must realize that not good fellowship alone, but the ability and willingness to do first class clinical work and to read strong papers would be necessary for entrance into their ranks. Let them call their association the American Climatological and Clinical Association, or possibly better, the American Clinical and Climatological Association. Let them amend their constitution so as to open their meetings to the discussion of all topics of general clinical medicine.

Wednesday, May 7—Second Day.

Election of Officers:—*President*, Dr. James M. Anders of Philadelphia; *First Vice-President*, Dr. Lawrason Brown of Saranac Lake, N. Y.; *Second Vice-President*, Dr. Will Howard Swan of Colorado Springs, Colo.; *Secretaary* and *Treasurer*, Dr. Guy Hinsdale of Hot Springs, Va.

The Effect of Climatic Changes on Rheumatism and Neuritis.—Dr. James Dudley Morgan of Washington, D. C., said that though there had been reference from earliest times to climate and the influences of the same had been variously estimated, there was today still much confusion as to what effect meteorological changes had on certain disorders, and what particular climate was favorable, and what would help some of the more common diseases with which the profession had to contend. Hippocrates spoke of how the body suffered from winds, seasons, climates, and localities, and of the exposure of the Grecian cities to various winds, and of the influences they had. Galen had annotated this work of Hippocrates. Hipparchus had written of climates and divided them as far as they were known into eight, extending from Mercoe to the Nile, to and including the British Islands. The literature in reference to the effects of climate on rheumatism, gout, and neuritis was astonishingly meager, and many hours spent in reference work at the library of Congress and the library of the Surgeon-General, U.S.A., had brought to light little on the subject. Dr. Haviland in 1855 seemed to have been the first to attempt to discover the influence of climate and configuration upon rheumatism. In the present light of the generally accepted etiology of rheumatism, Dr. Morgan's paper did not presume or attempt to show that rheumatism was caused by any other factor than an infection, but tried to draw a correlation between the primary attack and the weather and the tendency of recurring attacks to be often associated with changed conditions of the atmosphere. Many writers had observed that cases of acute rheumatism were not distributed evenly throughout the year, and so humidity had been given much attention (Garrod, Lobert); Longstaff, Newsholm and others considered the relation between humidity and rheumatism to be an inverse one; others that there was no marked coincidence between the cause of rheumatism and rainfall. It was clear that there must be some reasonable basis for this discussion. Rheumatism was a disease of temperate climate, not of arctic regions, and in the temperate climates was not always most common in winter. Neither was it most common at the two extremes of life. In moderately low temperature accompanied by moisture were the times when they found rheumatism more prevalent. Besides moisture and temperature, ventilation seemed to have much to do with the prevention of rheumatism. Too much could not be said of ventilation and a locality that was open and airy. There was a popular idea that rheumatism, neuralgia, and gout were made worse by an approaching storm.

"Hark how the chairs and tables crack,
Old Betty's bones are on the rack!"

In the case of Captain Catlin, which had been referred to by Dr. S. Weir Mitchell, the distance of a storm could often be predicted by the recurrence of neuralgia. Dr. J. M. Rodd had spoken of the strange meteorological phenomena of this country in the way of magnetic storms. These moving somewhat like a cyclonic disturbance across the continent from west to east, had also an effect upon them in some mysterious way, and the patients had neuralgic and rheumatic pains intensified. If the millennium were at hand, or they had the land of Utopia, they would order for the rheumatic patient a combination of dry soil, low humidity, equable temperature, and an airy situation.

The Climate of San Diego, California, Region with Relation to Renal Disease.—Dr. P. M. Carrington, Surgeon, U. S. Public Health Service, read this paper. It had been said that figures did not lie, but that liars sometimes used figures; in considering mortality statistics with reference particularly to the chronic diseases, some corrections or explanations were necessary to make them tell the truth, for in their system of collecting vital statistics no provision was made for charging back to the locality of origin, deaths of transient residents, from diseases contracted elsewhere than at the place of death, so that in the Southwest, for instance, where large numbers of consumptives resorted, the death rate from tuberculosis was high, although the climate of that region was a most favorable one for consumptives. In concluding his paper Dr. Carrington said that experience showed, and opinions of those whose judgment they must respect, supported the proposition that renal diseases were more prevalent in climates subject to great and sudden changes of temperature and where other causative factors were practically the same as in regions where such diseases were less prevalent. Vital statistics, while not so conclusive, in general bore witness to the same facts. The experience and testimony of their confreres in localities of equable climate was to the effect that nephritics did well, felt better, lived longer and even in some cases seemingly recovered in climates of which San Diego presented an example. That a part of the observed beneficial effect might be due to more sane modes of living was admitted, but both reason and experience persuaded them that the even climate must be credited with an influence in the general good results, even though the exact proportion of its influence was not demonstrable.

Clinical Observations on Blood Pressure.—Dr. Judson Daland of Philadelphia, Penna., read this paper. He said that the frequency of errors in the making and interpretation of blood pressure records suggested the desirability of bringing the subject before their association for discussion. The small spring sphygmomanometer was employed by most physicians but the mercury manometer should be preferred because of its greater accuracy. Diastolic pressure observations were often omitted whereby valuable information obtained from a study of the low

and mean pressure was lost. Usually but a single blood pressure record was made, although it was often necessary to observe the effects of work, rest, sleep and emotional excitement. Blood pressure depended upon (1) the amount of resistance offered by the capillaries and arterioles; (2) the elasticity of the arteries; (3) the force of the heart; (4) the amount of blood in the arterial system; and but slight importance was to be attached to the viscosity of the blood. The most important factor, clinically, was the state of the vasomotor system. This system might be considered from the standpoint of the vasomotor center in the medulla, the local vasomotor centers controlling regions of the body, as, for example, the brain or the gastrointestinal tract, and the nervous mechanism controlling individual or groups of capillaries or arterioles. These centric and peripheral centers were readily acted upon by stimuli from various parts of the body, as for example, the cerebral cortex, the skin, regions the seat of intense pain, and also by toxemias, variations in the secretions of the thyroid, the adrenals, or the ovary. Physiologically, blood pressure varied at different times of the day, and was influenced by rest, cerebral or muscular work, and emotional or physical excitement. Variations thus induced were modified by disease. A sudden unexpected noise, such as produced by a china bowl falling to the floor and breaking with a loud crash, had produced a sudden temporary increase of blood pressure of from 20 to 30 mm. Furthermore, it was evident that a correct interpretation of blood pressure records, more especially in those of a nervous temperament, required, not only the selection of a proper instrument and correct technique, but also that the patient be under average ordinary physiological conditions. Multiple blood pressure examinations, under various conditions, were often necessary before sufficient data were secured upon which to base a proper interpretation. Idiosyncrasies regarding blood pressure might be expected analagous to those observed in the pulse rate, the respirations, and the temperature. A man engaged in heavy manual labor, when confined to bed for some weeks from a non-febrile disease, not infrequently showed secondary hypotension, due to prolonged rest, muscular inactivity, and relaxation; whereas such patients, after a day's work, showed a higher blood pressure, which would be still higher while at work. Occupations involving great responsibilities and strain of the nervous system tended to hypertension; and the blood pressure of an orator of a nervous temperament was apt to be high while delivering an oration. Many surgeons showed hypertension owing to the great responsibilities and excitement attending serious operations.

Temperament played an important rôle in the production of variable and high blood pressure, the phlegmatic showing the least and the neurotic the maximum variations. Extraordinary variations, all tending to hypertension, were observed in the neuropathic. Driving an automobile for two hours through the crowded streets caused an increase of 30 mm. in the systolic blood pressure and 15 mm. in the diastolic; whereas under similar conditions, while driving quietly where there was but little traffic, caused an increase of but 10 mm. in the systolic and a decrease of 5 mm. in the diastolic pressure. These variations might be interpreted as resulting from excitement produced by automobiling. A neurotic woman stated that the act of taking the blood pressure always caused fright similar to that occasioned by the near approach of a rapidly moving horse and carriage, while crossing the street. Fright, thus induced, caused a systolic pressure of from 205 to 235 mm. and a pulse pressure of from 65 to 90 mm. Physiological conditions must be secured before making a blood pressure determination. No patient, more especially one of a nervous temperament, should be examined immediately after arriving at the physician's office, unless a control observation was made later, and any evidence of haste or excitement should be avoided. The first observation was made in the sitting posture, the second after reclining for a few minutes, and a third immediately after making ten vigorous bending movements, touching the fingers to the floor with each movement. The average systolic pressure in an adult in the sitting posture, under average physiological conditions, was from 120 to 130 mm., and the average diastolic pressure was 20 or 30 mm. less. Occasionally the normal blood pressure of certain individuals might be 5, 10, or more mm. higher or lower. In recumbency, as a rule, the systolic and diastolic pressure fell 5 or 10 mm., although occasionally the systolic pressure might remain unchanged and the diastolic pressure fell 5 or 10 mm. Immediately after exercise the systolic and diastolic pressure were ordinarily 5 or 10 mm. higher than that obtained in the sitting posture. The average pulse amplitude or pulse pressure was about 20 or 30 mm. Occasionally it was desirable that the blood pressure be determined after rapidly walking a certain known distance, or after running rapidly up and down three flights of stairs. Valuable information as to the state of the nervous system, and especially of the vasomotor system, was obtained from blood pressure observations based upon the foregoing considerations. In many cases of failure of compensation of the heart the blood pressure tended to decrease and the pulse pressure remained approximately normal. In well marked aortic regurgitation, where compensation was preserved, the systolic pressure was usually high, the diastolic low, and the pulse pressure might be as much as 60 mm. or more. When the myocardium was organically or functionally weak, there was a tendency to hypotension. When compensation had been restored in the various diseases of the heart, the blood pressure might not be materially altered. As blood pressure was dependent, not alone upon the condition of the myocardium and vessels, but also upon the caliber of the artieroles and capillaries, extreme variations in blood pressure might be observed in the course of various forms of heart disease.

Uremia was a cause of persistent hypertension and asystolic pressure of 180 mm. to 315 mm. had been observed. Hypertension from this cause was usually uninfluenced by most drugs. A reduction of 20 mm. or more might be secured after profuse sweating induced by a cabinet bath or pilocarpin. In his experience nitroclycerin had been disappointing in its effects upon most cases of hypertension, even when given in ascending doses at short intervals, and usually the reduction in pressure had been slight and transitory, with no symptomatic improvement. Hypertension in uremia might be chiefly due to stimulation of the centric or peripheral vasomotor centers. When the nervous and muscular mechanism of the heart was normal, an increase in the strength of each systole might be largely due to an increase in the intraventricular pressure secondary to vasomotor constriction. Vasomotor instability was a frequent cause of blood pressure variations. In certain cases of acute lead poisoning, gout, intestinal toxemia and disturbance of the chemistry of intestinal digestion, hypertension had been observed.

By far the largest number of cases of hypertension in private practice occurred in nervous exhaustion, particularly in those who were neurotic or neuropathic. Comparatively insignificant causes were capable of producing in these individuals notable variations in blood pressure, usually tending toward hypertension. In psychoneurasthenia, readings of from 170 to 315 mm., with a pulse pressure of from 30 to 60 mm. or more had been observed. In chronic nervous exhaustion hypertension might persist continuously for months or years, eventually causing arteriosclerosis and left ventricular hypertrophy which might eventually lead to mitral and cardiac insufficiency. In certain cases of nervous exhaustion with hypertension, variations of 10, 15, or 20 mm. might occur within a few minutes, apparently due to vasomotor ataxia. In certain neurasthenics the blood pressure in the sitting position was unchanged by recumbency; or the systolic pressure might rise, and the diastolic pressure might increase or decrease. In like manner, exercise might produce no change in the blood pressure as compared with that taken in the sitting posture and occasionally a lowering is observed. These marked variations from the normal seemed best explained by viewing the vasomotor system as incoordinate or ataxic. Vasomotor ataxia presented its most classical clinical picture in certain cases of well marked menopause, many of them presenting not only extreme variations, but at times extreme hypertension rising to 200, 235, or even 270 mm., associated with a pulse pressure varying between 60 and 110 mm.

Hypertension might be caused by excessive secretion of the thyroid or adrenals. In a case of advanced Addison's disease, with great destruction of the adrenals the systolic pressure was 90 mm. and the diastolic pressure was 70 mm.

An Inquiry into the Cause of Bronchial Asthma.—Dr. Robert H. Babcock of Chicago presented this paper. He said that in order to facilitate the discussion of the etiology of bronchial asthma, the disease might be divided into two clinical forms. In one, the paroxysms of dyspnea first made their appearance in early childhood and thenceforth occurred with varying degrees of periodicity. They were induced by some irritant which the sufferer knew would excite his asthma. The paroxysms lasted a variable length of time and usually were arrested by some particular remedy. During the asthma-free intervals the patient was free from dyspnea and might feel entirely well. The individual might be permanently relieved of his asthma by change of climate, especially when the exciting

agent was found to be the pollen of some particular plant, although in some cases mere change of climate or locality proved remedial even when no special irritant could be identified. The practical application of what Dr. Babcock presented was this: In every case of asthma search for some form of chronic infection of the nasal accessory sinuses, in a chronic hyperplastic ethmoiditis, or in some closed cavity in any other part of the body and finding it advise its removal by surgical interference. If the absorption of a foreign protein could be prevented in this manner, it was likely that the asthmatic seizures would be prevented or greatly ameliorated. Of course in cases of asthma traceable to animal or vegetable emanations, or to some article of food to which the person had become sensitized, they could do no more than advise the avoidance of exposure to the exciting cause. Nevertheless, the understanding of the etiology of this distressing malady certainly gave them a basis for rational and effective therapeutics in many instances that otherwise might go unrelieved.

What Relation, if Any, Have the Tonsils to Pulmonary Tuberculosis?—Dr. E. Fletcher Ingals of Chicago read this paper. He said that during the last fifteen years many articles had appeared in medical journals on the relation of the tonsils to pulmonary tuberculosis. At the early part of this period it was frequently claimed that the tonsils were a common portal of infection for the pulmonary disease, but subsequent research demonstrated that the tubercle bacilli might penetrate the tonsils and pass through them to the lymphatic cervical glands, causing tuberculosis of the latter, without any involvement of the faucial tonsils. It was shown, however, that there was no connection between the cervical glands and the pulmonary lymphatics. In a small percentage of cases the tonsils appeared to be primarily involved in cases of pulmonary tuberculosis, but usually tubercular changes in these glands were secondary and the bacilli appeared to have been absorbed from the sputum. It had been shown that the tonsils were the portal of entrance for the tubercle bacilli in many cases of tubercular cervical adenitis, yet inflammation of the cervical glands, non-tubercular in character, appeared to be much more frequently due to absorption of infection through the tonsils. The consensus of opinion now was that pulmonary tuberculosis was generally a systemic infection of aërogenous origin, and that when the tubercle bacilli were taken up by the lymphatics they were poured into the general circulation. In pulmonary tuberculosis the bronchial glands might be primarily involved, but this did not appear to be the usual course of the disease. In a recent statement one of the best-known pathologists said that he did not think there was any relation between diseases of the tonsils and pulmonary tuberculosis.

The Nutritional Effect of Intermittent Albuminuria of Adolescence.—Dr. Fremont-Smith of Washington, D. C., reported the cases of two lads, one of seventeen and the other of twenty-one years, who had transitory albuminuria. Both had been under observation for ten years. The elder had entirely recovered. From the opinions of certain authors mentioned, as well as from his personal experience, not only with the two cases detailed, but in many others which he had been able to follow for a less period of time, one was led to the conclusion that transitory albuminuria, intermittent or remittent in character, had little or no effect upon the nutrition of the child. They met with many children who suffered from varied forms of malnutrition in whom albuminuria was never present; in proportion a much larger number indicated malnutrition without albumin than with it. It must of course be accepted that transitory albuminuria continuing for years, though in adolescence, whether primary or succeeding some mild exanthem, required careful care, and in no individual case should one assume that the ultimate result might not be permanent injury to renal structures, but it was significant of the comparative, or complete harmlessness of the condition discussed, that as one followed literature from the earliest imperfect studies to the latest complete analyses, opinion had crystallized in the minds of authors and students of children, that they were dealing with, in most instances, a harmless and passing phase of adolescent life.

Thursday, May 8—Third Day.

The Fruits of Laboratory Work in Relation to Clinical Tuberculosis.—Dr. Edward R. Baldwin of Saranac Lake, N. Y., read this paper. He said the habit of making distinctions between clinicians and laboratory workers had grown up in later times. It was inevitable when the increasing complexity of medical science made a subdivision of labor imperative. The result had been unfortunate in some respects. Inability of the pure clinician to appreciate the laboratory specialist, and on the other hand a contempt for the art of medicine, at least the empirical side of it, on the part of the laboratory man had ensued. When they asked what fruits had come from laboratory work in tuberculosis, one naturally harked back to Koch's discovery of the bacillus, but really one should go still further back. Villemin, in 1865, properly began to bear fruit, and since Koch they had never ceased to improve their diagnosis and treatment with the aid of laboratory studies. It was true much time had been given to it, but so it was with the physician at the bedside. False deductions in the laboratory as well as at the bedside had cost many lives. This was why medicine blundered along toward an exact science but never reached it. Probably no single fruit ever equaled the discovery of the bacillus in importance, and a close second was tuberculin, the value of which was now being appreciated. As an addition to treatment tuberculin had not been such a boon, but in revealing the enormous number of infected individuals, both human and bovine, the whole program of tuberculosis prevention was influenced. The ideas of inheritance were so dominant in the past, it was painful to think what would have happened but for Koch's work. Dr. Baldwin then considered what the laboratory had done directly or indirectly for the diagnosis of tuberculosis in addition to the discovery of the bacillus.

A Year's Observation on Symptoms in Cases of Advanced Tuberculosis in the Los Angeles County Hospital, in Connection with Weather Conditions.—Dr. Charles C. Browning of Los Angeles, Cal., read this paper and presented several charts. In 1908 he reported to the society some observations made regarding the apparent influence on temperature and hemorrhage in tuberculous patients with reference to certain meteorological phenomena. It appeared from that report that unreasonable, or very sudden, changes in temperature appeared to influence the temperature of patients while equal or greater changes occurring slowly did not. Of the cases of hemorrhages reported at that time, it appeared that hemorrhages tended to occur in groups, and of these about four times the number occurred when there was a barometric pressure change exceeding .3 of an inch within twenty-four hours than when the barometric change was less. The hemorrhages appeared to be more frequent if there had been a decided change in one direction, as a marked rise followed by a marked change in the opposite direction, a sudden fall. In his paper he said he wished especially to call attention to some observations extending over a year on tuberculous patients, to present charts which showed the scope of the work, and also to refer to the different phenomena. There were recorded during the year 21,968 patient day observations, with an average of 61 patients charted daily. There was an average of about 70 patients in the wards, but there were a number who for various reasons were not noted. Hemorrhage and death groups were quite noticeable during some months, but not during others. There were recorded 217 hemorrhages, six of which were fatal, and 227 deaths. Climatic conditions could only act to a certain extent as determining factors in producing the symptoms recorded. The conditions which appeared to influence groups of hemorrhages and deaths appeared to be barometric pressure, humidity and cloudiness, each in its turn appearing to be the most prominent index to weather conditions, which seemed to exert a limited determining influence, as shown by the charts presented.

The Influence of Smoke on Acute and Chronic Lung Infections.—Dr. Wm. Charles White and Paul Shuey of Pittsburgh, presented this paper. The mortality statistics were based on reports received through the courtesy of Dr. C. L. Wilbur, Chief of the Division of Vital Statistics of the United States Census Bureau, and also through the courtesy of the various Boards of Health of the different cities. They stated that smoke as a problem of cities' health had its main influence upon the respiratory passages. As types of acute and chronic lung infections, on which smoke might have a varying influence, pneumonia and tuberculosis had been chosen. These diseases had been studied from a statistical standpoint for various cities scattered throughout the United States, and comparisons made with the city of Pittsburgh, which probably had the greatest number of smoky days in the year. In considering the influence of smoke on acute and chronic fatal lung infections, the question of age of distribution, age of city, poverty on the basis of congestion, and topography of the city had been taken into account. The later feature in such a city as Pittsburgh, with high hills and river valleys, allowed a partial segregation of the city into areas of varying smoke density. In other cities, such as Indianapolis, the flat contour did not allow such divisions. The chief

tendency of the study seemed to indicate that smoke had rather a severe influence on pneumonia, with a much less influence on tuberculosis.

The Rôle of Physical Exercise in the Open Air in the Prophylaxis of Tuberculosis.—Dr. James M. Anders of Philadelphia, Pa., read this paper. He said the disposition on the part of physicians was to overlook the importance of muscular exercise in the prophylactic treatment of pulmonary tuberculosis, since the general acceptance of the principle of rest in the treatment of all cases of this disease in which fever was present. The object of this paper was not to attempt to underrate the great value of rest in the active stages of this disease, but rather to emphasize the first-rate importance of systematic muscular exercise as a means of minimizing the number of susceptible persons. The American race, as a whole, was undergoing muscular deterioration. On the other hand, the endurance or resistance of an individual was in direct relation to his muscular development. Muscular development was considered in relation to climate. The prevention of tuberculosis involved something more than physical exercise, but the commanding position of this measure was undoubted. Effect of systematic physical exercise, combined with deep breathing, upon the vital power and resistance of the lung texture was considered. Competitive athletics were not to be encouraged among the young. Increased respiratory exchange in muscular activity increased the nutrition and general health of the body. The details connected with the question of the regulation of muscular exercise must vary with the individual.

The Two Most Important Factors in the Treatment of Tuberculosis.—Dr. DeLancey Rochester of Buffalo, N. Y., read this paper and stated that the mortality from tuberculosis to a considerable degree had diminished in those localities where a vigorous anti-tuberculosis campaign had been waged and this showed that more cases had been recognized in a curable state and by proper methods of treatment had been cured. So far as he knew there had been in the past and there were now no reliable statistics showing the incidence of the disease, so they did not know whether there had been lessening in the morbidity from the disease or not. Personally he believed there had not been. For the prevention of any infectious disease it was necessary to so act upon the tissues of the body as to render them unsuitable media for the growth of the particular microorganism which caused the disease, or to prevent the dissemination of this particular microorganism. Examples of what could be accomplished in the former way were the vaccination to prevent smallpox and the antityphoid inoculation to prevent typhoid fever. Examples of the latter were the prevention of the spread of malaria and yellow fever by the destruction of the particular species of mosquitos which carried the germs of the disease. The preparation of the tissues of the body so that they would not be good media for the growth of the tubercle bacillus had been the aim of the profession for many generations. Merely to mention this fact was sufficient evidence to show what an utter failure had been made. Instruction in regard to destruction of sputum and feces, in regard to precaution as to personal contact with others, and in regard to apartments lately occupied by the tuberculous, were all of value in checking the spread of the disease; but it was Dr. Rochester's opinion that some plan, as outlined, of compulsory reporting of cases and compulsory removal of suitable patients in their proper sanatoria would be much more efficacious than all the other procedures in ridding them of the great white plague.

Cancer Among Native Africans.—E. Legrain refers to the extraordinary rarity among the natives of Africa of malignant tumors, particularly of the internal organs. Isolated cutaneous sarcomata appear to be the main form of cancer attacking these people. Benign tumors are fairly common. Europeans resident in Africa show the same incidence of cancer as the inhabitants of Europe.—*Revue Suisse de Médecine.*

Infantile Lithiasis.—Von Bókay notes that the incidence of this condition varies in different countries. In some parts of the world it is practically unknown. In Hungary and in the central part of Russia along the Volga it is quite common. An analysis of 1,836 cases shows that the disease occurs in children most frequently between the second and seventh years. There were 1,310 cases of vesical calculus, 9 of renal calculus, and 508 of ureteral calculus. In the etiology of infantile lithiasis obstruction to the urinary outflow plays a predominant rôle. The main obstruction is congenital phimosis and the adhesion of the prepuce to the glans.—*Zeitschrift für Kinderheilkunde.*

Therapeutic Hints.

Treatment of Seborrhea of the Scalp.—Sabouraud recommends massage of the scalp every evening with the following ointment:

℞ Resorcin,
Ichthyol,
Yellow oxide of mercury,
Precipitated sulphur, āā 1 gram.
Pyrogallic acid, 0.50 to 1 gram.
Oil of cade,
Lanolin,
Vaseline, āā 10 grams.

The scalp should be shampooed the next morning.—*Journal de Médecine de Paris,* April, 1913.

Thallium Acetate in the Treatment of Hypertrichosis of the Upper Lip.—A. F. Plicque states that this condition which is particularly distressing when present in women is best combated by means of the local application of thallium acetate, as recommended by Sabouraud, in the following formula:

℞ Thallium acetate, 0.30 gram.
Zinc oxide, 2 grams.
Vaseline, 20 grams.
Lanolin, 5 grams.
Rose water, 5 grams.

The action of this ointment is mild and slow, but it is continuous and progressive. It reduces the length and thickness of the down and decolorizes it. There are no bad effects.

The Treatment of Eczema of the Scalp in Infants.—Max Joseph finds that eczema of the scalp in infants responds quickly to the cinnabar salve recommended by Lassar. The formula of this is as follows:

℞ Red sulphide of mercury, 1 gram.
Sublimed sulphur, 24 grams.
Oil of bergamot, 25 drops.
Vaseline, q.s. ad 100 grams.

This ointment is applied to the scalp twice daily on gauze retained by a bandage, and every other day the scalp is cleansed with oil. As soon as the eczema has been transformed into a dry variety the salve is applied only for the night. When the eruption is represented only by a few superficial scales, the following ointment is effective:

℞ Salicylic acid, 1 gram.
Tincture of benzoin, 3 grams.
Vaseline, q.s. ad 50 grams.

Foot Powders for Hyperidrosis.—C. Sabatié recommends the following:

℞ Salicylic acid, 1 gram.
Rice powder, 10 grams.
Talc, 40 grams.

℞ Subnitrate of bismuth, 50 grams.
Sodium salicylate, 10 grams.

℞ Talc.
Subnitrate of bismuth, āā, 40 grams.
Pulverized alum, 10 grams.
Potassium permanganate, 2 grams.

Treatment of Migraine.—Gordon Holmes has employed the following prescription with the most gratifying results in checking the attacks of migraine:

℞ Sodii bromidi, grs. xii.
Antipyrini, grs. vii.
Tinct. cimicifugæ, ♏ xx.
Aquæ, q. s. ad ℥ ss.

This dose should be administered twice a day.—*The Practitioner,* June, 1913.

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Original Articles.

THE PROBLEM OF THE SOCIAL EVIL CONSIDERED IN ITS SOCIAL AND MEDICAL ASPECTS AND IN ITS RELATION TO THE PROBLEM OF RACE BETTERMENT.*

By J. EWING MEARS, M.D., LL.D.,
PHILADELPHIA.

The prostitute is a product of civilization. As such, she does not exist in barbaric life. No highly civilized people has ever been free from her presence and from the baneful influences exerted by her. Closely interwoven into the meshes of civilization, she has traveled over the pages of history from the days of Moses, the great lawgiver, to the present time. In the varied phases of her life she has sat upon thrones, the consort of potentates; she has taken part in the council of nations, as the mistress of statesmen and councillors; she has exerted her influence and power in the edicts of courts of justice, and as well in the courts of diplomacy and arbitration in which the great questions between the nations of the world have received adjudication; she has accompanied the great armies of the world to the battlefields and has sailed over the seas in the battleships of nations, leading them, as history has recorded, with the song of the siren, to their destruction. Choosing, in the great majority of cases, her mode of life to escape toil as a means of livelihood, insubordinate to discipline and self-control, she is essentially a creature of ease and of luxury, and thrives under conditions of prosperity. She shares with the millionaire his accumulated wealth and deserts him when disaster overtakes him, for which she may have been largely responsible. In some instances, but rarely, she has garnered the profits of her life and has retired upon a competency which has enabled her to lead a life of quasi-reformation and quasi-respectability.

There is another class of prostitutes who are either born into the life of prostitution or who come from the lower classes of the people. In early life deprived of instruction in morality, and of the influences exerted by an environment of Christian living and example, they, from the beginning, become the associates of criminals and partners in their nefarious practices. The life of crime and debauchery they lead soon makes them the subject of specific disease, the victim of the alcohol and drug habits, and they end their days in prison or in the almshouse, entombed on death in a pauper's grave, or mayhap their bodies are delivered to the anatomical laboratory of a medical institution, to be used in promoting medical science, and through the instruction thus given return some good for the great evil their lives have wrought.

I have chosen to bring this subject before you on this occasion, since its discussion is engaging the earnest attention of the authorities of the great cities of our country, and it has as well claimed legislative interference on the part of our government. Our profession is called upon to take an important part in the efforts to solve the problem which it presents in its intimate relation to the problem of race betterment. The social and moral questions which it involves claim the study of the sociologist and philanthropist, arouse interest and stimulate effort in the solution of the great problem which has remained unsolved from the earliest times. The Church, with the moral law in one hand and the flaming sword of punishment in the other, has failed in fruitless crusades to solve the problem. It comes to us to-day, therefore, unchanged in its essential features, adapting itself simply to the conditions which characterize our civilization. These conditions are such, that base as were the sexual orgies which accompanied religious worship among the ancient nations of the East, and those also which gave a name to the cities of Sodom and Gomorrah which time can never efface, the practices of debauchery in the modern cities of Paris and Amsterdam, as well as in the great cities of our own country, cause them to pale into insignificance.

It has been truly said that a problem is not solved until it is correctly solved. Hence the great importance of the careful study of the history of prostitution as it has existed from its very beginning in the world to the present day, in order that those who undertake the solution of the problem may know what efforts have been made in this direction and with what results.

It is futile to attempt to accomplish its eradication from the social life of to-day by the employment of even the hardest methods of punishment which are recorded in Biblical literature. It has survived these methods and comes to us a more difficult problem by reason of the reaction which followed these conditions. The Mosaic code of morality tolerated prostitution so long as it did not touch the race or religion. Even this degree of disapproval was not strictly maintained, as there was at least one prominent person who was the son of a harlot.* Jewish fathers were forbidden to turn their daughters into prostitutes, and the daughters of priests who became prostitutes were punished by burning. There is undoubted evidence that prostitution prevailed extensively in Palestine in the earlier days. Forbidden to reside in Jerusalem and to enter places of worship, they infested the waysides and were known by a distinctive dress. It is asserted that Moses in his ordinances, promulgated concerning the conservation of the public

*Paper read before the Georgia Medical Association at its annual meeting held in Savannah, April 18, 1913.

*Jephthah; Judges xi, 1.

health, gave unmistakable evidences of the recognition of syphilis and of its contagious character (Lev. 45).

In the early days of Greek history there appears, under the edicts of Solon, the first attempts made with regard to the regulation of prostitution and to the establishment of houses for prostitutes which were a monopoly of the State. Stringent municipal regulations controlled the inmates of these houses, relating to a distinctive dress, exclusion from the parts of the town occupied by the better class (segregation), and inhibition from taking any part in religious rites. Here is found the first introduction of police control of the prostitute, and with it the beginning of the difficulties which are encountered by modern administrations.

In Greece there were grades of prostitutes, the superior class consisting of gifted and brilliant members who wielded great power and influence, to such degree as to triumph over the law, opening the door to general laxity in morals and indulgence in sexual excesses and practices of the most debased character.

Among the Romans prostitution was more severely regulated than by any other ancient race. The system of police registration in the early days of the republic was introduced and it has continued until this time as an essential feature of Continental administration. On registration, licenses were issued to prostitutes on payment of a tax. Once placed on the register their names could never be erased and thus they remained forever under an indelible stain. Notwithstanding the enforcement of these measures, which in the later days of the Republic were increased in severity, they failed to stem the rising tide of immorality, the effect being rather to promote its general prevalence, so that the profligacy of Imperial Rome has never been surpassed for gross and obscene sensuality.

Under the influence of Christianity a more charitable attitude was adopted toward prostitutes, social and legal outcasts as they were. In the fourth century the State tax was removed in part and registration was abolished. The effort of Theodora, the wife of the Roman Emperor Justinian the Great (483 to 565), herself a notorious prostitute before her marriage, to establish on the Bosphorus a rescue home for her fallen sisters, was an evidence of a turning point in the treatment of a class which had hitherto been deprived of kindly regard or public sympathy. Its failure, by reason of the hostility of the prostitutes to restraint, was also an evidence of the great difficulty which presents itself in this day in promoting reclamation.

While the early Christian Church laid great stress upon chastity, it was not severe upon prostitutes. Some of the fathers especially recognized their trade as a necessary evil, among them St. Augustine, who felt that its suppression would give rise to and stimulate more destructive conditions of immorality. Vice held possession of the institutions and ministers of the Church before the Middle Ages. This condition was followed by a period of reform, and under a wave of Christian fervor supplemented by a rise of chivalry, a vigorous campaign was made against the prevailing evil. Rescue missions were organized and convents founded for the reception of penitents. Edicts of the Church pronounced it a praiseworthy act to marry a prostitute. The clergy and laity who drew profit from prostitution were banished. In spite of these efforts prostitution flourished everywhere in the Middle Ages, not only tolerated but licensed and regulated by law. In London, in 1161, houses of prostitution were licensed by the bishops of the Church (Winchester) and sanctioned by Parliament—the regulations controlling them were protective rather than repressive. In 1383 the bordels of London were farmed out by the Lord Mayor. In 1546 they were abolished by Henry VIII.

In London the earliest known regulations against the spread of venereal disease were promulgated, the Act of 1161 forbidding the keepers of bordels to have women suffering from the perilous "infirmity of burning" (gonorrhea, without doubt), and to admit men suffering from an "infirmitas nefanda" (possibly syphilis). Keepers violating these regulations were imprisoned and banished from the city. During this period of time the same conditions prevailed on the Continent, prostitution being both protected and regulated, and in many cases constituting a source of public revenue. In France public brothels were established on a large scale. At Toulouse the profits were shared between the city and the University—in some places the trade was a municipal monopoly and farmed out to individuals. The first introduction of medical examination of the inmates of brothels, so far as recorded, occurred in Avignon during the time it was the Papal residence—procuration in later times was punished with extreme severity. In some parts of France prostitutes paid a tax to seigneurs (lords and members of the nobility).

In Germany during the Middle Ages brothels (frauen-häuser) existed in many places—in some built by the towns and farmed out. Admission to these houses was forbidden to married men, the clergy, and to Jews. On Sundays and saints' days they were closed. Hospitality to important guests included placing the public "frauen-häusen" at their disposal. It is recorded that Emperor Sigismund was treated so much to his satisfaction in these houses that he publicly complimented his hosts in cities he visited.

In Italy and Spain the system appears to have been the same. Prostitutes were compelled in different places to submit to local regulations, such as those which required them to wear a distinctive dress, to leave a neighborhood on complaint of other residents, and they were forbidden to frequent wine-shops. At Naples a court of prostitution was established having jurisdiction over all matters connected with prostitution; it led to great abuses, was reformed, and finally abolished about 1689.

At the end of the Middle Ages two causes, (1) fear of disease, and (2) the Reformation, effected a great change. Although the "slighter and graver forms of venereal disease were known to exist in very remote times they attracted very little attention until the fifteenth century. The constitutional character of syphilis was certainly not understood, but it is difficult to understand why more notice was not taken of it by medical, moral, and historical writers in classical and mediæval times; it can only be concluded that it was less widely spread and less virulent than it afterward became; it was thought to have originated *de novo* or to have been imported by Columbus from the West Indies."

The reformation which followed this widespread occurrence of syphilis initiated a general and active campaign against licensed prostitution. On the Continent and in London public brothels were closed and abolished, and prostitutes in Paris were ordered to leave the city in twenty-four hours.

Municipal brothels were never tolerated again. Following these measures of repression the crime of infanticide appeared, with the establishment of foundling-hospitals and an increased prevalence of syphilis. Prostitution was not abolished by these conditions or its prevalence abated.

In 1635 sèvere measures of repression were enforced in Paris. Men who were connected with the traffic were condemned to the galleys for life. Women and girls were whipped, shaved, and banished for life. In England, fornication was punishable by three months' imprisonment, with bail for good behavior. Bawds were whipped, pilloried, branded, and imprisoned for three years; the second offense was punished by death. In Hamburg, brothels were pulled down and the women expelled from the town. A greater reaction followed these measures.

Following these conditions there came in the eighteenth century the establishment of an organized police force for the control of prostitution, with registration of prostitutes and medical examinations at stated times, with the object of the protection of health. To the barber, who was the surgeon at that time, the duty of medical examinations was entrusted. The closure of the public brothels greatly increased the growth of private institutions and nullified the efforts to enforce medical examinations—registration also failed in placing on the registers a full list of those engaged in the traffic. In Germany and in France prostitution was not permitted by ordinances, "but simply tolerated as a necessary evil to avoid greater disorders which are not to be restrained by law or authority, and which take their rise from an inextinguishable natural appetite."

At the present time in France, Germany, Austria, and on the Continent generally prostitution is not forbidden. In the former countries it is regulated by police control, including registration, medical examinations, and confinement in hospital until acute conditions of venereal diseases are passed. Severe penalties are attached to certain violations of the laws—procuration by parents, guardians, and others is punished by imprisonment from one to five years.

In Great Britain the law which dates from the middle of the eighteenth century regards prostitution solely as a public nuisance. Penalties are enforced against violation of the law, including fines, imprisonment from five years to a life sentence—these severe penalties relate especially to the procuration of young girls and enticing them to become the inmates of brothels. The police were required to proceed against common prostitutes for riotous behavior, loitering on the streets, soliciting passengers or inhabitants.

In 1864, a Contagious Disease Prevention Act was passed providing for the compulsory medical examination of prostitutes and detention in hospital of those found diseased in certain garrison towns. In 1866 an important memorial was drawn up by the Royal College of Physicians and Surgeons in favor of the original and amended Acts and their application to a large number of places. A popular agitation, based on moral and humanitarian grounds, was continuously carried on against the Acts, which finally led, in 1866, to their repeal, notwithstanding there was direct evidence strongly in favor of them and the results which flowed from their enforcement. These results were manifest in the diminution of venereal diseases among the troops in the protected towns, the absence of complaints, and the good effect on public order to which clergymen and other residents testified. In India, among the troops of the English Army, an enormous increase of syphilis followed the repeal of the laws requiring compulsory medical examinations of prostitutes near cantonments, and power was given to enforce the attendance at the dispensary of all persons suffering from a contagious disease; brothels were removed and residence of prostitutes near cantonments was forbidden. In the city of St. Louis in our country, from 1870 to 1873, a modified sanitary control of prostitution was attempted, and was most beneficial in its result so long as it lasted.

A letter received from a distinguished physician of St. Louis contains the following information with regard to the working of this system of control. "Under the law every prostitute was registered and examined twice a week and two dollars was charged for the service. With the proceeds the Women's Hospital was built. The law worked well, and under its execution venereal disease was markedly reduced. After two or more years' trial of the system it was repealed, on account of the protest of several ministers that the city was licnsing crime. Thus a good law was repealed and disease ran riot again.

"Venereal disease is more prevalent in this country and in England than in any civilized country of the world, and all because those in authority are influenced by a false sentiment which dominates our social life.

"There are some people who look at the conditions which exist in the world through a vertical crack of study and observation, and naturally their view of these conditions is limited, and bereft of full and proper understanding they see little that gives knowledge and understanding."

The above summary of existing laws and regulations sufficiently indicate the present methods of dealing with prostitution. The French system of recognized houses, with registration and police supervision, is generally adopted on the Continent, while in Great Britain and the British self-governing colonies, and in the United States, comparative freedom exists, without a moral police or one possessing arbitrary executive power independent of the courts of justice.

Experience has proved that all of the systems have their defects and all fail to fulfil their purpose in great cities. On the Continent public order and propriety are preserved, but at the cost of submitting to an arbitrary police rule intolerable to a free people. In Italy there appears to be less prostitution, both actual and visible, than in other countries. An energetic police, under the system in force in Great Britain, is able to keep the streets in provincial towns orderly, but in London the mass of prostitution is so great that the police are unable to cope with it. Important thoroughfares and centres are frequented by large numbers of prostitutes in broad daylight and choked by them at night. Solicitation in the most offensive and flagrant manner is permitted by the police, who seem to content themselves with preventing positive tumults, with frequent failures in accomplishing this. Public brothels, except in Dublin, do not exists to any extent; there they are confined to one street, and there is little or no restraint imposed upon their traffic.

The impotence of the law in preventing the existence of brothels and in securing complete registra-

tion of prostitutes is very evident. The latter, if rigorously enforced, develops clandestine prostitution, and as a result venereal diseases prevail extensively in all large continental towns. Norway, as an exception to other continental countries, keeps accurate records of the prevalence of venereal disease. As a rule the only exact figures available are the military returns furnished by officers of troops in garrison towns.

Tables giving the proportion of admission to hospital from all forms of venereal disease, prepared from 1876 to 1895, show that the percentage of admissions from the British forces is enormously higher than that of the continental forces, where the system of protection is carried out so thoroughly. It is interesting to note that this high percentage was markedly lowered among the British troops during the period of time when the Contagious Disease Prevention Act was in force. Just before this Act came into operation the proportional figure was 260; ten years later it had fallen to 126; protection being removed by repeal of the Act, it rose to 276. In the Indian troops the absence of protection permitted a startling increase, the hospital admissions for primary syphilis rising from 75.5 to 174.1 per 1000, and those from secondary syphilis from 29.4 to 84.9. These statistics would seem to show beyond any question that rigidly enforced registration and medical examination fulfil to a considerable extent the purpose of protecting health.

In 1900 the Prussian government made an attempt, with the coöperation of the medical corporations, to ascertain the amount of venereal diseases prevalent in the kingdom. In reply to circular questions addressed to all members of the medical profession, requesting them to report the number of patients suffering from those diseases in their practice at a certain date, 63 per cent. reported an aggregate number of 40,902 patients. From this information it is estimated that the number of persons attacked at that time in the course of a year was at very least 500,000 in that country alone.

The author (*Encyclopedia Britannica*, 10th edition, A. Shadwell, M.D.) from whose article I have taken the foregoing summary of the history of prostitution, presents his conclusions, drawn from a careful study of the subject, in the following manner: "Prostitution appears to be inseparable from human society in large communities. In different countries and ages it has in turn been patronized and prohibited, ignored and recognized, tolerated and condemned, regulated and let alone, flaunted and concealed. Christianity, the greatest moral force in the history of mankind, has repeatedly and systematically attacked it with a scourge in one hand and a balm in the other, but the effect has been trifling or transient. Nor have all the social and administrative resources of modern civilization availed to exercise an effective control. The elementary laws on which prostitution rests are stronger than the artificial codes imposed by moral teaching, conventional standards, or legislatures, and attempts at repression only lead to a change of form, not of substance. It survives all treatment, and although it may coëxist with national vigor, its extravagant development is one of the signs of a rotten and decaying civilization."

Today the problem presents itself for solution in our country surrounded by conditions which are peculiar to us as a people and in very marked manner influenced by them. We are essentially a commercial nation, and prostitution, which has been defined to be promiscuous unchastity for gain, has taken its place in our large communities as a business, organized and controlled by all of the conditions of the most legitimate system of trade which constitute our commercial activities. Its laws of supply and demand bring into play the energies of a class of debased men and women who have made the principal city of our country the centre of vice of the nation if not of the whole world. As a result of the investigations made by the Vice Commission in the City of Philadelphia it has been ascertained that from seven to twelve millions of dollars are spent yearly in that city in vice, and that there are in operation between 600 and 700 houses of ill-repute. It has become a glaring part of our political systems in our large cities, and has developed an association with the police departments of those cities which makes them the protectors of the most debased forms of vice, extortioners of blackmail procedures and graft thieving, who thrive on the unholy trade of the unfortunate social outcasts and share with them their hard-earned, ill-gotten gains. In addition it has stimulated the growth of the most degraded class that ever disgraced the name of man, the creatures who live upon the earnings of individual prostitutes with whom they cohabit.

Samuel H. London, the investigator of the White Slave Traffic, connected with the Department of Justice at Washington, states as a result of his investigation, that the income of the unfortunate women who support men on their earnings may be estimated to amount in the City of New York to the enormous sum of $57,000,000 a year. This total represents incomes approximating $2200 a year on the average, and large as it is, it represents, according to his investigations, only a part of the amount spent in a year in this evil way, as he concerned himself only with commercialized vice. In his investigations Mr. London found that, against the 26,000 known unfortunate women who support men in New York City, there are only 37,000 in the rest of the country, a total of 63,000 human beings living in a state of bondage the horrors of which it is difficult to appreciate. Six thousand men are engaged in the City of New York in the White Slave Traffic, and they procure women by the hundreds to send to other cities. These statements present an appalling picture of the state of morality which holds sway in this day, the beginning days of the enlightened twentieth century, in the principal city of our country and in a degree in all of our large cities.

The study of the causes of prostitution is now claiming quite universal attention in our country, especially with reference to the measures which should be taken to stop its continued growth, to secure eventually, if possible, its absolute suppression and the reform of the women engaged in the traffic. The history of prostitution shows clearly that there are many avenues leading into the life, the principal of which is indolence, the love of excitement, and hostility to restraint: the same causes which make members of the criminal classes. A large number, it is claimed, have the sexual appetite developed in an abnormal degree—of 3855 interrogated by M. Buls, in Brussels, 1118 admitted "*le gout pour l'homme.*" Among the assigned secondary causes are: (1) difficulty of finding employment, (2) excessively laborious and ill-paid work, (3) harsh treatment of girls at home, (4) promiscuous and

indecent mode of living among the overcrowded poor, (5) the aggregation of people in communities and places of employment where the young are brought into constant contact with vicious and demoralized companions, (6) the example of luxury, self-indulgence, and loose manners set by the wealthier classes, with the style of dressing of the women of the present day which rests on the borderline between the necessity of body drapery and indecent body exposure, and which in the male provokes sexual emotions and stimulates sexual appetite, (7) demoralizing literature and amusements with the absence of proper descipline in the home, (8) the arts of profligate men and their agents."

The American Federation for Sex Hygiene, at the meeting of the Fifteenth International Congress on Hygiene and Demography, September 23, 1912, presented through a special committee, a report on "Sex Hygiene," which contained the following statement: "In the United States there are 300,000 public prostitutes; 50,000 die each year, and 50,000 are added to the list in the same time. All are infected by venereal disease. For each public prostitute there are ten clandestinely immoral girls. The sources of these are department stores, factories, mills, offices, schools. Their way is through dance halls, picture shows, theaters, cafés, saloons, to the house of assignation. It is a short step from clandestine to public prostitution. Fifty per cent., or upward of 14,000,000, boys and young men contract venereal disease. Hundreds of thousands of innocent wives are infected by their husbands. Fifty per cent. of all sterility is due to venereal disease in the male." This statement was placarded on the walls of one of the halls in which public meetings for the discussion of sex hygiene were held. While it may be in a way true, it is too general to be accepted as entirely worthy of consideration from a scientific viewpoint.

Reference has been made above to the efforts which have, from time to time, been made in the history of prostitution to accomplish reclamation of the women who have entered the life. "The earliest attempt was that of the Roman Empress Theodora, wife of Emperor Justinian, quoted above, herself a prostitute in early life, who established a home for five hundred women on the Bosphorus. After a time they could not bear the restraint; some threw themselves into the sea, and eventually the scheme was abandoned." The experience of those conducting rescue homes is of the same character. Mr. London, who has been quoted above, states it as his belief that the percentage of unfortunate women who reform is less than 2 per cent.; not more than two women of this type out of one hundred reform. He further states that every effort to put down vice by stringent laws has failed, and plans to reform unfortunate women, while they have accomplished much good, have never been far-reaching in their results.

As an illustration of the failure of vice crusades, and the enforcement of stringent laws to accomplish complete suppression, attention is directed to the attempts made recently to drive vice from the city of Chicago. Resorts were closed and the women driven into the streets. Offers made by managers of rescue homes and civic welfare organizations to provide homes and occupations at good pay, as well as every possible facility to lead a moral life, were spurned. Some went to other cities, but fifteen hundred remained in the city, and their disposition became the real problem of the situation resulting from the crusade of the State authority. In another city, where a vice crusade was carried out, it was found that street-walking was greatly increased and tenement and apartment houses became the homes of the evicted women. In marked contrast, it is stated that in Copenhagen, Denmark, from 1871 to 1896, 33 per cent. of the registered prostitutes were removed from the register by marriage and by returning to friends.

In Japan, the Yoshiwara, which is the home of prostitutes, is a portion of the city set apart for their exclusive residence. Within its confines are parks and pleasure grounds, places of amusement, and a hospital, where they are sent for treatment, when the careful medical examinations which are made show that it is needed. Once admitted to the Yoshiwara, the inmate remains there during life or until removed by friends or by marriage. Filial obedience is a marked trait of character of the people, and the daughter of proper age willingly and cheerfully becomes an inmate for the money which is paid and which may be required to relieve the financial embarrassment of the father.

With the information which I have endeavored to place before you, the larger part of it taken from the work of those who have made the subject under discussion an earnest study, we are prepared to make an effort to solve the problem, not with any hope of doing more than will, in a way, improve present conditions, and suggest plans of adjustment which will secure a rational control of a distorted element of our social life which from the earliest days has been recognized as "an incurable evil." "Its ultimate basis," as has been truly said, "lies in the two most elementary attributes of living things, the will to live and the instinct of reproduction," and we must not ignore these attributes in any remedy which we may apply; accepting it as a part of the criminal life, great and small, which is an integral portion of our social existence, we must be content to accomplish in its treatment no more, no less, than is accomplished the world over in the treatment of crime. Murder, as an example of the highest type of crime, has existed since the days of Cain to the present time, and it may be asserted without the fear of successful contradiction that, despite all of the efforts for its suppression which our laws have included and our courts of justice have enforced, it will continue to exist until the end of time. This being true, it still behooves communities to protect themselves against its practice by such measures as will be effective in the control of those who may be impelled to commit it. The same may be said of prostitution, desirable as it may be from a moral point to completely destroy it at one blow, it is in the very nature of things impossible. To control it its existence must be recognized; it avails nothing to attempt to put it out of sight, to cover it with a veil of false sentimentality as something in the relief of which the pure and good should fear to lend a helping hand. Its social and its hygienic conditions demand the efforts and the help of the social worker, the well-balanced men and women who have studied it in its varied phases in their work, and the medical men who by their knowledge and training are equipped for the treatment of the diseased conditions which accompany it and which are so destructive, in their far-reaching results, to the welfare and well-being of the human race.

How shall these agencies be brought into effective

action? Any plan which may be adopted must include not only the control of the class, but the protection of those who constitute it. Under the general laws of cities and communities of our country prostitutes enjoy the same rights and privileges as any citizen, and become amenable to punishment and the infliction of penalties in the same manner as the citizens who may violate the law. They place themselves under the restraint of the law when the business they conduct or the life they lead may become hostile to the best interests of the communities in which they live. That prostitution is hostile to the best interests of the community is a self-evident fact, and it calls for restraint by the law which should be applied in a humane and rational manner. This would seem to be best accomplished through a commission authorized and appointed preferably by the State. The constitution of this commission is of paramount importance. In the number of its members there should be sufficient to include both men and women of experience and judgment, of well-balanced mentality, called from different occupations and professions of life—the man of business, the banker, the jurist, the lawyer, the physician, the experienced journalist in constant touch with the current events of the world, members of the ministry and at least two women trained in social work, who should be able to consider the questions involved uninfluenced by the emotions and with the unbiased judgment which good common sense confers. To a commission so appointed and constituted may be safely entrusted the formulation of such plans of care and control of the unfortunate class of social outcasts as will contribute to their betterment and to the protection of the community. Through this commission the blackmailing policeman and the grafting politician will be eliminated. With the powerful assistance of the National Government the White Slave traffic will be destroyed. Already in this direction a good beginning has been made, and the social and moral education of the people, beginning with the child in the home, where the true mother teaches both by precept and example, will contribute to the closing in large degree of the avenues leading to the life of prostitution. The commercial value of the brothel will be so minimized by the withdrawal of the sale of liquor in all forms and amusements of degrading character that the business will no longer be remunerative and the proprietors will retire to engage in some occupation of more respectable type. Representatives of the State and local boards of health should have official membership in the commission.

As the guardians of the public health our profession occupies a most important and a most responsible position in the protection of the community, and the subject of transmissible specific disease is, if anything, a greater menace to its welfare, through the far-reaching influence of hereditation, than the prevalent acute contagious and infectious diseases. The subjects of these diseases, the law, through the boards created under its provisions, takes control of, isolates them, restrains them of their liberty, and submits them to curative treatment. No valid reason can be urged against the maintenance of an assured freedom from disease of the public prostitute by compulsory medical examination and treatment under plans instituted by the commission. The beneficial effect of these examinations are well established by the history of prostitution, and they are conducted to-day in countries of the Continent of Europe.

Thus we conclude our study of a condition of our social life which closely concerns the betterment of the human race, shown by its history to be inseparable from human society in the large communities which our state of civilization produces. Violent crusades attempting its total destruction have been followed by reactions which have intensified its vicious elements and have greatly increased the difficulties of dealing with it so that its evil influences may be materially decreased. Its existence must be recognized, the veil of ignorance and false sentimentality which so imperfectly conceals it must be torn aside, and its treatment must be conducted in a humane and in a rational manner. Those who assume to undertake its treatment must be guided by the illuminating rays of the lamp of knowledge and experience which lead into paths guarded on all sides by well-defined and conservative methods of administrative procedure.

INFANT MORTALITY

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INFANT mortality deserves more attention than it receives at present; it should interest not only physicians, but also sociologists, economists, and philanthropists. In the United States, infants under one year constitute 2.2 per cent. of the total population; in this 2.2 per cent. of the population occur 19.2 per cent. of all deaths. About 3,000,000 infants who are born alive do not live to celebrate their first birthday; this is the toll of death which the civilized world pays every year; in spite of this great loss of life, there is hardly any interest shown by the laity or by the general medical profession; if an equal number of stray dogs and cats were to be put to death, what a howl the whole world would raise; but this needlesss sacrifice of human life goes on without protest. The main reason of this indifference or lack of interest is ignorance of existing conditions. The subject of infant mortality is indeed a sad one when one realizes that 70 per cent. of the deaths are preventable, and that a large per cent. of the preventable deaths are purchasable; the reduction of infant mortality is indeed a subject for "dollar diplomacy."

In the registration area (1910), of a total death of 805,412 people, 154,373 (19.2 per cent.) were infants under one year; of 147,168 deaths in New York State (1910), 27,503 were infants under one year; and 16,159 of these occurred in New York City. Of infants who die under one year, 10 per cent. do not live 24 hours; 25 per cent. do not live 1 week; 35 per cent. do not live 1 month; 55 per cent. do not live 3 months; 75 per cent. do not live 6 months. (See Tables I and II.)

In Table 1, are enumerated the most important causes of death in infants under one year; for comparison are given the causes of death at all ages. It is evident that the important causes of deaths in infants under one year are diarrhea and enteritis, which cause 29 per cent. of all deaths, premature birth, congenital debility and injuries at birth, which cause 25.5 per cent. of all deaths; the respiratory diseases which cause 15.8 per cent.; malformations 4.9 per cent. and diseases of the nervous system 5.1 per cent. Of all the deaths recorded in the registration area from digestive disturbances, 47.4 per cent. occurred in infants under one year; it is

TABLE I.—DEATHS FOR REGISTRATION AREA (1910)*

	All Causes	All Ages	Per Cent.	Under 1 Year	Per Cent.
		805,412	26	154,373	9.2
I.	General diseases	215,692		14,250	1.0
	Measles	6,518	.8	1,540	.2
	Scarlet fever	6,255	.8	304	2.2
	Pertussis	6,146	.8	3,345	.6
	Diphtheria	11,521	1.4	903	.5
	Erysipelas	2,442	.3	697	.1
	Sepsis	1,877	.2	221	.3
	Tetanus	1,373	.2	427	1.6
	Tuberculosis (total)	86,309	10.7	2,416	.6
	Tuberculosis (meningeal)	4,654	.6	1,020	1.1
	Lues	3,221	.4	1,658	0.10
	Gonococcus infection	197		103	
II.	Diseases of the nervous system	77,991	9.7	7,937	5.1
	Meningitis	7,619	.9	2,372	1.5
	Convulsions of infants	4,802		4,089	2.6
III.	Diseases of circulatory system	100,106	12.4	1,430	0.9
IV.	Diseases of respiratory system	100,835	12.5	24,375	15.8
	Bronchitis	7,229	.9	4,151	2.7
	Bronchopneumonia	25,337	3.1	10,593	6.9
	Pneumonia	54,187	6.7	8,443	5.5
V.	Diseases of the digestive system	104,831	13.0	49 612	32.1
	Diarrhea and enteritis	54,266		44,695	29.0
VI.	Non-venersal diseases of genitourinary tract	62,559	7.8	942	0.6
VII.	Puerperal state	8,458	1.0		
VIII.	Diseases of skin	3,008	0.4	447	0.3
IX.	Diseases of bones	1,317	0.2	121	0.1
X.	Malformations	7,998	1.0	7,501	4.9
	Hydrocephalus	685	0.1	503	0.3
	Congenital heart	4,821	0.6	4,599	3.0
XI.	Early infancy	39,388	4.9	39,361	25.5
	Premature birth			20,275	13.1
	Congenital debility			15,361	7.8
	Injuries at birth			3,725	2.4
XII.	Old age	13,604	1.7		
XIII.	External causes	57,906	7.1		1.0
XIV.	Ill defined causes	12,462	1.5		4.5

*Registration area=58.3 per cent. of total population.
=53,843,896 people.

also interesting to note that 85 per cent. of deaths from convulsions, 54.4 per cent. of deaths from pertussis, 51.5 per cent. of deaths from gonorrheal sepsis, 51.5 per cent. of deaths from syphilis, 24 per cent. of deaths from respiratory diseases, and 21.9 per cent. of deaths from tuberculous meningitis occurred in infants under one year.

A study of Table 2, shows that the most common causes of death under 24 hours, are premature birth, congenital debility, injuries at birth, and malformations. Under one week and under one month, the same are still the most important causes of death; it must be added that 50 per cent. of the cases that die from convulsions, do so before they are one month old, nearly all cases that die from prematurity, congenital debility, injuries at birth, and malformation, do so before they are three months old; the great causes of death after the third month are diarrhea and enteritis and the respiratory diseases.

Predisposing causes. Chief of the causes, which are conducive to this high infant mortality, is infancy itself; in infancy, all the organs and all the functions are at their lowest ebb; the resistance to outside influences, is small; males are more susceptible to death at all ages; and under one year more males succumb than females. Race and nationality are also important factors; infant mortality is least among Jews and highest among Slavs. The mortality differs in various countries and in different States of the United States. Of every 1,000 infants born alive in Chili, 326 die before they are one year old; in New Zealand, on the contrary, only 71 die. In the United States of 100 deaths of all ages 19 are infants under one year; this varies in the different States; it is only 11 per cent. in California and 24 per cent. in Pennsylvania. Color also predisposes, as infant mortality is much higher among the negroes than it is among the white people. City life is also conducive to a high mortality; in the cities of the registration area (1910) 21 infants of every 100 born alive died under one year, whereas only 18 died in the rural part of the registration area; this is mostly due to the greater density of the population in the cities; where the density is greatest there the air, the soil, and often the water, are liable to be fouled; infectious diseases are more rapidly and more readily spread, and indirect causes, as the greater abject want, filth, crime, drunkenness, and other excesses, are more prevalent. In the first week of life the city rate exceeds the country rate by 23 per cent., in the second week, by 64 per cent., in the third week by 83 per cent., and in the fourth week by 97 per cent., showing a progressive increase in deleterious effects of city conditions on infant life; deaths from congenital debility, are twice as fatal and deaths from diarrhea are seven times as fatal in the city as in the country. Meteorological conditions have a distinct effect on infant mortality; atmospheric heat above 73.4° F. has a distinctly injurious effect upon infants; other factors which affect infant mortality

TABLE II

	DEATHS UNDER						
	One Year	Under 1 Day	Under 1 Week	Under 1 Month	Under 3 Months	Under 6 Months	Under 9 Months
All causes	154,373	14,946 (10%)	36,351 (25%)	58,089 (35%)	86,235 (55%)	116,039 (75%)	137,810 (90%)
Premature birth	20,275	8,808	16,197	19,498	20,275	20,275	20,275
Congenital debility	15,361	2,007	5,943	10,273	15,254	15,317	15,347
Injuries at birth	3,725	1,740	3,430	3,689	3,725	3,725	3,725
Malformations	7,501	1,437	4,380	5,901	6,700	7,135	7,358
Convulsions	4,089	120	1,144	2,070	2,823	3,441	3,824
Diarrhea and enteritis	44,695	25	684	4,477	14,149	28,030	37,901
Respiratory diseases	24,375	54	886	4,094	9,169	14,545	19,288

are temperature of the dwelling, lack of sufficient cubic space per capita, improper ventilation, and amount of rainfall.

Heredity plays an important part in infant mortality; it acts both directly and indirectly; certain diseases, as syphilis, are directly transmitted to the offspring; in case of tuberculosis only the tendency to acquire the disease is transmitted; general debility of the parents means congenital debility of their offspring. Many nervous affections also are directly transmitted to the offspring; there are cases recorded of congenital smallpox, measles, scarlet fever, influenza, pertussis and typhoid fever. Of all diseases mental deficiency is most apt to be transmitted by descent; miscarriage, and stillbirths and infant mortality are much higher among idiots. The mortality of infants whose parents are alcoholics is very high; alcoholism leads to miscarriages and to prematurity; 50 per cent. of the children of drunken mothers are dead born or die within the first year; the infants of alcoholics are also often neglected; the daughters of such parents make poor wet nurses.

Neglect of the infant may be intentional or unintentional. In cases of mothers who are compelled to work to support themselves, and where the infant is entrusted to an older child the neglect of course is unintentional; also in cases of mothers who have six, seven or eight little ones, a few of them must be neglected; and it has been proven that infant mortality is very much higher in families where there is a rapid succession of pregnancies; not only must some be neglected, but a few of necessity must be brought up on the bottle; the mother's health also becomes undermined and in consequence this leads to birth of infants who are atrophic. Thus there is a vicious circle formed. It is sad but true that not a few infants die every year from wilful neglect on the part of the mother; most of these infants are of illegitimate birth.

The infant mortality among illegitimate infants is almost double that of the legitimate; it is said that three out of every four illegitimate children die before they are one year old and the fourth is destined to a life of crime or prostitution; it is these infants that make up the high mortality of large cities. Illegitimate infants form about 4 per cent. of the total births, but the deaths constitute from 25-30 per cent. of the total deaths of infants. Nearly 40 per cent. of infant deaths under one year in New York City occur in infants confined in institutions, and a great per cent. of these are illegitimate children.

Where illiteracy prevails, the infant mortality is correspondingly high. Ignorance on the whole is one of the most important of the predisposing causes; ignorance of the value of mothers' milk, ignorance of proper management of infants, ignorance of proper modification of cow's milk, where mother's milk is not available, all have an important relation to infant mortality. Poverty acts in many ways to maintain a high death rate; poor mothers must work till pregnancy is well advanced; they also must return to work soon after confinement; thus this leads to congenital debility of the infant, and the early return to work necessitates the infant to be brought up artificially; it has been demonstrated that good food and plenty of rest during pregnancy have a direct beneficial effect on the weight and health of the newborn infant; poverty also leads to unhygienic surrounding of the home; and it has been shown that infant mortality is higher in cases of families living in one room than those in two, and greater in the latter than in those living in three rooms. Many women who work in lead factories, are subject to frequent miscarriages; many deleterious effects have also been noted in pregnant women working in arsenic, phosphorus, and mercury factories; all these poisons may cause repeated abortions or premature birth of infants in gravid women.

Diarrhea and enteritis. Of the active causes diarrhea and enteritis are the most important; of the 154,373 infants who died under one year, in the registration area of 1910, 44,695 (29 per cent.) died of diarrhea and enteritis; the great majority of these deaths (over 90 per cent.) were in artificially fed infants. In the United States about 75 per cent of all infants are nursed and about 75 per cent. of all deaths in infants under one year occur in the 25 per cent. that are artificially fed; as 30 per cent. of all deaths are due to diarrhea and enteritis, it is evident that to reduce infant mortality from this cause we must reduce the number of infants that are fed artificially and that we must encourage maternal nursing in every case. Diarrhea and enteritis are almost entirely a problem of bottle fed infants. Poverty too helps to kill many infants from this cause. Many mothers who are unable to buy clean, fresh bottled milk, resort to condensed milk or loose store milk; deaths from diarrhea are most common in those using these foods. Diarrhea is most common during the summer months, but it is an important cause of death throughout the first year; during the first month of life, not so many die from this cause, mostly due to the fact that most infants are nursed at least two, three, or four weeks. Clean milk, education of mothers, and charitable aid to the worthy poor, all help to reduce mortality from this cause, but our main effort should be lent to make all mothers nurse their infants. Diarrhea is more fatal in cities than in the country, and is more dangerous to boys than to girls; it is also dependent on mean temperature, rainfall, and humidity. These factors with bad light, improper ventilation, and contaminated or injurious food make this disease the scourge of infants.

Premature birth and congenital debility. Of 154,373 infants who died under one year in the registration area (1910), 20,275 died of premature birth, and 15,361 of congenital debility. About 20-25 per cent. of all pregnancies result in abortions; about 7 per cent. of all infants born alive are born prematurely and about 4 per cent. of all pregnancies result in stillbirths; stillbirths are most common in luetic women; in fact 75 per cent. of all conceptions of syphilitic mothers result in death of the infants within one year of birth. Repeated abortions are usually due to displacements of the uterus, or endometritis and especially syphilis; also due to certain poisons as alcohol, lead, and arsenic. Prematurity is due to lues, chronic toxemias as Bright's disease, certain heart lesions, abnormal irritability of the uterus, and chronic toxemias arising from lead, arsenic, mercury, and alcohol. Hard labor in the last few months of pregnancy also tends to cause premature birth; other factors which may cause it are faulty environment, emotion, fright, and shock. Syphilis is the most common cause of stillbirth; other causes are toxemias as eclampsia, prolonged labor in contracted pelvis, certain diseases of fetus, and certain complications as prolapse of cord and

placenta prævia. Congenital debility appears to be a question of nutrition; the nutrition of the mother exerts an influence on the weight of the offspring; it is underfeeding in conjunction with overwork which causes congenital debility and a high death rate from this cause.

Respiratory diseases. In the registration area (1910), 23,113 infants under one year died of some sort of respiratory disease (4,151 of acute bronchitis, 8,443 died of pneumonia, and 10,593 of bronchopneumonia). Deaths from respiratory diseases are far more frequent in artificially fed infants than in breast fed. Bronchopneumonia secondary to measles and scarlet fever is very rare in breast fed infants under one year; although not very frequent in artificially fed infants under one year, it is far more common in the latter than in the former. Nursing infants seem to have an immunity to the exanthemata; but this is not true of diphtheria and pertussis.

Tuberculosis and lues. In the same area, 2,416 died of tuberculosis; of which 923 died of pulmonary tuberculosis and 1,020 of tuberculous meningitis; tuberculosis is not transmitted directly to the infants; only a predisposition to this disease is transmitted; the majority of these infants become infected from their parents or other cases of tuberculosis at the house after birth; it is usually due to carelessness and neglect; only very few cases contract this disease from the milk. With lues it is otherwise; here the infants are directly infected before birth; lues causes the death and expulsion of the fetus in 50 per cent. of the pregnancies of such women; it also causes 10 per cent. of all pregnancies to terminate prematurely; so that although lues caused the death of 1,658 infants born alive, it is a far more important cause of infant mortality than these figures would indicate. Seventy-five per cent. of all pregnancies, of luetic women result in death of the fetus and infants before they are one year old.

The Contagious Diseases.—Infants under one are not very susceptible to contagious diseases; artificially fed infants, however, are more so than are breast fed. Pertussis is the most fatal of these diseases among infants under one year; in fact, pertussis causes more deaths in infants under one than measles scarlet fever, and diphtheria together. More than 50 per cent. of the deaths from pertussis occur in infants under one year old. The precautions taken to prevent the spread of this disease are very inadequate, and isolation of the afflicted is seldom carried out. There is no doubt that deaths from pertussis could be reduced 50 per cent. if the same stringent laws were to be applied to pertussis patients that are applied to measles, scarlet fever, and diphtheria patients.

Malformations.—It is doubtful if we can prevent malformations; in the registration area (1910) 7,501 infants under one year died of malformations. Seventy-five per cent. of all congenital malformations are those of the heart; it has recently been shown that lues is not a cause of such malformations; lues, however, is responsible for a certain number of cases of hydrocephalus. Diseases of the endometrium may also cause malformations.

Convulsions.—Many deaths are reported as due to convulsions. Convulsions are a symptom and not a disease; of the 4,089 cases of death due to convulsions, 2,070 (50 per cent.) occurred in infants under one month; these cases are mostly due to cerebral injury during labor, and the convulsions are only a symptom of the cerebral disturbance. The remaining cases occur mostly in artificially fed infants; here the convulsions are of gastrointestinal origin, and with tetany are usually associated in infants that have rickets.

Injuries at Birth.—Deaths from injuries at birth are mostly preventable; in 1910, 3,725 infants died from this cause; over 3,000 of these died before they were one week old. Injury at birth means lack of obstetric knowledge. When we realize that 50 per cent. of all women are delivered by midwives, it is not at all surprising that so many infants lose their lives from this cause. Many infants also die from infections of the cord, and general sepsis; also sepsis from circumcision, at the hand of professional "mohels." That society should tolerate such abuses is bewildering; if barbers should insist on treating gonorrhea, what a protest would be raised; but midwives may put their unclean hands into a uterus with impunity.

Other Causes.—Infanticide is not as common here as it is in England; deaths from overlying are quite numerous; such deaths occur most frequently on Sundays and Mondays, and they are not infrequently due to the stupor of drunkenness.

Résumé.—Before speaking of the means we possess to combat this enormous mortality, we must consider which diseases are preventable and which are not. Diarrhea and enteritis are mostly preventable, as they are diseases of artificially fed children, and are usually due to lack of breast milk and to the use of unclean cow's milk, condensed milk, patented foods, and improper modification of milk; it is a disease of cities, and is most prevalent in the hot summer months. Premature birth is also largely preventable, as it is due to chronic toxemias and other preventable causes; as cogenital debility is mostly a question of underfeeding and overwork of the mother, these cases, also, are mostly preventable. Injuries at birth should not occur if one understands obstetrics; convulsions as a result of injury to infants during labor are therefore preventable; convulsions of gastrointestinal origin are also preventable, for they occur almost exclusively in artificially fed infants. Tuberculosis and lues are certainly preventable. Lues is amenable to treatment and every luetic woman should be treated before conception. Infant deaths due to erysipelas, tetanus and hemorrhages are also mostly preventable. Deaths from the contagious and respiratory diseases and from meningitis are far more common in artificially fed infants, and therefore to a certain extent preventable. We see therefore that 65-70 per cent. of all deaths are preventable, and in preventing deaths from these causes we have an ample field for doing much good.

Reduction of Infant Mortality.—In studying the rate of infant mortality it is necessary to have accurate statistics; it is most important to have complete registration of births, for it is only from such statistics that any conclusions can be drawn. In the United States only five of the ten largest cities have fairly complete registration of births and deaths. In New York City there were less births recorded in 1912 than in 1911, showing that even here many births are not recorded. The records of deaths, of course, are far more accurate, as no burial can take place without a permit. As the rate of mortality can be studied accurately only by comparison with the number of births, the necessity of complete birth registration is evident; some European countries go to the extreme of paying doctors 25 cents

every time they record a birth; failure to report births should be punished by law; studying infant mortality without accurate data is like managing a steamer without a compass—we cannot tell where we are, nor what progress we are making.

Some one has remarked that infant mortality is a question of motherhood, and in a broad sense it is true; if every mother could be healthy and well nourished during pregnancy, and could be confined by a well trained obstetrician, and if she could nurse her newborn infant for eight months, then we would prevent the majority of infant deaths. To give birth to a viable infant the mother must be in good physical condition at time of conception. There is a movement now gaining popularity which recommends that only the healthy should be allowed to marry; it is suggested that with the marriage license each should present a medical certificate, stating that they are of sound body and mind; such a suggestion, if carried out, would result in much good; not only would it lower infant mortality, but it would diminish insanity, idiocy, drunkenness, nervous diseases, syphilis and many other diseases which are transmitted; of course, persons suffering from a disease which is apt to be transmitted to offspring should be allowed to marry, provided they undergo an operation of some sort which will sterilize them. But this is a beautiful dream, and the time when this idea will prevail in fact is far away.

At the infant milk stations one very frequently meets women who are married nine, ten or eleven years, and who have gone through as many pregnancies; many of these children are dead; the infant mortality in these families is out of proportion high; the rapid succession of births exhausts the mothers and compels the infants to be brought up artificially; many of the infants on account of the exhausted condition of the mothers are born atrophic and prematurely; many of these infants are unwelcome visitors; the remedy is simple; it is easy to suggest, but it is hard to carry it out; when one speaks to these mothers they say it does not depend on them, and in the majority of cases it does not. When such mothers ask a physician what can they do to prevent conception, it is futile to tell them not to have sexual intercourse and expect them to heed one's advice; nothing that the doctor may say will make such intercourse unpopular with the poor and the ignorant whatever the consequences may be; this is a subject which most physicians dread to touch upon, but it is a real live subject which must be solved. There is no reason why a physician should not advise a woman (where there are proper indications) how to prevent conception; such advice may save the lives of many mothers as well as of many infants.

Every woman soon after marriage should consult an obstetrician; it is the duty of the physician to examine the pelvis, the uterus and the adnexa, the heart and the kidneys of every woman who is about to become a mother, to see if there be any contraindications to childbearing; if there be any displacements of the uterus, such should be corrected; if pelvis is contracted, induction of labor two or three weeks before term should be advised; the breasts should be examined, and any abnormalities present should be corrected so that the newborn infant may nurse.

Poverty often compels pregnant women to work during the whole pregnancy; this has a very deleterious effect not only on the mother but also on the infant; infants grow most in the last months of gestation; in this period they gain 4 pounds in weight (from 3½ to 7½ pounds). It has been shown that of 500 mothers who worked till day of labor, their infants at birth weighed 3,000 gm.; of 500 who spent the last few months in a hospital, their infants weighed 3,290 gm.; and 500 who spent the whole pregnancy at the hospital, their infants weighed 3,308 gm. Poverty also causes many gravid women to be undernourished, and undernourishment of the mother means congenital debility of the infant. Undernourishment and overwork are therefore the greatest causes of prematurity and congenital debility. Laws should be enacted which prevent the engagement of pregnant women, especially those well advanced in pregnancy, and especially no gravid women should be allowed to work in lead, arsenic, phosphorus and mercury factories, as these poisons are very apt to cause miscarriages and premature birth; such laws have been enacted in England, but they are mostly dead letter laws. Charitable organizations should provide sufficient food to pregnant women who are in need; it would be ideal to send every gravid woman to a maternity hospital, to stay there during the whole course of pregnancy, but that is not possible through lack of accommodation and it would be impracticable, for many of these mothers have four, five and six other little ones to take care of at home. Charitable organizations should also take care of women after confinement, who cannot support themselves, so that they may be able to nurse their infants. Women should not be allowed to do wet nursing whose infants are less than six months; in France there is such a law. In France also, Henry Coulette and his wife, who lost their only child, started five restaurants, where all nursing mothers can receive three meals a day; at these restaurants the women are not subjected to any cross-examinations; all that is necessary is to have a nursing baby with you, and you are welcome to the food.

To prevent the many deaths from diarrheal diseases, we must conserve mother's milk; if every mother nursed her infant, we would save 80 per cent. of the infants who die of diarrhea and enteritis. Ninety per cent. of the deaths from diarrhea occur in 25 per cent. of the infants that are artificially fed. When one realizes what a life-saving measure mother's milk is, one is bewildered for what inadequate reasons infants are taken from the breast and put on the bottle; artificially fed infants do not only die from diarrhea and enteritis but are more susceptible to death from all causes; bottle fed infants have not the resistance of the breast fed. Diarrhea and enteritis are far more frequent among the poor bottle fed than among the rich, and this shows the influence of ignorance and poverty on infant mortality. The poor cannot afford to buy clean milk, they usually buy condensed milk or loose store milk; their ignorance makes home modification faulty, and the dirty, unhygienic surroundings of the home all tend to increase the number of deaths from diarrhea among the poor. Recognizing that many mothers can not or will not nurse their infants, milk stations have been established; these stations supply clean, pasteurized milk, and teach the mothers how to prepare the milk for the infant. The nurses connected with these stations visit the homes of these mothers and teach them hygiene of the baby and also inculcate in these mothers the necessity of cleanliness in the home;

that these stations have a tremendously good influence the statistics have shown, and their especial benefit has been the great reduction of deaths from diarrhea. Some object to milk stations because they may further artificial feeding; this is far from the truth; many mothers who brought little babies to the stations have other infants now, which they nurse; the great value of mother's milk is impressed on all of them.

It was in 1892 that Budin organized at the Charité the first consultation for nurslings; in 1894 Dr. Léon Dufour established the first *goutte de lait* at Fécamp; in England the first milk station was established in 1899 at St. Helen's in Lancashire. In New York City, milk modified and pasteurized was dispensed in summer to sick babies at the Essex Street Dispensary in 1891; one year later Straus founded his laboratories; since then many societies have united and formed the New York Milk Committee (incorporated 1910), whose purpose is to create through education and publicity a public demand for a clean and safe milk supply for all, and to prevent unnecessary loss of infant life. In New York City, in 1908, a division of child hygiene was formed; in 1911, the Association of Infants' Milk Stations was formed so as not to duplicate the work of different organizations maintaining milk stations; in all there are seventy-nine stations in New York City which take care of about 16,000 infants; fifty-five of these stations are under the control of the Board of Health. In 1909 a "Little Mothers' League" was organized; it consists of older school children, to whom lectures are given on the necessity of clean milk, home sanitation, management of an infant, etc.; this information is of great service to these girls, as many of them have to take care of infants while their mothers are working. In England there is a "Mother's League" where mothers receive above instruction. For a bottle baby to thrive the milk must be clean and fresh; one writer has estimated that clean milk is three times more valuable than education; this may be true, but both are indispensable. In New York City about 2,500,000 quarts of milk are consumed every day; this milk is supplied by seven different States; only 1 per cent. of this milk is certified or guaranteed; in Chicago nearly all the milk for infants is bottled and 75 per cent. is pasteurized. Only certified milk should be used for infants. It is the duty of the milk companies, which grant certificates to the milk producers, to look after the hygiene of the dairy, as it relates to the production and distribution of the milk; they also have the veterinary supervision of the herd, and the medical supervision of the employees, and they also examine milk chemically and bacteriologically.

Education, like charity, should begin at home; before we attempt to teach mothers and their daughters we should teach ourselves and learn the value of breast milk, and the proper modification of clean cow's milk where breast milk is not available. Many physicians do not realize that there is such a tremendous infant mortality, nor do they realize the life-saving qualities of mother's milk—if they did they would not take infants from the breast for very inadequate reasons. It is amazing, also, how many physicians recommend the use of patented foods; of 200 feeding cases that came to my notice at the Vanderbilt Clinic Infants' Station, where the feeding was previously prescribed by a physician, only thirty-eight ordered fresh milk and made any attempt at modification; 162 ordered one or the other of the patented foods. The significance of this is clear: rather than attempt to modify milk, they find it easier to advise this and that food, and advise to follow the directions on the package. Pediatrics on the whole and infant feeding in particular receives too little attention in the curriculum of the medical colleges; one-fifth of all deaths occurs in infants under one year, why should not a corresponding importance be given to pediatrics at the medical school? At this time when so much is being done to lower infant mortality postgraduate lectures on infant mortality and infant feeding should be given to all doctors who wish to come; much good can be accomplished from this.

Day nurseries, unless well managed, may be the source of disease and death of many infants; they are often the origin of many infectious diseases; although all of them are under the nominal supervision of the Board of Health, many of them are regular hotbeds of disease; unless supervised by trained nurses, they should not be allowed to exist; it is remarkable how carelessly many physicians examine children brought to them for examination for a certificate of health for a day nursery. Permits are also issued to certain women to board babies; here too much harm may arise, unless carefully supervised; many of these babies are deserted, mostly illegitimate, and there goes on a traffic in babies which is real. In New York City, about 40 per cent. of the infant mortality occurs in institutions; depending on the institution, the mortality varies from 40-90 per cent. of the inmates; there was a time when admission to an infant asylum meant "He who enters here must leave hope behind"; conditions are not much better now; the only hope of relief from this source is boarding babies in reliable homes, under supervision of doctors and trained nurses; this is better carried out in the suburbs than in the cities.

Many thousands of babies lose their lives through lack of obstetric knowledge on the part of doctors and midwives. Fifty per cent. of all confinements are conducted by the latter. Is it a wonder that the mortality from this cause is high? It is surprising that it is not higher. Midwives should have no standing in a civilized nation; they are a relic of antediluvian days; why should we permit this abuse in cities where well trained medical students under proper supervision, could well do the work? Of course well trained midwives are better than untrained, but at best they are a menace.

"A little knowledge is a dangerous thing;
"Drink deep; or taste not the Pierian spring."

Like pediatrics, obstetrics receives too little practical attention at the medical schools. When many professors of obstetrics admit that they are unfit to practice surgical obstetrics, what can one expect of the general practitioner? The facilities for practical instruction at most colleges are very inadequate. If all the aborted, the stillborn and dead through birth injuries, and sepsis, and the blind could raise their voices against midwives what a howl they would raise!

Advertising pays; and advertising or disseminating knowledge on infant mortality and means of reducing it must bring good results. A few years ago the Great White Way was resplendent with an electric sign advertising a religious movement; the results more than paid for the advertising; it is the best way of presenting the facts to the public; a

thorough advertising campaign kept up all year should be instituted; before we can expect the laity to co-operate, they must know the problem. Recently a national association with this object in view was formed; much good has already resulted, and much more can be expected. At the third mid-year meeting of the American Academy of Medicine, specializing in medical sociology, a conference on prevention of infant mortality was held November, 1909; in pursuance of the recommendation of this section a society was formed by the name of "The American Association for Study and Prevention of Infant Mortality." The object of this association is the study of infant mortality in all its relations; the dissemination of knowledge concerning the causes and prevention of infant mortality, and the encouragement of methods for the prevention of infant mortality.

Infant mortality, after all, is a question of motherhood, and in conclusion we may say with Saleeby: "There is no State womb, there are no State breasts, there is no substitute for the beautiful reality of individual motherhood."

"A mother is a mother still,
The holiest thing alive."

1967 Seventh Avenue.

AUTHORITATIVE DIAGNOSIS OF GONORRHEAL STOMATITIS.

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Cases of gonorrheal stomatitis have been reported from time to time in dental and medical journals. The purpose of the writer is not to disprove the occurrence of gonorrheal stomatitis, but to indicate how difficult and obscure is the diagnosis if the disease occurs.

The perplexities in determining whether or not an infection is gonorrheal depend not only upon the locality from which the discharge or exudate is taken for examination, but also upon the several methods employed in the examination and demonstration of the presence of the gonococcus. In cases of acute urethritis the morphology, grouping, and staining qualities of the microorganism causing the disease are usually sufficient to make a diagnosis; since the number of cocci in the urethra, resembling the gonococcus, are few, but for a definite diagnosis of the gonococcus the presence of the biological characteristics must be found. Prudden[1] says: "Inasmuch as one or more forms of cocci and diplococci occurring in the normal and inflamed urethra are morphologically similar to the gonococcus, great caution should be exercised in doubtful cases in deciding upon the nature of suspicious microorganisms in urethral discharges or other exudates." This statement is especially true in determining the presence of the gonococcus in discharges or exudates coming from the mouth, pharynx and nose of a patient supposedly suffering from gonorrheal stomatitis, because a number of cocci and diplococci resembling the gonococcus have been found in these localities.

Before the discovery of the gonococcus a gonorrheal infection was recognized by the anamnesis and clinical signs. At the present time the finding of a living contagium plays the chief rôle in the diagnosis. The discovery and careful observation of a number of microorganisms, which are united by a close genetic relationship, have taught us that many of the morphological and biological characteristics which were formerly considered as attributes of the gonococcus belong to a group of cocci. The fact that the meningococcus, together with similar forms of cocci, are to be found in the secretions of the nose, must occasion much caution in interpreting the finding in these secretions of the gonococcus. It is well known that the meningococcus is a saprophyte of the nose and pharynx. With the exception of the gonococcus the specificity of the microorganisms resembling the meningococcus has not been proved.

Von Lingelsheim,[2] during the course of an epidemic of cerebrospinal meningitis in Silesia in 1904-1905, found that discharges from the nose of patients having this disease contained, in addition to the meningococcus, six other cocci which closely resembled it and which could only be distinguished from it by cultural methods.

The morphological and staining characteristics of the meningococcus and gonococcus are very nearly alike and it is only possible to distinguish them from each other by cultural methods, so that the facts demonstrated by von Lingelsheim are of great use in detecting the gonococcus.

The following table which I have compiled shows not only the morphological, staining, grouping, and cultural characteristics of the gonococcus, meningococcus, and six other cocci which were observed by von Lingelsheim in the discharge from the noses of patients with cerebrospinal meningitis; but also, the important fact demonstrated by von Lingelsheim[3] that each one of these microorganisms causes, when cultivated upon sugar-litmus-serum-agar-media the fermentation of either one, two, all, or none of the following carbohydrates, viz., dextrose, levulose, and maltose. This matter of fermentation, as shown by the chart, is an important factor in differentiating these several cocci.

The gonococcus is afforded ample occasion to infect the mouth by objects (the fingers, eating and drinking utensils, etc.) which have been contaminated by gonorrheal discharges and exudates, coitus per os, cunnilingua, and the exudates of a gonorrheal ophthalmia passing through the nasal duct into the nose and thus into the pharynx and mouth. How often is the mouth infected by gonorrheal exudates or discharges? The futile attempts by Diday[4] to infect the nasal mucous membrane by discharges from cases of acute urethritis are well known.

Some writers claim the disease has been proved to exist in children. According to Dr. Victor Mucha,[5] Docent at Finger's Clinic in Vienna, a case of gonorrheal stomatitis has not been seen at Finger's Clinic during the past sixty years, and there has never been a case recorded in the obstetric clinic, pediatric clinic, or foundling asylum in Vienna.

In a recently reported case where an individual who had coitus per os with one who had an acute gonorrheal urethritis, shortly afterward developed a stomatitis, the diagnosis of gonorrheal stomatitis was made, but apparently upon the sole basis and authority of the "post hoc ergo propter hoc."

The suspected gonorrheal stomatitis cases may be grouped as follows:

(1) Cases reported before the discovery of the gonococcus.

(2) Cases where only a microscopical examination was made and the exudate revealed a microorganism which resembled the gonococcus in its

THE DIFFERENTIATION OF SOME GRAM-NEGATIVE DIPLOCOCCI POSSIBLY OCCURRING IN THE MOUTH

Characteristics	Morphological, Staining, Grouping, Etc.	Cultural		Fermentative:—(Grown Upon v. n Lingelsheim Sugar-Litmus-Serum-Agar-Media) Capability of Causing Fermentation of		
		A	B	Dextrose	Levulose	Maltose
1. Gonococcus	Gram-negative diplococcus; may appear in tetrad form; found extra and intra cellular	Rarely grows upon ordinary agar	Upon serum-agar the colonies are more or less round, delicate and gray, and can be scarcely distinguished from those of the meningococcus; when the colonies are older they have a "lobe-like" border	+	−	−
2. Micrococcus meningitidis cerebrospinalis	Gram-negative diplococcus; usually appearing in tetrad form. Found extra and intra cellular. Morphologically very similar to the gonococcus; in cultures there are great differences in the cocci	Difficult to obtain cultures. As a rule it grows upon serum-agar	Upon serum-agar the colonies are very delicate, grayish translucent with smooth edges. Under the microscope (Leitz 3. Ocular 1.) The colonies appear homogeneous and have a dirty light yellow color, the edges are smooth and somewhat wavy	+	−	+
3. Micrococcus catarrhalis. (R. Pfeiffer) (Diplococcus pharyngis communis)	Gram-negative diplococcus. Found extra and intra cellular	Grows upon ordinary agar	Forms upon serum-agar round, white, compact colonies with dry, uneven surfaces and usually irregular edges. When examined by a low-power lense the colonies appear brown and granular	−	−	−
4. The diplococcus pharyngis siccus	A fine gram-negative diplococcus	Grows best upon blood-agar	Upon blood-agar the colonies may have a diameter of 3 m.m. After some days their surfaces become dry, firm and wrinkled; so that they cannot be completely broken up when shaken in a fluid medium	+	+	+
5. Micrococcus cinereus	A plumper gram-negative diplococcus; the cocci usually forming themselves in discrete masses	Grows upon ordinary agar	Forms upon serum-agar small round gray or grayish white colonies. Under the microscope the colonies appear brown, coarsely granular, and have smooth borders	−	−	−
6. Diplococcus pharyngis flavus I VVV	A gram-negative diplococcus. Very similar to the meningococcus. Seldom appears in tetrad form	Grows upon ordinary agar	Forms upon serum-agar roundish slightly raised grayish yellow colonies, which are sometimes difficult to distinguish from colonies of the meningococcus	+'	+	+
7. Diplococcus pharyngis flavus II	A very small gram-negative diplococcus. Resembles the micrococcus catarrhalis	Upon serum-agar it forms colonies resembling those of the micrococcus catarrhalis	Colonies grown upon a blood-serum medium or Löffler's serum appear golden yellow	+	+	+
8. Diplococcus pharyngis flavus III	A gram-negative diplococcus of the size and appearance of micrococcus meningitidis. Does not form tetrads	Does not grow upon ordinary agar	Forms upon serum-agar, round, slightly raised, yellow translucent colonies, which when examined by a low-power lense are very similar to those of the meningococcus. A pure culture is light yellow	±	−	±

+ = Fermentation. (The culture medium is colored red.)
− = No fermentation. (Growth appears blue.)
+ = Not marked, but good evidences of fermentation.
± = Doubtful or slight evidences of fermentation.

morphological, staining, and grouping characteristics.

(3) Cases where, in addition to the microscopical examination, cultures upon agar and serum agar, were made in order to find the suspected microorganism, the findings proving the presence of an organism resembling the gonococcus.

(4) Cases where, in addition to the microscopical examination and cultivation of the suspected microorganism upon agar or serum agar, proving its resemblance to the gonococcus, the suspected microorganism when grown, upon von Lingelsheim's sugar-litmus-serum-agar-media shows the essential characteristics of the gonococcus.

In the diagnosis of gonorrheal stomatitis we may invoke the "post hoc ergo propter hoc" theorem, but we must also demonstrate the morphological, staining, grouping, and ordinary cultural characteristics of the gonococcus, and then verify our conclusion by the use of the sugar-litmus-serum-agar-media of von Lingelsheim.

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Trigger-Knee.—M. H. Billet applies the name "genou à ressort" to a rare condition which has been described by R. Jones under the name of trigger-knee, and by Thiem under the name of "schnellendes Knie." The condition is characterized by a sudden arrest of the movement of the knee during flexion or extension; this arrest is followed by a sudden jerking and lateral movement of the leg and the production of a clicking sound. The condition is distinct from that of displacement of the semilunar cartilages of the knee, and is apparently the result of a laxity of the joint capsule, usually traumatic, but sometimes of congenital or inflammatory origin—*Gazette des Hopitaux.*

A GLIMPSE OF INDIAN HOSPITALS.*

By C. B. MEDING, M.D.,

NEW YORK.

EXECUTIVE SURGEON, THE HARLEM EYE, EAR, AND THROAT INFIRMARY

In any useful survey of the world's hospitals there are three things to be preconsidered and appreciated. They are the environment, the need, and the resource. While beauty and utility should ever be combined, it often happens that the sole beauty is the wise and resourceful utility; and again one may see many examples where most attractive beauty is utterly divorced from usefulness. Where large sums of money have been bestowed for specific purposes, compelling expenditure within limits, we naturally find great outlay in site and architecture, but any critical professional opinion must discount mere extent and elaboration as items for commendation.

Again the reader must bear in mind that hospitals, like persons, being of different generations, must be judged in their time. The same adjectives may be used for all, but one must mentally modify the value with the factor of age. I believe, too, that the element of economy should enter into the criticism. We of the West have run largely to extravagance. The combined influence of ambitious architects, lay purses, and persuasive hospital supply manufacturers has often converted simplicity into luxury, and elaboration of detail has been accepted as necessary convenience. Very largely the profession has given over or been pushed out of the managerial departments and have neither vital part nor knowledge of the balance sheet, details of architecture, household management, culinary and clerical departments, entrance, discharge or convalescence of patients. All these have fallen into the hands of specialists and the institutional has supplanted the individual. This evolution has relieved the physician of much labor and worry, but I am not at all sure that it has universally brought economy or wisdom to the work, or comfort to the patient. While some of these changes have occurred the world over, the physician still holds a much more important place in the medical institutions of the old world, and in newer territory, speaking from the hospital standpoint, the result is evidenced in ways delightful to the traveling brother. Environment and resource have been great factors in the hospital problem of India and the Far East (of the first of which I am best prepared to speak) not only in construction, but in management.

In the first place India has a great natural sterilizer in the sun. But for this the population of India had long ago ceased. When we consider the disease of that continent—one long history of smallpox, cholera, consumption, and, in later times, of plague; the lack of knowledge in any class; the utter ignorance and superstition of almost all; the poverty, recurrent famine, drought, and inherent fatalism—we shall see that any power less mighty than the solar heat had been and would be futile. Of course, of knowledge of its beneficent action there was none. No one knew that, because a gonococcus could not outlive a higher temperature than 108 degrees Fahrenheit, he ceased from troubling, nor that the search for coolness was constructing buildings upon which and through which the sunlight and sun-purged air might bring sanitation. Open sewers were easiest—the sun permitted them.

I have seen the servants empty the fluid contents of the latrine or drain on the soil just without the compound at 7:30 A. M., causing considerable slop and odor. At 8:30 I have walked over the spot on dry, odorless sand. Should the beds, simple string beds called "charpoys," become bugridden or otherwise unclean, they are scrubbed and put out in the sunlight. India is a dusty country. It takes half the night for the day's dust to settle, yet the use of dung for fuel reduces this constituent of the atmosphere tremendously, and the millions of birds, large and small, keep the land clean. That the sun can and does give so great service is no excuse for much that exists in India, but it is a reason why much has been done that under other circumstances would have been impossible.

Many Indian hospitals are one-storied buildings, extending over much ground, surrounded by liberal spaces, bare or parked. In these, as in higher buildings, each floor has its enclosing galleries which are frequently, and, in some places, always, utilized as wards. The separation of sexes, religions, and sometimes castes, often necessitates strange and troublesome ordinances. Screened doors are largely used, also the punkah, now often operated by power. The gasoline and electric fan are also in common use. In Bombay, Madras, Calcutta, Delhi, Lucknow, and Lahore, one finds training schools and a fair supply of native nurses, but in the smaller places—and India is made up of small places—the staff is of the fewest and attendants of the humblest; the chief nurse or matron being often a missionary or a Sister. Wonderful women these, whose untiring devotion irradiates outlandish places with happiness and service. Considering the training, the variety of language, religion and caste, the often paralyzing fatalism and the blinding superstition, the efficiency is remarkable.

Aside from those hospitals which are wholly or in large part individual gifts or memorials, such as the Jamsetjee Jeejeebhoy Hospital at Bombay, the Eden and Dufferin Zenana Hospital, wherein the nursing is under the Sisters of St. John, at Clewer, and the Ezra Jewish Hospitals of Calcutta, the Dufferin Hospital of Rangoon, and those begun and maintained by the missions, some fifty in number, the average city or town hospital is founded by equal gifts from government and residents, and thereafter supported by resident or local board. In the great cities such hospitals are on about the same footing as are our own. Where there is wealth and age there is abundance, where there is poverty there is struggle. The general hospital at Madras, whose records reach back to 1829, is one of the largest and finest to be seen anywhere and supports 500 beds. The ophthalmic hospital of that city, under Colonel Eliot, is, I should say, the equal of any in the world in location, construction, and equipment. Nothing is missing from the simplest device to the latest instruments of precision and demonstration. The woman's hospital is likewise imposing and up to date. There are besides, throughout India, many dispensaries, but they include a large quack element.

I think that on the whole less work is done in the large centers, in proportion to their equipment. Many mission hospitals housed in simple low brick buildings, unplastered and affording little more than a shelter for beds, teem with patients. With few exceptions there is practiced an economy of which we can scarcely conceive, any account of which, my own experience tells me, is likely to

*Read before the Bronx Medical Society, March 12, 1913.

prejudice and misinform. It was not until I became acquainted with the reason and result that I valued properly the splendid thrift and care that made the work possible. In some places, as here, influence and wealth provide generously, but for the most part the armamentarium is limited to usefulness. Operating rooms are large and airy, but sparsely furnished; the sterilizing is effectual, but never complicated. The economy in dressing, drugs and paraphernalia is startling. Douching with the bichloride 1-2000 is the common cleanser of India, many surgeons virtually working under it, and whatever may be the scientific conclusion or personal preference, observation shows it to be satisfactory. A visit to the hospital apothecary shows similar wise selection of simples, and a wholesale elimination of experimental preparations. I am not sure but that the directness and definiteness of the medication practised by Anglo-Indians has much to do with their high therapeutic confidence and excellent results. There can be no doubt that the constant exhibition of new remedies, knowledge of which is largely limited to the advertisements of manufacturers, replaces to an excessive degree that study based on the physiological effect of known elements. Much medical cynicism emanates from the use of remedies that are to most of us little more than names, a use so prevalent as to be dangerously near hysteria. Of this the faraway physician is apt to be innocent. I learned much of the value of mercury, opium, arsenic, quinine, aloes, rhubarb, and the salicylates in a country in which a multitude of petty drug and pharmacal companies could not provide physicians with samples of these remedies. All this is equally true of instruments, dressings, utensils, and furniture.

India is as yet comparatively poor, especially poor in money and more particularly poor in the distribution of the money it has. Consequently the running expenses of hospitals must be low. There is besides a good deal of antagonism. The native stone doctor, the drug vender, the worthless midwife, and the lens coucher, resident or itinerant, are not friends of the hospitals, diplomas, or licenses, and they are numerous and vociferous. Hence, even where there are *x*-ray outfits and laboratories their use is limited and the dependence is largely on diagnosis made from signs and symptoms. Whatever the loss, one thing is surely gained. The men are expert in observation, examination, and sound logic. They are, too, all round men. We saw the obstetrician perform cataract operations, the general surgeon treat typhoid fever, and the ophthalmologist make careful autopsies.

No account of hospitals would be complete which did not mention the swiftness and precision of their operators. In general the Anglo-Indian operators are opposed to long anesthesias. Several told me that with Indians, at least mortality and lengthy anesthesias run hand in hand. We have not been without our rapid operators, neither has England nor the Continent, and they have all been insistent on the value of speed. It is certainly a matter worth considering, and since it may be acquired, need not interfere with thoroughness, and is logically advantageous, I believe we should cultivate it. Especially most of us can save time by directness and by the use of those minutes so frequently devoted to change of mind, instrument, and position.

Indeed, the amount of work, lack of assistance, and scarcity of good men and accommodations is a constant incentive to the Anglo-Indian surgeon. Time will correct these conditions. Bombay, Lahore, Lucknow, Calcutta, and Madras have medical colleges and there are many other places and sources of education. I believe the numbers of natives annually added to the profession will be above the average. The courses are long and hard, the practical work demanded is arduous, and the amount and variety of clinical material is unsurpassed.

I would like to give at least a partial picture of one very useful hospital, the surgical hospital at Amritsar, in the Punjab. It was there that the writer studied the Indian cataract operation under its originator, Colonel Henry Smith, I.M.S. This hospital consists of four pavilions which form the sides of a quadrangular park. Its capacity is three hundred beds, and its daily average of patients is about fifty in excess. Two of these long single-storied brick buildings consist of two wards opening through numerous high doorways on either side to galleries, whose cover is the extended main roof. Four or five steps lead to the ground and there is no enclosure other than the columns that support the roof. In one of these, the central part, double the height of its wings, is contained the operating theater; a room thirty by twenty and thirty feet in height, marble floored and wainscoted, the whole well lighted by numerous windows. In the other are the surgeon's office and the *x*-ray and drug rooms. The third building is for private patients, and the fourth, the Zenana, contains the clinic and wards. A part of every hospital must be reserved as Zenana quarters for women in purdah, and the entire service therein must be female. The latrines or toilets are at either end of the buildings. They are simple and excellent. The urinal consists of a slanting stone or slate trough, and round or elliptical holes cut in the stone floor serve for toilets. On either side of the hole, fastened to or made upon the floor, are rings for the hands or slots for foot supports. Below is the cesspool or plumbing. Though rather startling at first, the cleanliness and absence of odor and the simplicity soon convert one to their use. Because of the laws of caste the culinary proposition presents difficulties we can scarcely conceive, and which only caste itself can accommodate. Members of various castes may not eat food prepared by or drink water drawn by members of other castes. Hindus have no use for Mohammedans, and vice versa, to some degree. As a consequence the patient is frequently accompanied by from three to eight relatives, who prepare his or her food and serve it. Because of the climate these attendants are able to do all this, as well as sleep, on the grounds about the hospital. Under each bed is a small glazed earthenware bowl which serves as bed pan and spit cup. During most of the year the bed clothing consists of two sheets. In the north some sort of blanket or comfortable is required at night. In the south, where the male suit is a turban and a loin cloth, or, as Kipling says,

"His clothing was nothing much behind
And something less than that before,"

the same suit is worn in bed. The turban often serves as a pocket for safekeeping of valuables; passing through a ward at night one fancies himself in a mummy chamber. One end of the covering sheet being caught under a heel, the other end passed over the forehead and under the head. The big toe now raises and pulls it taut, thus raising it from the body and face. A promenade between a double row of these stretched sheets partially outlining the mobile forms beneath is quite gruesome.

The wards and cloister-like porticos are stone paved and are daily flushed and brushed out by the sweeper with his bundle of brush, which, having no handle, he must manipulate from a squatting posture. The work, however, is thoroughly well done. The Hindu and Mohammedan must also have separate wards, and since the Hindu religion demands a daily bath, the Hindu wards are least odorous. The private rooms are really suites, consisting of bedroom, toilet and kitchen, for here again most patients prefer to have their food prepared by their own family or servants.

The common food is rice, rice twice a day and little else. Various sauces and curries are added and, if permitted, the better off have some variety of meat, vegetable, fruit and sweet; but so universal is the use of and fondness for rice that it occupies an important place in every menu. The traveler, likewise, soon finds a warm spot for it in his daily appetite. Rice and water as a satisfactory food eliminates much worry and difficulty. One frequently sees signs notifying the public that "patients may furnish their own food and have it cooked by the hospital." That food means rice. Because of the simple life, constipation is rare among the common people. There is always a roadside ditch, an aloe, or a prickly pear behind or beside which the native can squat; and since squatting is the common position of rest as well as for micturition or defecation, one can never know which the squatter is doing, and one never learns.

The daily work done by the Anglo-Indian surgeons, or rather English surgeons in India, is remarkable and rather belies the common notion of the enervating effect of the Indian climate. I have actually seen the following day's program carried out, and it is not exceptional: 8:30 to 10 A.M., private patients; 10 to 11, two court cases requiring a two-mile drive; 11 to 11:30, examination of police recruits (6), five assault cases, wounds examined and certificates written, signing of ten to twenty official papers; 11:30 to 3.30, thirty cataract operations, eight iridectomies, two litholopaxies, one ovarian cyst removed, one extirpation of cervical glands, besides the personal examination of 75 patients; 3:30, on, to court, two affidavits; 4, home to lunch; 4:30 to 6, private patients and tea; 6:30, three autopsies and a visit to the club; 8, dinner at home.

I may be permitted to add that Colonel Smith, from whose life I have given a day, has had time to perfect his cataract operation, publish it to the world, teach some two-score its performance, and maintain a civic usefulness, good health, and splendid ambition. His operation offers to the world the one satisfactory scientific and surgical procedure for removing the unripe as well as the ripe cataract entire. It offers relief from those years of impoverishing delay which cataract victims must suffer who wait for ripening of the lens. Though it is not widely accepted here, or in Europe, because of the difficulty of its performance because of lack of sufficient instruction and practice in it, or ultra conservatism, it is the operation of India and of all who have mastered it. It has been performed upwards of 28,000 times by Colonel Smith, and thousands of times more by his pupils, and such an experience with its wealth of result surely overcome any merely academic objection. It appeals to the populace of India, as it will in time to our people, and wherever Smith operates there gather the cataract patients from every quarter.

Throughout the East the hospitals are monuments to our profession. Everywhere the people revere the high ability, Christian manhood, and mighty labor of the men who have brought them the art and science of medicine and surgery. Not only in those great centers where now arise new and commodious buildings equipped to the level of modern acquisition in invention and discovery, resting indeed on the graves of those who but a few years ago in barest straits and almost impossible suffering, laid down their lives in the struggle with plague, pestilence, and famine. Not only there, but on the furtherest frontier, and in the wild central country, where none go unaccompanied by danger and small chance of return; in loneliness, and be it said proudly, without acclaim, may be found men of our world carrying healing, relief, sanitation, and brotherhood. Building hospitals, leper colonies, and schools, cleaning up the filth of ages, leaving as their memorial a greater hope and possibility for the generations unborn, and a generous meed of scientific values to us of the West.

Whatever the East may in time become or return, India with its sanitation and uplift, China with sanitation and humanity, Japan with sanitation and honesty, the Old World with its new and increasing respect for life, health and sacrifice, will owe much to those noble ones who went there with the gift of healing in their wings, the throb of brotherhood in their hearts.

111 West One Hundred and Twenty-first Street.

PERSONAL EXPERIENCE WITH NEOSALVARSAN.*

By T. SCHAEPKENS VAN RIEMPST, M.D.,

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The present status of neosalvarsan is very confusing, owing to the short time it has been in use and the contradictory reports of enthusiasts and skeptics. This short paper is simply a condensed narrative of personal cases, and the conclusions I have drawn are *ipso facto* purely personal.

The literature of recent years and even the newer textbooks on urology and syphilis have devoted much space to the technique of the injection, and the numerous and cumbersome apparatuses recommended. I shall mention only the absolutely necessary implements, viz., a boiling flask of a capacity of 300 c.c., a mixing bottle, a percolator with 5 or 6 feet of rubber tubing provided with two fenestræ, a coupler, and a few sharp, highly polished Chetwood or Schreiber needles. Furthermore, a tourniquet is necessary, and for this purpose we use a rubber catheter and an artery clamp. In the 120 intravenous injections given in the St. Luke's Hospital clinic, it was only once necessary to perform a venesection, and in over 300 injections given in the Polyclinic, only three times the vein was not found. In my own practice this happened twice. This makes a total of less than 2 per cent. It is a good plan, however, to be prepared to cut down on the vein, chiefly when we have to perform this little operation at the patient's home.

During the administration of neosalvarsan I have not observed a single disagreeable effect, except that occasionally the patients complain of an unpleasant taste in the mouth; some call it metallic, others compare it with the taste of ether. As this

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occurred in at least one patient out of four or five, I have naturally tried to explain it. I venture the opinion that as soon as a little air is injected into the veins, the ether taste is present; but I am not sure that this is the real explanation. At this point it can be mentioned that the introduction of even a few cubic centimeters of air has no deleterious effect on the patient. The real after-effects of the drug made their appearance a few hours subsequent to the injection. A small number of patients (5 per cent.) had real discomfort, viz., obstinate vomiting, diarrhea, and headache, which lasted in some cases over twenty-four hours. A larger number (about 30 per cent.) complained of slight nausea, others of diarrhea, others of transitory headache; but in none of the 500 cases was there any really alarming after-effect, such as we have seen in the case of salvarsan. It is a curious phenomenon that some patients who received three or four injections would not feel a single after-effect following one or two injections, but would get a severe gastroenteritis after the third or fourth injection. Others on the contrary would get a severe reaction after the first injection and would be free from all disagreeable symptoms after the two following injections. This seems to exclude the theory that the cumulative effect of the arsenic in the first category of cases was the cause of the disturbances.

For the sake of brevity and convenience I have classified the cases treated with neosalvarsan in different groups. The first group comprises those patients who presented only primary sores without the appearance of secondaries. The diagnosis in evety case was corroborated by the laboratory test, viz., the dark-field illuminator, the Chinese ink method, and the Wassermann reaction. It is well to bring out at this point the very important fact on which Noguchi has laid great stress, namely, that often a primary chancre is not indurated and is not accompanied by satellite indurated glands. From our own experience we all know that patieuts have told us repeatedly that physicians had made a negative diagnosis of syphilis, based solely on the fact that the chancre was not indurated. It is well to bear in mind that every patient who has genital sores acquired in suspicious intercourse, be they chancroids or abrasions, may see a syphilitic chancre develop in due time. Therefore it is essential not to rely entirely on the clinical diagnosis, but to have recourse to the laboratory methods.

Group A.—This includes eleven patients who had primary sores without any secondaries. Three of these were chancres of the lip. One injection in ten cases prevented the appearance of secondaries and healed the lesion in about a week; one had a slight macular rash. This is a most important fact, principally when we have to deal with chancres of the face; one of these cases merits a little more than simple mention; this patient showed the strongest Wassermann reaction in a series of 120 cases which Dr. McFarland examined for this test. Secondaries, however, did not appear. Following the injection of neosalvarsan the hemolysis became gradually stronger, and 100 per cent. in the Madsen scale after the fifth injection.

Group B.—This group comprises the largest number of cases, but is the least interesting, because we see every day in our clinic the patients who come with or without primary lesions, but in the full secondary stage. But here again neosalvarsan shows its superiority over the old treatment in the rapidity with which the symptoms disappear, and those symptoms such as mouth and tongue lesions which we had to treat with caustic agents, often with very little result. This is adequately illustrated in the following case: A young married man was referred to me with a large secondarily infected chancre of the lip, general macular eruption, general adenitis, sores in mouth and tongue and pharynx, etc. His physician had given him twelve injections of bichloride of mercury and two injections of salicylate of mercury; the latter seemed to make no impression on the lesions, but made the patient salivate; one injection of neosalvarsan healed the lesions in a week; he received three more injections.

Group C.—In this group belong a number of cases in which either mercury, potassium iodide, or mixed treatment had been given for a longer or shorter period, and in which the symptoms, in spite of faithful treatment, did not subside or relapsed at irregular intervals. One case is particularly interesting, because it was one of the most intractable cases which came under my personal observation; this patient contracted syphilis in Germany twenty years ago; he was treated then with inunctions of mercury and remained under medical treatment for over two years. He came to me in February, 1908, with squamous syphilides of the palms of both hands. For 18 months I gave him regularly a weekly injection of salicylate of mercury (0.1 gram), and at different times gave potassium iodide in high doses. In spite of this treatment he had frequent relapses. He came to me again on June 1, 1912, with the same lesions; one injection of neosalvarsan cleared up the lesions, and until now he has been free from symptoms. Examples of this sort can be multiplied, but one will suffice.

Group D.—In this group mention will be made of several more or less interesting cases, most of them referrred to me by physicians of other departments. Three cases of osteoperiositis; all three of these patients had extensive areas of periostitis and thickening of the shaft of the tibia; they suffered intensely with nocturnal osteocopic pains; in every case an *x*-ray picture was taken and the Wassermann reaction performed; the latter was positive in every case. All pain disappeared in a few days and the thickening of the periosteum subsided gradually. Three cases of large gummata: The first was a young woman with conclusive syphilitic history and positive Wassermann reaction; she had large gummata of the leg, four in number; in spite of three injections, one of the lesions did not disappear after two months. The second case responded quickly after two injections. The third was a patient who gave a history of syphilitic infection twenty years previously; at his first visit to the clinic he presented a large gummatous ulceration of the left cheek, extending from the external angle of the eye to below the external angle of the mouth, and posteriorly as far as a point two centimeters in front of the ear. He was given two injections at an interval of a little over two weeks; the lesion was entirely healed after the third week; when the blood which was withdrawn immediately before the third injection was examined for the Wassermann test it was still doubtfully positive. Two cases of atheroma of the aorta: Both showed marked improvement in the subjective and the objective symptoms. Two cases of gumma of liver: The first was diagnosed dur-

ing a laparotomy for carcinoma of liver, the other was diagnosed as such by Dr. Miller; both gave positive Wassermann reactions and the palpable tumors and the concomitant symptoms disappeared after two injections. One case of early secondary pseudorheumatic arthritis: This lesion disappeared entirely in three days. One case of gummatous bursitis of knee: Mixed treatment and potassium iodide in large doses had no effect on the lesion; the Wassermann reaction remained positive, and gumma was unchanged. Two weeks after an injection of neosalvarsan the lesion was healed. One case of hereditary syphilis with positive Wasserman reaction: A boy of ten had frequent attacks of epilepsy; four injections of neosalvarsan failed to check the attacks in the least; it is possible, however, that this case is one of true epilepsy; a careful inquiry into the boy's family history reveals that his grandfather's brother was subject to epileptic fits. One case of multiple sclerosis. History of syphilis and positive Wassermann reaction. No result. I will say a few words about a group of patients who have been treated with either salvarsan or neosalvarsan within the last year, and who since the time of their injection did not take any specific treatment. The only criterion of a probable cure in these patients is the absolute freedom of symptoms during that whole period, and a negative Wassermann reaction done under favorable conditions; another proof of non-contagiousness at least, would be the inability of such a patient to infect his partner. I have only had one such case; a man who presented full clinical symptoms of syphilis and a positive Wassermann reaction. He received one injection of salvarsan and three of neosalvarsan, the last injection eight months ago. Since that time he did not take any specific treatment. For the last five months he has been living with a young woman whom he recently brought to me for examination; clinically both were free from symptoms, and both had a negative Wassermann reaction. Naturally it would be dangerous to draw conclusions from one such case. Twenty-five patients who had received salvarsan or neosalvarsan, and who were during a time varying from three months to twelve months without any treatment were submitted to the Wassermann test. Nine after two months were without symptoms and gave a negative Wassermann reaction. One after two months was without symptoms and gave a positive Wassermann reaction. The latter patient received four more injections; he never felt the slightest after-effect; the last time I saw him he was without symptoms, but he failed to return to the clinic for a Wassermann reaction. Five after three months were without symptoms and gave a negative Wassermann reaction. One after three months was without symptoms and gave a positive Wassermann reaction. Three after four months were without symptoms and gave a negative Wassermann reaction. One after six months was without symptoms and gave a negative Wassermann reaction. One after six months was without symptoms and gave a positive Wassermann reaction. Two after nine months were without symptoms and gave a negative Wassermann reaction. One after nine months returned with symptoms and gave a positive Wassermann reaction. This patient had received two salvarsan injections. One after twelve months was without symptoms and gave a negative Wassermann reaction.

Conclusions: (1) Neosalvarsan is preferable to salvarsan on account of its equal efficacy, its lesser toxicity and its easier mode of administration. (2) In an early diagnosis of syphilis, we can prevent the appearance of secondaries by the timely injection of neosalvarsan. (3) The dosage in children and infants should be based on body weight. If 0.9 gram is the average dose for an adult weighing 60 kilograms, 0.015 gram should be used for every kilogram of the child's weight. (4) Neosalvarsan is not a positive cure for syphilis, but is superior to mercury, potassium iodide, or mixed treatment, and should always be resorted to when lesions persist under such treatment. (5) The intravenous injection is preferable to the intramuscular injection, on account of the severe pain, the frequent abscess-formation, and the sloughing produced by the latter. (6) The introduction of a little air in the vein has no deleterious effect on the patient. (7) The intervals between the injections should never be shorter than a week.

152 West Seventy-third Street.

INDICANURIA, THE FECES, AND THE SULPHATES OF THE URINE.

By JOHN C. WARBRICK, M.A., M.S., M.D.,

CHICAGO.

In making an examination of the urine for the amount of indican present, especially with urines of a high specific gravity, some points that are of interest have been noted in more than one instance in connection therewith. The matter was gone about in the following way: First, a meal consisting chiefly of beefsteak was taken along with some coffee and bread; then afterwards an examination of the urine was made in each instance or after every meal and the results were tabulated from time to time. The amount of chlorides, phosphates, and sulphates were taken into consideration, especially the last, along with the specific gravity and the amount of indican.

The amount of feces passed was also taken into consideration, the color and odor being noted also at each examination as tending to have some part in the formation of indican in the urine and also of having some influence on the amount of sulphates, which were remarkably high on some occasions and also far beyond the amount of chlorides and phosphates. At times the odor of the feces was foul, which may have indicated a state of decomposition, while the small amount of chlorides found, especially in some instances, may have tended to indicate poisoning of the body tissues and a diminished change in the metabolic processes. At the first examination of the urine the specific gravity was high, being 1034, while the chlorides were at 30-465, the phosphates at 6-93, and the sulphates at 2-31, the amount of indican present not being recorded. At the next examination the specific gravity was slightly lower, at 1032, the amount of indican small, being as low as 3, while the feces were brownish in color.

In nearly all of the eleven examinations of the urine that were made the specific gravity was unusually high, and in most of them it was beyond the normal range of 1015-1025; while in only one instance was it within the normal range at 1024, the lowest recorded; while the highest specific gravity noted was 1040, a point that is not very often reached. In none of the reports was the amount of indican found to be high nor was the figure 7

reached at any of the examinations, while in two instances there was no indican found, although the feces had an aromatic odor. The sulphates had reached the remarkably high figure of 50-775, far beyond both the minimum and maximum daily amount and a point apparently not often recorded. From the large amount of sulphates recorded in two instances with the small amounts of chlorides each time it would seem almost as if the body metabolism had changed or that the tissue change had diminished and the sulphates had taken the place of the chlorides as an indication of this diminution. This may possibly be the explanation of the large amounts of sulphates in two instances with the small chloride index. This may go to show that where the normal metabolism of the body is disturbed from certain conditions the sulphates may increase and become much greater than the chlorides, whereas in health, when active tissue change is taking place, the chlorides are always much greater in amount than the sulphates and also much greater than the phosphates.

During these examinations there was some disturbance of metabolism, with inaction of the bowels and with a foul odor to the stools. The weight of the stool was nineteen ounces, which may have indicated a tendency to retention. Upon a free movement of the bowels at one time there was a peculiar agreeable and itchy feeling in the skin as if the body had been freed of something affecting it. This may have been due to the intestinal canal getting rid of some toxic products affecting the secretion of the skin or the nerves controlling it. The highest point the chlorides reached at any of the examinations was 30-465, while the lowest figure was 9-139.5.

The highest point the sulphates reached was at the unusual figure of 50-775 and the lowest figure was 1-155, thus making a wide range; one day the sulphates were at 50-775, then the next day they took a sudden drop to the low figure of 2-31 within the normal, but in neither of these instances was any indican present; however, in the next examination with a small amount of chlorides and a smaller amount of sulphates indican was still present, as indicated by the figure 7. Indican was found in eight of the urinary examinations, while twice it was absent under circumstances when its presence might have been expected. These circumstances were a high specific gravity and a large amount of sulphates. It will be noticed in one report, however, that with a specific gravity of 1028 and a large amount of sulphates at 40-620 the amount of indican tabulated was at 6.

Now why indican was present with the sulphates at 40 and absent when they were higher at 50 is not quite evident. At none of the examinations was the amount of indican high when all the conditions necessary for its formation seemed present to make it appear in the urine, while twice it was absent.

1. Color, yellowish red.
   Specific gravity, 1034.
   Chlorides, 39-465.
   Phosphates, 6-03.
   Sulphates, 2-31.
   Indican, not recorded.
2. Color, yellowish red.
   Specific gravity, 1032.
   Indican, 3.
   Feces, brownish color.
3. Color, reddish yellow.
   Specific gravity, 1024.
   Chlorides, 10-155.
   Phosphates, 2-31.
   Sulphates, 2-31.
   Indican, "6."
4. Color, yellowish red.
   Specific gravity, 1028.
   Chlorides, 25-387.5.
   Phosphates, 3-46.5.
   Sulphates, 2-31.
   Indican, "6."
5. Color, yellowish red.
   Specific gravity, 1030.
   Indican, 4.
   Bowels free.
   Yellow colored feces.
   An itchy feeling all over the skin.
6. Color, yellowish red.
   Specific gravity, 15-232.5.
   Phosphates, 2-31.
   Sulphates, 40-620.
   Indican, "6."
7. The same urine later in the day.
   Color, yellowish red.
   Specific gravity, 1028.
   Brown colored feces.
   Indican, "7."
8. Color, reddish yellow.
   Specific gravity, 1030.
   Chlorides, 7-108.5.
   Phosphates, 2-31.
   Sulphates, 3-46.5.
   Indican, "5."

This urine was examined after the patient had partaken of a meal of beefsteak and two cups of coffee, which represented a gain of 3pounds:

9. Color, yellowish red.
   Specific gravity, 1040.
   Reaction, alkaline.
   Chlorides, 20-310.
   Phosphates, 6-93.
   Sulphates, 50-775.
   Indican, 0.
   An aromatic odor.
   Feces, yellow.
10. Color, yellowish red.
    Specific gravity, 1036.
    Phosphates, acid.
    Chlorides, 20-310.
    Phosphates, 4-62.
    Sulphates, 2-31.
    Indican, 0.
    An aromatic odor.
    Feces, yellow.
11. Color, yellowish red.
    Specific gravity, 1028.
    Chlorides, 9-139.5.
    Phosphates, 3-46.5.
    Sulphates, 1-15.5.
    Bowels, clogged up.
    Feces, brownish color and partly liquid.
    Weight of stool, 19 ounces.
    Indican, 7.

306 East Forty-third Street.

TUBERCULOSIS IN THE UNITED STATES NAVY.

By ISAAC W. BREWER, M.D.,

Taughannock Falls, N. Y.

In previous papers the statistics of tuberculosis in the United States Army have been discussed. In those it was shown that while there has been a gradual decrease in the admission rate for pulmonary tuberculosis since 1900 the rate of decline has not been so great as the decline in the general admission rate. Or, in other words, the statistics for the army do not show the result of the campaign against tuberculosis.

In pursuing these statistics further I turned to the navy for further evidence. There we find that there is even less evidence of the benefits of the campaign against tuberculosis than in the army statistics.

In 1898 the admission rate was 4 per thousand; it rose to 5.5 in 1900, falling slightly during the following two years, only to rise to 6 per thousand in 1902 and 1903. Since then the rate has been irregular, generally above 4.5 per thousand. In 1910, the last year of record, it was 5 per thousand or one more than in 1898.

The following table shows the details of the admission rates per thousand for pulmonary tuberculosis:

Year.	Rate.	Year.	Rate.	Year.	Rate.
1898	4.0	1903	6.0	1908	5.8
1899	4.5	1904	6.0	1909	5.4
1900	5.5	1905	5.0	1910	5.0
1901	5.0	1906	4.5		
1902	4.0	1907	4.5		

For these statistics I am indebted to Surgeon-General Stokes of the Navy. In commenting on them in a private communication he says, "The great increase in the tuberculosis rate is probably largely due to the introduction of new, immature, and probably infected individuals." However, in plotting the strength of the Navy for the years under consideration and the admission rate we do not feel that such is the case. The curve of mean strength shows a continuous and almost uniform rise from the year 1899, with a flattening out during the years 1904, 1905, and 1906, and a marked increase to 1909, when the curve again flattens out. The curve of tuberculosis on the other hand shows a slight rise from 1899 to 1901, followed by a sharp fall in 1902 and a rapid rise in 1903. The curve is irregular to 1906 with a sharp rise in 1908 and a gradual fall since that date.

The statistics of the sickness in the Navy are not to be compared with any others, for they are subject to conditions which do not obtain in any other walks of life. That the results of the campaign against tuberculosis do not show in the Navy as soon as in the Army are not to be wondered at. The Navy serves in all portions of the globe where its personnel is submitted to conditions that are very trying to the human body. At best the ventilation of the ships is far from satisfactory, and when at anchor in a tropical port the decks are very hot and uncomfortable. It is also but natural that human beings after being long under confinement in cramped surroundings should "celebrate" their liberty, but whether the sailor is any less temperate than his brothers in civil life I doubt.

The death rates are not here considered because most of those who become sufferers from tuberculosis are discharged shortly after the diagnosis is made.

PNEUMONIA, IMMEDIATE AND CONTRIBUTING CAUSE OF DEATH; RATIONAL TREATMENT.

By W. C. K. BERLIN, M.D.,

DENVER, COLO.

Pneumonia, localized or otherwise, is characterized as an infection of a mixed type of more or less severity, depending upon the immunity or resistance of the person affected, with the pneumococcus probably predominating. That this type of infection is very toxic is evinced by the multiplicity of symptoms present, such as unusually high temperature except in the aged, gastrointestinal disturbances, urinary suppression with albumin, indicanuria, phosphaturia, and disturbances of the central nervous system. Heretofore heart exhaustion, due to toxemia and to obstruction of the circulation by a consolidation or gray hepatization of the lung, has been considered to be the immediate cause of death; yet we see cases proving fatal in which very little lung tissue is involved, thus seemingly contradicting this theory.

Having done a great deal of blood culture work, I have noted in all severe infections and bacteriemias a decided viscosity of the blood when drawn for diagnostic purposes. Blood drawn from pneumonia patients has been conspicuous in this respect. Following this condition further, I have visited a number of undertaking establishments and morgues, and have found that the blood is invariably clotted following death from pneumonia. Operators find it very difficult to draw blood from these subjects for the purpose of embalming, this difficulty being due to the clogging of their instruments by coagulated blood. With these findings in view, it would seem to be a fact that the more profound the infection and toxemia the more viscid the blood stream. The greater the viscocity of a fluid, the more power it takes to drive or pump it; hence we see a good reason for heart exhaustion and failure in this disease especially. The successful treatment of pneumonia bears a close relation to this condition, and the first effort should be directed to the prevention of this viscosity or so much so as to relieve the great strain on the heart until the regular cycle of this disease has passed, which is five to nine days, and until resolution has occurred either by crisis or lysis.

One of the early diagnostic features in pneumonia is the deficiency of chlorides in the urine. It would seem good logic to supply this evident insufficiency of chlorides in the blood and tissues. This is easily accomplished by giving intravenously moderately large amounts of isotonic saline solution, more or less frequently administered. This answers the double purpose of adding chlorides and of diluting the blood; it also stimulates the kidneys and furthermore facilitates the elimination of toxic material.

The usual treatment may be carried out. The bowels must be kept open as there is a great deal of tympanites always present, indicating the occurernce of fermentation and putrefaction, with the formation of indican and other toxic products that must be eliminated.

About two years ago I had the honor of introducing to the profession the safe administration of an iodine solution intravenously as a treatment for tuberculosis and different bronchial affections. Since that time I have noted during experiments on the blood, that this solution in small quantities added to a large amount of blood prevented coagulation and the mixture remained in a fluid condition for a month without hemolysis or destruction of the blood cells, as noted under the microscope. To this isotonic saline solution given intravenously I have added this iodine solution, to which were also added creosote and guaiacol for their anesthetic and germicidal action. The creosote acts strongly as a sedative to pain, relieves congestion, and greatly relieves dyspnea, making the patient more comfortable immediately. Although the number of patients so treated during the past two years has been too small to be conclusive, every case has recovered in spite of the fact that several had been given an absolutely bad prognosis by competent consultants.

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THE SERODIAGNOSIS OF PREGNANCY.

THE attempt to make a diagnosis of a condition by means of an examination of the serum of the patient has introduced into pathological laboratories a large number of serodiagnostic methods within the past few years and a few of them have proven to be of the greatest help to the clinician. These methods can roughly be divided into four groups: 1. Methods which aim to demonstrate in the serum the presence of antibodies by means of direct recognition. The agglutination and precipitin tests are perhaps the best known in this group and their value has been quite accurately fixed. The demonstration of other antibodies, such as bacteriolysins, opsonins, etc., while of great interest to the immunologist, has so far benefited the clinician but little. 2. Methods which demonstrate the presence of antibodies in the blood-serum by means of complement-deviation tests. Among these are also some which have deservedly become well known and highly trusted. It is difficult to appreciate how much the Wassermann reaction, for instance, has contributed to the diagnosis of disease. 3. Methods in which the effort is made to demonstrate either the presence of abnormal substances in the serum, or the presence of normal substances in abnormal quantities. This group is naturally a large one since into it fall the earliest attempts to investigate the nature of the blood-serum in disease. For the same reason it contains numerous tests which have proven unreliable. At present the popular subject is the character of the serum in nephritis and a large amount of work has been done with results that have so far failed to prove of much value to the clinician. If the cobra venom reaction of Weil be included in this group it may be said to contain at least one test which is likely to prove valuable. 4. Methods in which the effort is made to demonstrate the presence or absence of specific ferments.

The latter is the youngest group of all and is based upon the work of Abderhalden and his school. Abderhalden claims that under normal conditions substances foreign to the blood do not enter into the general circulation, while those native to the blood do enter. In the process of digestion, for instance, the food is first disintegrated into dialysable products which are native to the blood and these after absorption constitute the "Bausteine" (building material) out of which the body is built and repaired. When substances foreign to the blood are introduced parenterally, the organism at once proceeds to elaborate ferments which are able to break down these substances into suitable "Bausteine." Several tests have been devised along these grounds, the best understood of which is the test for pregnancy. In Abderhalden's test for pregnancy the serum is tested for the presence of a ferment, which is able to digest placental tissue. A suitable mixture of serum and placental tissue is made and dialysed under certain conditions. The dialysate is then tested for the presence of peptone and amino acids.

During the past year there have been a number of contributions on this test and, as tried out with the serum of a number of pregnant women and the serum of healthy non-pregnant individuals as controls, it would seem at first to be a positive and conclusive test for the existence of pregnancy. Upon further thought, however, there are several important questions which remain unanswered. Is the test of any value in ectopic pregnancy when the ovum has been surrounded by blood clot for some days? Has it been proved conclusively that conditions other than pregnancy may not give rise to a positive result by this test? These questions remain still unanswered by these authoritative investigators.

In the MEDICAL RECORD of July 19, Gutman and Druskin report on a series of 357 tests made in 202 cases, and in the *Bulletin of the Lying-In Hospital*, 1913, ix, 68, Jellinghaus and Losee have published the results of 563 such tests and their conclusions. The difficulties encountered by the latter were numerous and interesting and will serve in a large measure to explain conflicting results which have been obtained by other workers with this method. Benefiting by their trouble they have been able to suggest certain precautions and improvements which they purpose to follow in their future work and which apparently will tend to improve their results. They prefer to consider the test one for the presence or absence of chorionic epithelium still capable of being washed into the general circulation rather than one for pregnancy or non-pregnancy, and as such it seems to be fairly reliable. It would not, however, always be useful in the diagnosis of an ectopic pregnancy.

The conclusions of Jellinghaus and Losee are interesting. They say that "if Abderhalden's claim is a fact the test may be useful in the following: (*a*) Diagnosing early pregnancy, especially in single women in whom an examination is refused. (*b*) Differentiating between uterine myomata and pregnancy. (*c*) In diagnosing chorio-epithelioma. (*d*) In diagnosing or excluding pregnancy in nursing women with amenorrhea. (*e*) In differentiating between pregnancy and other causes of amenorrhea (change of climate, tuberculosis, diabetes). (*f*) In differentiating between pregnancy and menopause in women with an enlarged uterus due to metritis. (*g*) That it opens a field for diagnosis in other diseases in which ferments are formed. (*h*) It offers a possible method of obtaining further information about the toxemias of pregnancy." Gutman and Druskin, in their conclusions,

dwell especially upon the applicability of the test to the diagnosis of many other diseases in which destruction of tissue is effected by means of specific ferments.

SURGICAL JUDGMENT.

Amid the multiplicity of details that occupy the attention of the professional man there is little opportunity for introspection. The demands of routine and the problems presented by concrete cases monopolize the entire intellectual activity of the physician, who rarely analyzes his own mind so as to detect the causes of its shortcomings or the origin of its failures. Nevertheless no more useful task can be conceived than that of taking an inventory of one's own capacities and limitations. This task is not an insuperable one and at any rate may serve to fill out the gaps in the day's work. At the present time, when the surgeon occupies the center of the stage, there is no more useful subject for reflection than that which is concerned with the mental equipment of him who has elected the most difficult of all arts, demanding for its efficient cultivation the highest resources of intellect and the keenest manual dexterity. A great deal has been said recently about the qualifications of the surgeon, and about the restriction of the practice of surgery to those medical men only who are fitted for it by special study and experience. Of particular and timely interest therefore is the discussion of surgical judgment.

Rarely has this subject been approached with such a lucid conception of the psychological elements involved as in the address delivered last December before the Southern Surgical and Gynecological Association by J. M. T. Finney and published in the *Bulletin of the Johns Hopkins Hospital*, July, 1913. Taking as his text the aphorism of Hippocrates, "Life is short, art is long, experience fallacious, judgment difficult," Finney presents a philosophical and at the same time practical analysis of the faculty of judgment so far as this enters into the exercise of the surgeon's art. The most fundamental and striking characteristic of judgment is the capacity for error, the recognition of which is essential in order that one may properly gauge its power and limitations. This liability to error is not restricted to any single mental act, but may occur in every one of the many psychical elements that are concerned in the elaboration of the finished judgment. Error may result not only from the imperfection of sense perceptions, and of the conceptual and reasoning faculties, but also from the imperfection of the so-called instruments of precision and of records. With this realization of the inherent weakness that exists all along the line of the mental forces, from the special senses to the graphic records of the mind's operations, one is in a position to diminish the liability to error and to train the faculty of judgment as an efficient pilot upon the sea of experience.

The first requirement in order to accomplish this object is an education broad and liberal. This is all the more necessary in the case of those who adopt surgery as a specialty, and who must bring to it the qualifications of insight, knowledge, and experience. Although a natural aptitude may enable some men to outstrip their colleagues in the practice of this art, nevertheless there is no royal road to surgical eminence. Finney points out that surgery is not alone an art, there being a wide distinction between operator and surgeon, and quotes the late John Homans of Boston who said: "Any fool can cut off a leg; it takes a surgeon to save one." To state the argument in a few words, the practice of surgery should not be undertaken by one who is not thoroughly grounded in its principles and technique, and who is not mentally equipped to deal wisely and promptly with its ever varying problems.

All of this appears too obvious to comment upon. Nevertheless every medical man can recall numerous instances of veritable tyros undertaking surgical operations of considerable magnitude or difficulty. Here as in other spheres of activity fools rush in where angels fear to tread. What are the causes of the apparent premium on mediocrity which prevails in the most difficult of all human arts? First of all may be mentioned the spectacular glamor of some of the work and the remunerative inducements which attract many of the younger but as yet inefficiently trained and equipped practitioners. Secondly, the multiplication of both public and private hospitals in cities and small towns has opened the door to the amateur surgeon. It is only too true, as Finney points out, that when a patient is operated upon in a hospital there is not the same feeling of individual responsibility upon the part of the surgeon as when a patient is operated upon in a private house. "Under the cover of the hospital, and in the more or less seclusion of its operating room, the would-be surgeon is tempted to do things that he would not dare to do under other circumstances." The modernized equipment and the regalia of the surgical amphitheater cover a multitude of surgical sins; the marble walls and shining brass only too frequently form a theatrical background for surgery that can be characterized more aptly as tragedy than as comedy.

In his analysis of judgment, Dr. Finney alludes to its important component, insight, which differs from knowledge in being more intimate and coherent, and in having a greater breadth, and a greater sureness of grasp. Good judgment demands honesty in the formulation of premises. It requires keen and accurate observation. It will not blindly follow precedent. The logical processes underlying judgment are not always readily apparent, and the aid of a constructive imagination is often indispensable. Sanity or common sense is a fundamental requisite of good judgment, the maintenance of which in the surgeon, as in every one else, demands a healthy body that is not driven beyond the limits of endurance. There are negative qualities besides that are associated with good judgment. Billroth said, "Years and experience bring in their train a certain degree of hesitancy." The good surgeon, always ready to operate promptly in the presence of an urgent condition, is nevertheless the one who will take time to study a patient sufficiently long to gain a comprehensive knowledge of his condition, realizing that "far-reaching possibilities

for good or for evil are lurking behind every surgical procedure."

A happy combination of truth and candor is perceived in the enumeration of the influences that lead to errors of judgment. These influences are errors of observation, the confusion of the relevant with the irrelevant, failure to comprehend the whole situation, "mental astigmatism," preconceived ideas, provincialism, prejudices, and human frailties. Is it altogether an unjust gibe of the comic weekly that the judgment of physicians is sometimes influenced by the character or personality of their patients? "We so often see that which we wish to see and fail to see that which we do not wish to see; we are prone to twist the facts to suit the theory, rather than the theory to suit the facts. Thus we deceive ourselves. Our reasoning is at times faulty. . . . Our emotions and our passions are given too free a rein. We are so prone to forget that we do not profit as we should by our mistakes. The sacrifice is often for us in vain."

Pasteurization of Milk at Low Temperatures.

In order to determine the best way of pasteurizing milk so as to destroy the pathogenic organisms and yet not give the milk a cooked flavor or lessen its nutritive value, the Department of Agriculture, through its Dairy Division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145° F. for thirty minutes the chemical changes are so slight that the digestibility of the proteins can hardly be affected. Of great interest also is the announcement by the bureau that when low temperatures are used lactic acid organisms constitute a majority of bacteria that survive, whereas the bacteria which survive pasteurization at high temperatures are largely of the putrefactive kinds. Pasteurization at low temperatures is also commercially economical, as it takes about 23½ per cent. less heat to raise milk to the temperature of 145° F. than to a temperature of 165° F., and it also requires 23½ per cent. more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature than at 145°. The department, therefore, recommends that pasteurization should be effected by heating the milk to about 145° F. and holding at that temperature for 30 minutes.

The British Journal of Surgery.

It is a curious fact that Great Britain, the home of Lister, who made modern surgery possible, should alone of the great countries of the world have hitherto had among its periodicals no distinctively surgical journal. Readers who would learn at first hand of the work of such men as Arbuthnot Lane, Moynihan, Watson Cheyne, Macewen, Morris, and a score of other surgeons of the first rank in the United Kingdom were forced to turn to the pages of the great English weeklies, the Proceedings of the Royal Society of Medicine, or even to the American surgical journals, for there was no special periodical where the record of their work would be found. To supply this obvious lack there has been established a journal with the above title, the first number of which (July, 1913) has just been received. The journal is of the size and general style of the *Quarterly Journal of Medicine*, and is issued under the editorial direction of a committee of twenty-nine among the best-known British surgeons, the chairman being Sir Berkeley Moynihan of Leeds, the secretary Mr. E. W. Hey Groves of Bristol. This first issue presents a very attractive appearance, being illustrated with about seventy handsome colored and half-tone pictures. The frontispiece is a portrait of Lord Lister and is accompanied by a brief biographical sketch. The make-up of the journal consists of Original Communications, Critical Reviews, Visits to Surgical Clinics at Home and Abroad, Instructive Mistakes (related anonymously), Short Notices of Rare or Obscure Cases, New Instruments and Appliances, and Reviews and Notices of Books. If succeeding issues maintain the standard of readableness and good looks set by this initial number, British surgery will no longer have reason to complain of not being adequately represented in the periodical literature of that nation.

News of the Week.

The Seventeenth International Medical Congress met in London on Wednesday of this week. The inaugural session, held in Albert Hall, was opened by Prince Arthur of Connaught representing King George. The address of welcome was delivered by Sir Edward Grey who said the world was living in expectation that at any time a corner of the veil might be lifted yet higher by investigators, laying bare more of the mysteries of medical science. Sir Thomas Barlow, President of the Congress, followed with an address in which he spoke of the rapid progress being made in sanitation and the healing art, paying a tribute to the triumphs of American medicine in the sanitation of Cuba, Porto Rico, Panama, and the Philippines, and in its war on the hook worm and other plagues of mankind. Then the delegates from foreign countries made the usual addresses, being headed by Dr. W. H. Thayer for the United States.

In the afternoon the Address in Medicine was delivered by Professor Chauffard of Paris, who took as his title, "Prognosis in Its Relation to Evolution, and Its Present Limitations."

The section work began Wednesday afternoon. A resolution was introduced in the Section on Physiology by Sir E. A. Schäfer to the effect that it was the sense of the Congress that animal experimentation had shown itself to be of great service in the past and would be an essential aid to future medical progress. It was carried unanimously. The registered members of the Congress number about 8,000, the largest attendance from any country after Great Britain being from the United States.

There was some apprehension that the proceedings of the opening session might be marked by a suffragette demonstration, but the militants contented themselves with stationing near the entrance of Albert Hall "sandwich" women bearing placards with the question in large letters, "What do the doctors think of woman torture?"

Americans in the Royal College of Surgeons.—On July 31 the Royal College of Surgeons of London elected to honorary fellowship, among others, the following Americans: Dr. Harvey Cushing, of

Boston, Dr. J. B. Murphy of Chicago, Dr. William J. Mayo of Rochester, Minn., and Dr. George W. Crile of Cleveland.

City Death Rate.—For the week ending July 26 the death rate in New York City was 12.13 per 1,000, representing a total of 1,249 deaths, as compared to a rate of 13.26 and a total of 1,315 deaths during the corresponding week of 1912. Of infants under one year of age there were 298 deaths during the week, a decrease of 52, the total number of such deaths so far this year being 268 less than the number to the same date of last year. The general death rate for the first thirty weeks of 1913 was 14.67 per 1,000, while for the same period of 1912 it was 14.83.

Auto Ambulance Crash.—In a collision between a trolley car and an auto ambulance from St. Vincent's Hospital, Borough of Richmond, New York, on Richmond Terrace, New Brighton, the ambulance surgeon, Dr. Charles Brush, sustained a fracture of the right arm and other injuries, and the chauffeur also was seriously hurt.

Cholera in Hungary.—In accordance with the international agreement, the Hungarian Minister of the Interior has notified all the other governments of the occurrence of a case of cholera at Temes-Sziget in Hungary.

Quinine Cost to Soar.—An agreement between the European makers of quinine and the Java growers of the cinchona tree is likely to result in an increase in the cost of the drug. By the terms of the agreement the manufacturers are required to buy from the producers cinchona bark equivalent to about 1,000,000 pounds of quinine a year at a fixed price. Practically all of the bark used by the quinine manufacturers of Europe is produced in Java, whence it is shipped to Amsterdam and sold at public auction.

Dr. Frank P. Norbury, Alienist to the Board of Administration of Illinois, has resigned this appointment, to take effect October 1, 1913. Dr. Norbury will enter upon consulting practice at Springfield, Illinois.

Dr. Arthur A. Howard has been appointed physician-in-chief at the Children's Hospital, Boston, succeeding Dr. William P. Lucas, who has become professor of pediatrics in the Medical Department of the University of California.

Dr. Karl F. Meyer, a member of the veterinary faculty of the University of Pennsylvania, and director of the laboratories of the State Live-stock Sanitary Board, has resigned, to become professor of bacteriology and protozoology in the University of California. Dr. Meyer came to the University from the Transvaal, where he was an English Government pathologist in the Department of Agriculture. He will be succeeded by Dr. James B. Hardenberg, who was graduated from the Veterinary School of the University in 1911 and since then has been an assistant to Dr. Meyer.

Quiet for Sick.—Sheriff Harburger of New York, at the suggestion of Mrs. Rice, has recommended the appointment of special deputy sheriffs in all the hospitals of New York to aid in the enforcement of the laws prohibiting noise in the vicinity of hospitals.

Street Traffic Fatalities.—During the month of July, just passed, there were forty-one persons killed by vehicular traffic on the streets of New York City, of whom twenty-five were children under sixteen years of age. Automobiles killed twenty-six; wagons, eight, and trolley cars, seven.

Research in Tuberculosis.—In connection with the Bennett Medical College, the medical department of Loyola University, Chicago, there has recently been established a research laboratory for the purpose of testing "the efficiency of any remedy, preparation, or treatment, designed, compounded, or produced for the cure of pulmonary tuberculosis." The laboratory, which was made possible by a generous gift from Mr. William Lorimer, has on its staff the following members of the faculty of the medical school: Director, Dr. Maximilian Herzog, professor of pathology; Collaborator, Dr. W. A. Newman Dorland, professor of obstetrics; and Diagnostician, Dr. Oscar B. Funkhouser, professor of medicine. A monthly bulletin will be issued by the laboratory, in which the progress of the work will be described.

Gifts to Charities.—By the will of the late Elizabeth L. Lewis the Presbyterian Hospital of Philadelphia receives a bequest of $100,000.

By the will of the late Mrs. Anna Moore of this city provision is made for the establishment, in some place in New Jersey to be selected, of a home for convalescents to be known as the James Amory Moore Memorial Home. The amount of the gift so made is estimated at over one million dollars.

The Rhode Island Hospital, Providence, receives a bequest of $200,000 by the will of the late Mrs. Jane F. Brown of that city, and $25,000 is left to St. Joseph's Hospital, and $10,000 each to St. Elizabeth's Home and the Bethany Home.

By the will of the late Miss Elizabeth L. Lewis of Philadelphia the sum of $105,000 is bequeathed to the Presbyterian Hospital of that city. Of this sum $50,000 is to be used for the erection of a new building on the present hospital grounds or at the convalescent home at Devon, as a memorial to the parents of the testator, Samuel A. and Sarah Lewis; and the income from $50,000 is to be used for maintenance. A further sum of $5,000 is for the endowment of a free bed in memory of Sarah S. L. Brodhead.

Obituary Notes.—Dr. Elza V. Coldren of Topeka, Kan., a graduate of the College of Physicians and Surgeons of Keokuk, Ia., in 1864, a veteran of the Civil War, and a member of the American Medical Association and the Kansas State and Shawnee County Medical Societies, died at his home after a short illness, on July 17, aged 72 years.

Dr. James Bernard Shannon, Jr., of Danielson, Conn., a graduate of the College of Physicians and Surgeons, New York, in 1896, and a member of Connecticut State and Windham County Medical Societies, died at the home of his brother in Falls Village, after a long illness, on July 15, aged 42 years.

Dr. Phil Porter of Springport, Mich., a graduate of the Long Island College Hospital, Brooklyn, in 1875, died in Chicago, after a short illness, on July 14, aged 61 years.

Dr. Andrew Liddle Fulton of Kansas City, Mo., a graduate of the Bellevue Hospital Medical College, New York, in 1870, and a member of the Missouri State and Jackson County Medical Societies, died at his home on July 15, aged 70 years.

Dr. Harry Stillman Wilcox Spencer of Kankakee, Ill., a graduate of Rush Medical College, Chicago, in 1908, and a member of the Illinois State and Kankakee County Medical Societies, be-

ing a former secretary of the latter, was drowned while fishing in the Kankakee River, on July 17, aged 34 years.

Dr. George R. Westbrook of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1878, and a member of the New York State and Kings County Medical Societies and the Brooklyn Pathological Society, died suddenly, from heart disease, at his summer home near Benson, N. Y., on July 24, aged 65 years.

Dr. Gregory Doyle of Syracuse, N. Y., a graduate of the New York University Medical College in 1865, president of the United States Board of Pension Examiners in Syracuse from 1885 to 1890, surgeon general and major in the National Guard of the State of New York from 1872 to 1890, and consulting surgeon to St. Vincent de Paul's Asylum, died at his home on July 23, aged 73 years.

Dr. John S. Warren, formerly of New York, a graduate of Dartmouth College, Hanover, N. H., in 1862, and of the Jefferson Medical College, Philadelphia, in 1866, a veteran of the Civil War, and a member of the New York Academy of Medicine, the New York State and County Medical Societies, having served as treasurer of the last for fifteen years, the Society for the Relief of Widows and Orphans, and the Physicians' Mutual Aid Association, died at his home in Atlantic City, N. J., on July 18, aged 72 years.

Dr. Jerald Waddell of Montreal, Ont., a graduate of McGill University, Medical Department, in 1907, and a member of the laboratory staff of the Montreal General Hospital, died at the home of his father in Chatham, Ont., on July 13.

Dr. Roderick McLennan of Quincy, Mass., a graduate of Trinity Medical College, Toronto, Ont., in 1887, attending physician to the Quincy City Hospital, and a member of the American Medical Association and the Massachusetts State and Norfolk County Medical Societies, died at his home, after several weeks' illness, on July 23, aged 53 years.

Dr. Ransom Newell Murray of Flint, Mich., a graduate of the Jefferson Medical College, Philadelphia, in 1866, a member of the American Medical Association and the Michigan State and Genesee County Medical Societies, and until recently medical director of the Michigan School for the Deaf, died at the home of his daughter, in Mendon, Mich., on July 19, aged 83 years.

Dr. Arthur L. Wright of Carroll, Ia., a graduate of the Rush Medical College, Chicago, in 1874, and a member of the American Medical Association, of which he was a former vice-president, the Western Surgical Association, and the Iowa State and Carroll County Medical Societies, died in the American Hospital, Paris, after undergoing an operation for intestinal obstruction, on July 19, aged 62 years. Dr. Wright had gone abroad as one of the American delegates to the International Medical Congress in London.

Dr. William H. Evans of Sedalia, Mo., a graduate of the Bellevue Hospital Medical College, New York, in 1867, a veteran of the Civil War, a member of the American Medical Association, a member and former president of the Missouri State Medical Society, and a member of the Pettis County Medical Society, died in a sanatorium at Kansas City on July 20, aged 73 years.

Dr. Edward Francis Dowd of Waltham, Mass., a graduate of the Harvard Medical School, Boston, in 1898, died at his home from pneumonia, after a brief illness, on July 26, aged 38 years.

Dr. Simon P. Wise of Millersburg, Ohio, a graduate of the College of Physicians and Surgeons, New York, in 1871, and a member of the Ohio State and Holmes County Medical Societies, died suddenly, from neuralgia of the heart, on July 15, aged 65 years.

Dr. James D. Van Derveer of North Branch, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1866, died at his home, on July 30, after a brief illness, aged 75 years.

Dr. Bernard A. Duhigg of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1894, and a member of the Brooklyn Medical Society, died recently at his summer home at St. James, L. I.

Correspondence.

FREE PERSPIRATION A PATHOGNOMIC SIGN OF MEASLES.

To the Editor of the Medical Record:

Sir:—In connection with the instructive paper on the differential diagnosis between scarlet fever, measles and German measles by Dr. S. D. Hubbard, allow me to add another clinical sign which often proves very helpful in this direction. This symptom consists in *free perspiration* during the entire course of German measles, whereas the skin is invariably dry and more or less hot in scarlatina and morbilli. The free perspiration is due to the fact that in German measles not only are the lymphatic glands (including the spleen—which, by the way, is often greatly enlarged) involved, but the sudoriferous glands as well. I noted this symptom some eighteen years ago during the prevalence of the aforementioned three affections simultaneously at the H. Sh. G. S. Orphan Asylum and have since had many occasions to confirm the correctness of that observation.

Herman B. Sheffield, M.D.

New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRITISH MEDICAL MEETING—INSURANCE, APPROVED SOCIETIES AND MALINGERING—MEDICO-PSYCHOLOGICAL MEETING—FORCIBLE FEEDING—THE NEW POET LAUREATE—OBITUARY.

London, July 18, 1912.

The annual meeting of the British Medical Association will occupy next week. In fact it may be said to begin to-day, for officials and representatives are at work on questions important to the proceedings but scarcely interesting to you. The practical medical work opens on Tuesday next. Meantime the executives have issued a report in which several schemes of reform which have been put forward are criticised. These schemes result from the dissatisfaction that exists with the constitution, and specially on account of the failure to cope with the Government as to the Insurance Act. The constitution of the association is complex, and what with branches, decisions, groups, representatives, or delegates, busy practitioners are little disposed to study it. Hence it is that power has always tended to fall into the hands of the executive council, and what are spoken of as "vested interests" in the seats of that body occasion much dissatisfaction. The present council has considered the schemes of reform put forward as above stated and proposes

an extensive increase of its own powers. To accomplish this they make the drastic suggestion to dissolve the present society and form a new limited company to take over the property and hold it in trust for the purposes for which it has been raised. The past history of the association, or rather of its former government, has not been such as to secure confidence in its wisdom or justice. In fact for many years its action was proverbial as unworthy of the profession, and it is no easy matter for anybody to escape the condemnation its predecessors may have earned. A second report has also been made public and will have to be discussed. It comes from the state sickness insurance committee, and recommends the formation of a special fund for the organization and protection of the profession and its members; the control and administration of this fund to be vested in the council as trustees with power to delegate their duties to committees if they deem it desirable. Medical defense, sickness, and accidental insurance, endowments and pensions would be met by this fund, which would be raised by a voluntary subscription of sufficient amount. It is obvious that the council desires to organize the whole profession and to be the ruling executive; but from all one hears at present general support will not be forthcoming. This, however, and other medico-political matters will be brought forward at Brighton where the annual meeting is being held this year.

The approved societies are already finding out that the sickness expectation on which they based agreements to work the Insurance Act is being enormously exceeded. One cause is malingering. When the measure was being forced through Parliament this was foreseen by many as likely to occur, but the Government refused to listen to this or any suggestion. The societies (*i.e.* the large clubs which had always taken precautions) were anxious to undertake the administration of the act and accepted the Chancellor's estimates. The results are causing them disappointment and grave anxiety. It was estimated that sickness benefit would be 1½ per cent. per annum. In one society 2.21 per cent. of male members and 3.41 per cent. of females are on the funds without reckoning disablement benefit that will come on later. In the winter there is always a higher ratio than in other seasons and the societies did not cry out at that. But the last two months they have been alarmed—especially at the increased amount of sickness among females. A proportion of this is attributed to the maternity benefit, and most unexpectedly certificates of "debility" and similar troubles have come in for two or three months preceding delivery, thus greatly increasing the maternity benefit in a way that Parliament is believed not to have intended. The societies cannot expel members as they could when they were only voluntary clubs, and the systematic visitation they carried out by their fellow workers proved a preventive of fraud. Of course many people are blaming the doctors for giving certificates on insufficient grounds. It is said that liability and other slight causes of illness are given. The act requires the person to be *totally* incapable of work. This is very different from being unable to continue factory employment. A woman engaged in such and drawing full pay may be unable to continue that satisfactorily and yet she may not be "totally incapable" of any kind of work. There is an amending bill before Parliament which has been called a "tinkering" one. It is meant to deal with this among other questions which are mostly due to the way in which the scheme was hustled through and all amendments refused consideration. Now within a year they have to be considered and are expected to cost an additional sum of £1,000,000 a year. Mr. Masterman, financial secretary, gave currency to the statement that the doctors endeavored to pick out the "best lives," gave certificates carelessly, and when challenged said the Manchester doctors had themselves set up a committee to prevent it. He has thereby drawn upon himself the scornful retort that he either spoke in ignorance or ignored the facts. If he knows them, Dr. Helme tells him he is unfitted for his position, and Sir James Barr's statement that the act is "hollow fraud" is quite true. Dr. Waltenberg declared that if Mr. Masterman were not sheltered by the privileges of the House of Commons he would not have hesitated to challenge him to prove or apologize for his misstatements.

At the seventy-second annual meeting of the Medico-Psychological Association Dr. Newington, for twenty years treasurer, and president in 1889, was presented with his portrait in oils by Mr. Ouless, which was placed in the Royal Academy. At the dinner of the association Sir J. Crichton-Browne made a much-needed statement about forcible feeding, which has been spoken of by politicians as "torture," and I regret to say also by surgeons who ought to know better. Sir James said the members of that association were entitled to speak. If it is called an operation, all performed it; he had done it himself hundreds of times and seen it done thousands, and was sure it had saved tens of thousands of lives. He mentioned a man who had been so fed for fourteen years.

Dr. Robert Bridges has been appointed Poet Laureate. Many people were inclined to think the office would be discontinued and some profess to be disappointed that it is otherwise determined. The new Laureate was educated for and practised the profession. He graduated M.B. Oxford in 1874, became assistant physician at the Great Northern and the Children's Hospitals, and held some other appointments. He retired in 1882 to devote himself to poetry, in which he had previously attained some distinction. In 1876 he issued privately "The Growth of Love," in sixty-nine sonnets. Soon after leaving the profession "Prometheus" appeared (privately printed also in 1883). His "Shorter Poems" (1890) are considered by many his best and are certainly the most popular. The collected edition of his works extends to eight volumes. Dr. Bridges is not only a poet. He has written much prose and is a classical scholar of no slight eminence. Indeed some think his classical knowledge and predilections tend to injure his poetry and make him the delight of the few classicists rather than the singer of the English people. But your literary organs will analyze his works for you. Here it is only as a medical man that I speak of him, after the example of the Royal College of Physicians which elected him a Fellow in 1900.

Last evening your Ambassador, Dr. W. H. Page, was entertained at the Anglo-Saxon Club here, and in the course of an eloquent speech said that a wealthy American gentleman had given $100,000,000, the interest of which he wished devoted to the eradication of disease by an international health commission.

Dr. F. Gotch, F.R.S., professor of physiology at Oxford, has died after a prolonged illness, to the great regret of a large circle of scientists and medical men. He was the son of the Rev. D. Gotch, one of the revisers of the Old Testament, a theologian and scholar of great eminence. Soon after graduation and taking M.R.C.S. he was appointed assistant to Burdon-Sanderson in the Waynflete Chair of Physiology and succeeded to the professorship when Sanderson took that of medicine. He contributed much to the Royal Society's *Proceedings* and the *Journal of Physiology*. He was M.A. Oxon. and D.Sc. Oxon. and Liverpool, LL.D. St. Andrews, and received many other honorary distinctions. His Croonian lecture on the mammalian nervous system was delivered in 1891 before the Royal Society, of which the next year he was made a Fellow, and soon after a Councillor.

OUR CANADIAN LETTER.

(From Our Regular Correspondent.)

MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

It would be impossible in a limited space to deal with the program in detail or to discuss many of the papers read in the various sections with the attention that their importance deserves. However, there were some features of outstanding interest. For instance, an especially instructive paper was read in the section of general medicine by Dr. Hugh McGougan on "Acute Bronchitis and Pneumonia in Infancy and Childhood." Referring to the management of a child with acute bronchitis McGougan pointed out that early and free purgation not only lessens the toxemia, but also provides for freedom of the respiratory movements. Calomel in divided doses followed in a few hours by castor oil or a saline is effectual. For its diaphoretic and diuretic action liquor ammon. acetat. combined with an alkaline expectorant such as citrate of potassium in doses of 1 to 2 grains every three hours to a child of one year gives good results. Of the stimulating expectorants ipecacs or perhaps antimony in the form of the wine are of value during the acute stages, senega and squill being indicated for the later stage. The diffusible stimulants spirit. ammon. aromat. and spirit. chloroform. are of value in counteracting the depression of the disease. Opium, while certainly not contraindicated, requires care and watchfulness on the part of the prescriber. Where the dyspnea is producing stupor or even dullness opium in any form is contraindicated. It is best exhibited in the form of paregoric, or of Dover's powder. Codeine in the form of the syrup, also heroin, have their advocates. As to food, the child should be nourished mostly on milk, given in measured quantity and at regular intervals of two or three hours, preferably diluted with water or lime water. Between these times the child should be encouraged to drink freely of water. There should be no objection to a variation of diet. Care, however, must be taken to prevent a distention of the stomach or the intestine, thus hampering the respiration. Should tympanites develop it should be treated immediately by turpentine enemata and stupes and the use of tonic laxatives. Stimulants should be given early in severe cases to counteract the depression.

When the symptoms of bronchopneumonia predominate the treatment will vary according to the amount of the bronchitis, the height of the fever, and the general condition of the patient.

Dr. Goldwin Howland, physician to the Outdoor Department for Nervous Diseases at Toronto General Hospital, read a paper on the Functional Disorders of the Nervous System, Hysteria and Neurasthenia, Antiquated Diagnoses. Howland criticised the common use of the terms neurasthenia and hysteria as inaccurate. According to Howland, with regard to neurasthenia and hysteria, we find that science has not followed a rational method of advance and instead of gradually reaching the true terminology and dividing these diseases according to their causes, the tendency has been to widen the enormous field which these terms include, either by separating them from other classes, such as psychasthenia based on a similar collection of general symptoms, or by subdividing the functional diseases and forming classes such as cerebroasthenia and somatasthenia, sexual neurasthenia, etc. Such subdivisions are not the result of an attempt to make cause the basis for the separation, for it will be realized at once that sexual neurasthenia is by no means caused by sexual conditions, nor gastric neurasthenia by stomach malfunctioning. These subdivisions are simply the extension of the plan of collection, generalizing into disease and then separating such into groups arranged according to disturbances of similar functions. Howland draws attention to the fact that Sigismund Freud has evidently tried to avoid this unsatisfactory method. He has isolated anxiety neuroses, masturbation neurasthenia from the group, truly a division based on cause, but unfortunately one whose value is limited, as he has obtained such a small number of groups based on cause for such an important disease as neurasthenia. With hysteria the length of its scientific life has evidently placed the disease beyond any attempt at a similar recovery. Howland urges that the functional disturbances of the nervous system must be separated into diseases classed according to cause, not on the present basis of calling a collection of symptoms a disease. So that in advising the relegation of neurasthenia and hysteria into the field of obscurity, he does so, in the first place because the natural method of advance is the collection of symptoms and their separation according to specialized function. Secondly, the determination to see if the general nervous function is at fault, such general conditions as irritability are here referred to. Thirdly, when possible the association of such functional derangements in specialized centers with pathological conditions, be they gross or minute, and finally and always most important the discovery of the cause. Howland also criticises the classification of insanity. He claims that such disorders as alcoholism, toxic conditions which affect the brain and spinal cord, epilepsy and epileptic insanity, and even general paralysis and tabes are practically in the same class as the functional nervous disorders. They are nearly all divided according to the groups of symptoms—manic depressive insanity, dementia præcox—and there is no true scientific care; all are treated by symptoms and there will be no success until the causes are differentiated. Another reason for laying aside the diagnosis of neurasthenia and hysteria is that one is turned from a great opportunity for studying and differentiating the diverse functions of the nervous system. Again, in the teaching of students by the present method we find that they begin to look upon neurasthenia and hysteria as a token for all that is uninteresting in medicine, as a

type of a case which has nothing tangible behind it. But if you commence teaching disturbance of function you give the men some definite problem to work out, and if you show them the necessity for arriving at a cause you have men keen and interested in the various cases they had previously scoffed at. Yet another reason for urging the change is important—it is to avoid mistakes in diagnosis. According to Howland, the worst mistakes that he has come across have been always in diagnosing as neurasthenia and hysteria diseases that were of a most serious nature, and the cause for this has been that where there is a group of symptoms such as neurasthenia covers, this group frequently precedes the onset of more advanced signs of other diseases and the physician accepts neurasthenia as a diagnosis to save him the attempt to find a cause. In these cases the most terrible mistakes occur. The fifth reason is that in using the terms neurasthenia and hysteria the medical man regards them as if they were definite diseases and normal for a definite type of individual. Sixth, in these diseases the typical functional disturbances which they include are not necessarily present in the same individual, and lastly, the individual you at one time termed hysterical may at another give symptoms typical of neurasthenia. Summing up, Howland makes an urgent plea that the terms neurasthenia and hysteria should not be used as diagnostic conclusions, but should be entirely omitted, and submitted the contention that the time has come for reviving the study of the general functional disturbances of the nervous system, using the vast material which has been acquired; we should also endeavor to make more definite research into the specific differences of function belonging to nerve cell groups in different parts of the nervous system and that there should be further advance made in associating these functional disturbances with chemical and physical changes in the nerve cells, and finally and most important of all we should decide to classify our functional disturbances only according to cause.

In the same section Dr. G. S. Glassco of Hamilton, Ont., read a paper on the evolution of the neurotic and the application of psychoanalysis in the treatment of the same. In the course of an able and interesting paper Glassco endeavors to explain what Freud really means by the term sexual. He says: "Many have strongly objected to Freud's theory, principally on account of the term 'sexual,' translating it for themselves to mean sexual in the narrowest sense, in fact, pertaining to the consummation of the sexual act. According to Glassco neither Freud nor Jung, who has elaborated Freud's theory, intended to convey any such restricted meaning to this term. Rather does it embrace life and love and creation, indeed, the whole diffused tendency to seek expression, starting with mother love and graduating to the power to not only create life but to be capable of any creative work. Jung claims that the first instinct of the child is not sexual but nutritional, and Freud, while conceding this point, claims that in so far as nutrition is necessary to maintain life, it is indirectly concerned with the creation of life and therefore belongs to the sexual field. So that if this interpretation is accepted many of he objections to Freud's theory will be done away with.

Dr. C. S. McVicar of Toronto read a paper treating of some psychiatric problems as they affect the general practitioner and came to the following conclusions: 1. That the incidence of cases showing a greater or less degree of mental illness is larger than we heretofore supposed. 2. That we are not fully equipped to deal with such cases. 3. That as a result of our lack of equipment cases are allowed to progress where arrest or care might be looked for. 4. That the best means for physicians to combat the evil of irregular practitioners is to equip themselves more thoroughly to deal with this class of cases, because they are cases upon which quacks fatten. 5. That the remedy lies in more searching investigations and more efficient education. 6. That a more efficient education would result in (a) a great many cases being arrested before there is any need to send them to an insane asylum, (b) a great many cases now in asylums could be treated at home. 7. That the economic value of the question demands the fullest consideration by the State. As said before, the meeting on the whole was a success, although the attendance was hardly as satisfactory as had been hoped. The quality of the papers throughout the meeting was excellent and the social aspect of the meeting was bright and cheery, due mainly to the efforts of the local profession and the inhabitants of London in general to offer hospitality unstintedly.

The executive council of the association was selected as follows: Dr. F. P. Drake, London; Dr. MacKid, Edmonton; Dr. Primrose, Toronto; Dr. Small, Ottawa; Dr. Adami, Montreal; Dr. Reeve, Forest; Dr. Halpemey, Winnipeg; Dr. McKechnie, Vancouver; Dr. Brett, Banff; Dr. McNeil, St. Johns; Dr. Mader, Halifax; Dr. Park and Dr. Whitelaw, Edmonton, and Dr. F. U. G. Starr, Toronto.

St. John, New Brunswick, was selected as the next place of meeting, and Dr. Murray Maclaren of that city as the next president.

An interesting feature of the meeting was the honoring of Sir James Grant of Ottawa, who is considerably more than ninety years of age, by making him an honorary member of the association for life in view of distinguished service in the past. It may be mentioned that out of the forty-six meetings which the association has held he has missed only three.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 24, 1913.

1. Contribution from the Psychopathic Hospital, Boston, Massachusetts: Introductory Note. E. E. Southard.
2. The Wassermann Reaction in Its Application to Medicine. W. P. Lucas.
3. The Obstetrical Problem of the Poor. A. K. Paine.
4. The End Results of Excision of the Knee for Tuberculosis with and without the Use of Bone Plates. R. B. Osgood.

1. The Psychopathic Hospital.—E. E. Southard points out that the contributions of a psychopathic hospital like the new Boston institution are likely to emanate from the laboratory and to be of somatic trend. Their source will, however, be the patients themselves, since many psychiatric problems (*e.g.*, those of speech) are hardly workable in lower animals. These clinical problems are bound to be of a wide range on account of the representativeness of the clinical material, the drainage-product, namely, of a metropolitan district. German models are available, and articulation with the state system of government carries with it sundry advantages. The juxtaposition of the medical and social points of view

must direct one's progress. Local influences (Massachusetts General Hospital, Boston Dispensary) are of especial advantage. The paucity of sociological and psychological contributions is clearly in evidence. To secure a more even development of psychiatry, these latter should be stimulated, though naturally the somatic studies should not be permitted to lag.

2. Value of the Wassermann Reaction.—W. P. Lucas states that the general usefulness of the reaction is being more and more recognized in cases of so-called latent syphilis or syphilis without manifestations. Many workers use the reaction in cases which give no outward—that is, no clinical—manifestations of disease, but which on examination give the positive Wassermann reaction. The test is useful also in its application to life insurance. When one recognizes the fact that syphilis is a protean disease, and that it has a widespread distribution throughout the whole human race, the value of the reaction in insuring life is seen at once. It is stated that one-third of all syphilitics die early in consequence of their luetic infection. It would be a wise precaution for insurance companies to have all questionable cases tested by this reaction for their own protection, but there are, of course, difficulties in carrying out such measures. In forensic medicine, the importance of the reaction is manifest. It is being used in civil cases as well as in penal cases. The argument that a man is syphilitic can much more easily be made plausible to a judge by the fact that he has a specific reaction than by psychiatric explanations. As studies in eugenics proceed, one becomes more and more convinced that there must be and will be a greater safeguarding of the marriage tie. The infectious stage of syphilis is generally considered to be three or four years; but if the Wassermann reaction is still positive, and if it is true that this indicates spirochete carriers, then one must alter the control of the syphilitic. It seems very probable that this reaction will be used as an aid in deciding the question of marriageability, and that to the present generally accepted rule, which demands treatment over a certain period of years before marriage, will be added the requirement of a negative Wassermann reaction.

4. End Results of Excision of the Knee for Tuberculosis.—R. B. Osgood, in order to compare the end results of the excision of the knee for tuberculosis, in which metal plates or clamps were used to hold the bone ends in close apposition, with the cases of simple excision, traced the twenty-eight excisions for tuberculosis of the knee joint done in his orthopedic service during the last five years. In twelve of these no metals were used to hold the bones in apposition. That is, a simple excision was done, chromic catgut or kangaroo tendon occasionally being used to hold the bones together. In two cases silver wire suture was employed. In fourteen cases aluminum wire clamps or bone plates were used, in eight the aluminum wire clamps devised by Goddu, and in six the malleable iron bone plates suggested by Brackett. The comparative statistics of this small series of cases would seem to show that the holding of the nicely approximated bone ends firmly together has definite advantages. The postoperative pain is less, early union is favored and the only untoward effect which was noted was the occasional necessity for the removal of the bone clamp or plate. This possible eventuality seems of little import when compared to the greater assurance of diminished suffering and quicker return of safe and painless weight-bearing.

New York Medical Journal.

July 26, 1913.

1. The Quantitative Amino (NH_2) Nitrogen Content of Syphilitic and Nonsyphilitic Serums. D. M. Kaplan.
2. Prevention of Death and Resuscitation. A. L. Soresi.
3. Chronic Appendicitis in Its Relation to Hyperacidity of the Gastric Juice. H. Illoway.
4. Obesity and Emaciation. D. Bovaird, Jr.
5. On the Value of Cauterization by the High Frequency Current in Certain Cases of Prostatic Obstruction. A. R. Stevens.
6. The Relation of Ellis Island to the Public Health. A. C. Reed.
7. The Mental Measurement of Four Hundred Juvenile Delinquents by the Binet-Simon System. W. G. Eynon.
8. High Pressure Disease. S. R. Roberts.
9. Antral Empyema, with the Presentation of an Efficient Conservative Operation for Its Cure. H. C. Masland.
10. Food for Babies. M. Alice Asserson.
11. Wounds of the Pericardium and Heart. G. G. Holladay.
12. Acute Mercury Poisoning. J. M. Lobsenz.

1. Animo Nitrogen Content of Syphilitic and Nonsyphilitic Sera.—D. M. Kaplan refers to the usefulness of the amino nitrogen determinations in the sera of cases in which syphilis is suspected or in which a positive Wassermann reaction is contrary to clinical findings. The amount of amino nitrogen in the serum of a syphilitic remains diminished regardless of the negative Wassermann reaction. Whereas the amount of amino nitrogen in the sera of syphilitics is quantitatively diminished in a larger number of instances than in cases in which a positive Wassermann reaction occurs, it is safe to argue against syphilis in cases in which the amino nitrogen is normal and in which there are no clinically suspicious signs of the disease. In these determinations the author perceives a very important method in weeding out unexpected positive Wassermann results.

2. Prevention of Death and Resuscitation.—A. L. Soresi states that in the prevention of death the heart is always the important element to consider, as there can be profound coma or apnea without loss of life. The question is not one of stimulation of the heart as much as of saving its strength. In pneumonia, for instance, death can be prevented if the heart action can be kept up for a few days, the problem here being one of heart action only, because the disease exhausts itself in a few days. The heart is flushed with blood loaded with poisoned products, and while its stimulating and nutritious element is nourishing it poorly and poisoning it, it has to work harder, because of the resistance met from the consolidation of the lung tissue. With these considerations in view, the author has in two cases resorted to direct transfusion of blood into the external jugular vein after having bled the patients, and in another case, to the continuous dropping of physiological salt solution into the external jugular vein. The results were very gratifying, but on account of the limited number of observations no definite conclusions are made. In severe cases of hemorrhage death can be prevented if the direct transfusion of blood, or at times even of saline solution, through the external jugular vein is resorted to in time.

5. High Frequency Cauterization in Prostatic Obstruction.—A. R. Stevens reports two cases of prostatic obstruction which were relieved symptomatically and objectively by high frequency current cauterization of the obstructing portion of the prostate. The residual urine in a case of contracture of the vesical neck was reduced from twenty-six ounces to one and a half; in a middle lobe case, from fourteen ounces to one-half ounce. Both patients tolerated the cystoscope so well that no anesthesia was used. The treatments were conducted in the office, did not interfere with the patient's work, and were not followed by pain or serious bleeding. Probably the D'Arsonval current would accomplish results in such cases more quickly, but one must be cautious to avoid too deep destruction of tissue. With the Oudin current, after these and other experiences, the author would be willing to do more at each sitting; thus requiring fewer cystoscopies. Although there are but two cases reported the patients received such complete relief that it seems that cauterization by the high frequency current must be considered as a possible means of treatment in dealing with certain types of prostatic obstruction.

Journal of the American Medical Association.

July 26, 1913.

1. Tumor of the Hypophysis in a Case of Acromegaly. J. Grinker.
2. Intestinal Sand. Report of a Case with Chemical Analysis of Sand. F. B. Talbot.
3. The Histopathology of Pompholyx. R. L. Sutton.
4. Congenital Stricture of the Prostatic Urethra with Bladder Hyperplasia, Urethral Dilation and Multiple Abscesses of Both Kidneys. W. H. Jordan.
5. Use of Palate Mucous Membrane Flaps in Ankylosis of the Jaw Due to Cicatricial Formations in the Cheek. J. B. Murphy.
6. Creeping Eruption. Two Cases with Recovery of the Larvæ. L. Rudell.
7. Etiology and Significance of Pericolic Membranes. D. Cheever.
8. The Part Played by Functional Disorders in the Pathology of the Stomach. J. Kaufmann.
9. Internal Hemorrhages; Can We Control Them? F. Billings.
10. Two Cases of Circulatory Disturbance of the Brain. C. E. Riggs and E. S. Hammes.
11. Some Aspects of Hydrotherapy in the United States. H. M. Hallock.
12. Clinical Significance of the Cerebrospinal Fluid in Nervous and Mental Diseases. M. J. Karpas.
13. Empiricism in Dermatological Therapeutics. M. L. Ravitch.
14. Diuretic Drugs in Acute Experimental Nephritis. H. A. Christian.
15. Therapeutic Possibilities of Transfusion. B. M. Bernheim.
16. The Bromide Question Experimentally Considered. I. The Response of the Heart to Bromide Perfusion. C. W. Greene.
17. Non-Surgical Treatment of Cirrhosis of the Liver. N. S. Davis, Jr.
18. Some New Perimetry Instruments. C. B. Walker.

4. Congenital Stricture of the Prostatic Urethra.—W. H. Jordan describes congenital stricture as an occlusion of the urethra which may occur at three different places: first, at the meatus; second, at the outer limit of the rossa navicularis, and third, at the membranous urethra. None of the text-books describe a stricture of the prostatic portion. Keyes says that stricture in the deep urethra is exceedingly rare; one text-book denies its existence below one-fourth inch from the meatus. Such strictures are caused by inaccurate apposition in the embryo of separately developed sections of the urethra. The stricture is endodermic in origin. Guibe relates an interesting fatal case in which the stricture admitted only a needle. Stricture of the meatus and fossa is quite common and is often overlooked because it gives rise to few, if any, symptoms.

5. Plastic Operation for Ankylosis of the Jaw.—J. B. Murphy reports two cases of ankylosis of the jaw due to cicatricial formations in the cheek following destruction of tissue. He resorted to a method of flap-interposition which is original. It is well known that in all his arthroplasties he has favored the pedicled flap for interposition between the ends of the bones. Therefore, when the first of these two cases of ankylosis of the jaw came under observation he endeavored to secure a pedicled flap for interposition to prevent a recurrence of the ankylosis. The flap in the first case was removed from the hard and soft palate of the patient and consisted of the mucosa and submucosa. It was a pedicled tongue-shaped flap and it was swung outward so as to cover over the denuded bony surface of the upper jaw, which had been formed when the jaws were chiseled apart. The result exceeded the author's expectations. The flap lived and the ankylosis did not recur. The result was so good that he was led to resort to the same procedure in a second case of ankylosis of the jaw.

7. Pericolic Membranes.—D. Cheever presents evidence from the laboratory and operating-room to show that the veil-like pericolic membranes of the type described by Jackson are congenital variations, occurring in at least 10 per cent. of individuals and causing in the majority of instances no symptoms whatever. In the infrequent cases in which there is satisfactory evidence that they constrict and obstruct the function of the colon, they should be divided, preferably with the cautery protected by a spatula introduced beneath the membrane, as advised by Hofmeister. Jackson's recent reported experience in two cases gives one ground to expect that after division they may not form again. The other type of membrane, whose cause is either inflammation spreading from one visceral lesion, or, as the author thinks less likely, peritoneal irritation from intestinal stasis, is more likely to cause symptoms and require operative relief. Further progress in these problems will follow the careful analysis of the symptoms and living pathology of many cases by many observers, and above all the conscientious interpretation of after-results.

The Lancet.

July 19, 1913.

1. The Early Diagnosis and Treatment of Pulmonary Tuberculosis. J. M. Bruce.
2. Three Cases of Solid Tumors of the Umbilicus in Adults. A. E. Barker.
3. Paratyphoid Fever Associated with an Epidemic of Typhoid Fever. J. Watt.
4. The Incidence of Stone in Egypt, with Remarks on a Series of 312 Operations. F. C. Madden.
5. The Black (Pigmented) Appendix. W. H. Battle.
6. Procidentia of the Uterus and Rectum at the Age of 27 Years, with Remarks on the Treatment. D. Drew.
7. Surgical Tuberculosis in Children, with Suggestion as to a Method of Treatment. A. H. Tubby.
8. An Analysis of 35 Consecutive Cases of Bradycardia. C. E. Lea.
9. Medical and Surgical Experience in the Balkan War. C. M. Page.

1. Early Diagnosis and Treatment of Pulmonary Tuberculosis.—J. Mitchell Bruce refers to the diagnostic import of pleurisy. A large proportion of the cases of dry pleurisy or of pleurisy with effusion are followed by pulmonary tuberculosis. Hemoptysis may exist without physical signs, yet in most cases it is indicative of pulmonary tuberculosis. There are cases occasionally met with in which early tuberculosis is masked by bronchial catarrh. In any of the above cases the patient's family history is of diagnostic importance. The maximum of difficulty of diagnosis in early tuberculosis is reached when the only complaint of a delicate looking youth is languor. Early febrile tuberculosis is often confounded with typhoid fever. In discussing the treatment of incipient tuberculosis the author compares the merits of sanatorium and non-sanatorium treatment. In every case of pulmonary tuberculosis there are indications for and against sanatorium treatment. The one set or the other set prevails, and the patient is advised accordingly. The author has to-day two patients belonging to the present series in sanatoriums, the one consequent on hemoptysis, the other because of simple loss of energy and weight and extremely slight pyrexia, both without definite physical signs. But he has more patients of the series doing their best at home, whether with or without attention to work. He has found it impossible to take an only boy of 15 from his wealthy parents. They will go abroad with him to a suitable climate. Another patient lives in an entirely unexceptionable situation under the close observation of his family doctor. A third patient was removed from an office in the city and sent at once to the country to take up an outdoor business. A delicate boy with suspicious or more than suspicious symptoms goes to a school on the coast of Kent, where such lads are specially received and closely watched and cared for. And, finally, one is compelled to compromise in a good many instances in other ways, being able only to insist on strict hygiene in house and office, on early hours, on full advantage being taken of week-ends and of holidays, with abundant food and well-regulated exercise. It is in such cases as these that Lees's method of continuous inhalations of antiseptic solutions would appear to be peculiarly suitable and successful.

2. Solid Tumors of the Umbilicus in Adults.—A. E. Barker notes that although solid umbilical tumors are a rarity, in the experience of one single surgeon or hospital, a considerable number have been put on record and their source of origin, pathology, and structure have been worked out fairly completely. These tumors have the following modes of origin: (1) Malignant growths of the abdominal viscera may become attached to the umbilicus and may grow through it before producing any marked abdominal symptoms. (2) The umbilicus may

be originally or be converted ultimately into a bottle-shaped cavity which may be almost or completely closed, so that a large amount of epithelial débris accumulates within it and forms a concretion or cholesteatoma around which suppuration and great fibrous thickening may occur. (3) Atheromatous tumors derived from sebaceous follicles included in the navel scar may reach considerable size. (4) Adenomata may form from sweat glands included in the scar and reach considerable dimensions and simulate a malignant tumor. (5) Adenomata have been found lined by columnar cells, apparently being formed from remnants of the vitelline duct. (6) Calculi have been formed in remnants of the urachus. (7) Malignant tumors of the navel have been met with in some cases derived from ectodermal structures and in some others from vitelline remnants (columnar epithelium). (8) One has been described by H. Ehrlich which apparently was derived in part from remnants of the vitelline duct and in part from the sweat glands of the umbilical skin. (9) Foreign bodies have been found to lodge in a very hollow umbilicus in fat people and become mixed up with hairs, shreds of clothing, dust, and epithelial débris, and to cause by irritation a large solid inflammatory tumor. (10) Scondary malignant deposits have been found to show themselves in the navel before the primary visceral growth within the abdomen has given any signs of its presence.

British Medical Journal.

July 19, 1913.

1. The Conservative Treatment of Tuberculosis of Joints. W. S. Fenwick.
2. A Case of Perforated Common Bile Duct Followed by Subphrenic Abscess, Operation and Recovery. C. Campbell-Horsfall.
3. Pellagra in Great Britain: Three New Indigenous Cases. L. W. Sambon.
4. Nodular Leucemia. G. R. Ward.
5. A Case of Ectopia Cordis. W. Rolland.
6. The Profession, the Public and the Insurance Act. R. L. Langdon-Down.
7. Medicine and Eugenics. J. Cowper.

4. Nodular Leucemia.—G. R. Ward states that the "associated syndromes" of leucemia are four in number, and with the exception of one, chloroma, are not necessarily a part of leucemia, but may be met with in other conditions. The four "associated syndromes" are as follows: The first is the syndrome in which one finds symmetrical skull tumors, often of a green color, but not always, and resulting in blindness, deafness, etc. There may also be lesions of other bones, or, rather, of the periosteum in other situations. This syndrome has usually been called "chloroma," on account of the green color of the lesions. All cases with a green color and some others are examples of leucemia, but a similar syndrome may arise in suprarenal sarcoma. The green color may be found in the marrow, etc., of cases of leucemia which have no skull lesions, and may be absent in the skull lesions of other undoubted cases of leucemia. Hence the syndrome is unduly limited in one direction and unduly enlarged in another if one regards the green color an integral part of it. The second syndrome is known as the "mycosis fungoides" syndrome. It lacks another name, and hence is properly included as nodular leucemia if a multiplication of names that subsequent research may render quite valueless is to be avoided. In these cases there are a number of nodules either just under the epidermis or in the deeper subcutaneous tissue, and these are very commonly more or less symmetrical in distribution. They may come and go with great rapidity, but this is by no means always the case. A similar syndrome may occur in cases of sarcoma, but the leucemic nodule very rarely, if ever, ulcerates through the skin, whereas the sarcomatous nodule may easily do so. The third syndrome is often described under the name of Mikulicz's disease. It is characterized by swelling of the lacrymal, paratid, and submaxillary glands. The swelling is usually chronic and painless, and does not tend to suppurate. As a matter of fact, this "symmetrical glandular syndrome" is not infrequently of greater extent than would appear, for, besides the glands mentioned, the mammæ, ovaries, or testes may be affected. The swellings are always symmetrical, and microscopically show an infiltration of the gland substance with cells similar to those seen in the blood. The fourth syndrome is that of persistent priapism. This, of course, may be met with in other conditions, but the most common single cause of persistent priapism has been shown by Warthin to be leucemia. This, like the others, is of the nature of an infiltration, although some of the infiltrating cells may multiply *in situ* and give rise to more or less distinct nodules standing out from the surrounding infiltration. If the infiltration itself is too slight to be appreciated clinically the nodules will appear to be the sole lesions.

5. Ectopia Cordis.—W. Rolland states that the cases of ectopia cordis which have been reported are very few. Barnardo records a case in which the child lived for six hours. The subject is very fully discussed by Ballantyne, who gives numerous references to the literature of the subject. Besides referring to cases accompanied by sternal fissure (of which the author's case is an example), he points out that there are two other chief varieties—ectopia suprathoracica, in which the heart is displaced upwards into the neck, and ectopia subthoracica, where there is displacement downwards through the diaphragm into the abdominal cavity or the sac of an exomphalos. A case of the latter variety is recorded by Holt. There seems to be some doubt as to the factors which tend to produce this deformity. Ballantyne suggests arrested development of the thoracic walls as the most likely explanation, and this view is supported by the fact that in some cases amniotic bands have been found attached to the heart and tending to pull it forward out of the thorax.

Berliner klinische Wochenschrift.

July 14, 1913.

Pulsus Durus.—Lewinsohn refers to the common belief that a high blood pressure must always be associated with "hard pulse." This is by no means always the case. Out of 100 sphygmograms of "hard pulse" there were no less than 17 in which the blood pressure was not elevated —being in some cases from 90 to 110 and in others from 110 to 130. The age of the patients was from 40 to 65. In the remainder the finds were typical in character, the pulse being hard to the finger, the sphygmogram typical of arteriosclerosis, and the tension of the blood correspondingly high. We now have to explain the 17 cases, of the same general clinical type as the others (arteriosclerosis, cardiac, and renal disease); and the author found in all of them evidences of weakened myocardium, associated either with nephritis or arteriosclerosis. It is probable that originally the blood pressure in these cases had become gradually lower; in other words, compensation had reached its limit.

Vomiting of Gravidæ.—Asch evidently believes that there is something phylogenetic about this phenomenon, and that causes alleged at present are largely secondary. Nausea and vomiting seem to be a part of the instinctive cravings of the primitive woman and especially of instinctive repugnance to certain articles of food. Women are nauseated by tobacco smoke who ordinarily are accustomed to it. The same is true in the case of alcohol and tobacco. All these repugnances make directly for nausea. The normal individual has natural dislikes, which in the case of certain nauseating substances he chooses to overcome. Nausea in the gravida may be noted very soon after conception; and the author tends to blame the maternal nausea upon certain ingesta, the taste for which

has gradually been acquired. He believes that women can be fed so that the nausea may be antagonized. In addition nausea has, as in the normal woman, a reflex origin, not alone from the uterus but from localities like the mucosa of the nose. He has nothing to say of the severe manifestations which often accompany vomiting and refers doubtless to simple vomiting and its direct consequences. He believes it possible to cure this vomiting by physiological means—diet—carried out to great refinements—and the relief of all peripheral sources of reflex irritation. The chief of these is dilatation of the cervix. If this fail it will be easy to terminate the pregnancy by the same resource. He does not think much of the hysterical explanation. Gravidæ are nervous and this nervousness is aggravated by the factors which cause the vomiting. Still he believes in the psychic management.

New Theory of Graves' Disease.—Marinon of Barcelona gives many clinical and experimental data upon which he founds a new idea of thyroid diseases. His conclusions are as follows: Graves' disease is not a hyperthyroidism or dysthyroidism, but instead a mere variety of hypothyroidism. In the clinic Graves' disease may be grafted upon myxedema and results from nonmetabolized iodine. Most authors would, doubtless, explain this double condition by the term dysthyroidism, but beyond the statement that the latter condition is something different the author does not say much concerning it.

Münchener medizinische Wochenschrift.

July 15, 1913.

The Intracutaneous Reaction in Syphilis and Frambesia.—Baermann and Heinemann, writing from the east coast of Sumatra, report at length on the behavior of these two affections toward luetin and its analogous substance framböitin. Their conclusions are as follows: When either of these extracts is injected intracutaneously in a series of cases of manifest or latent syphilis or frambesia, a surely positive reaction results. The percentage of positives increases with the duration of the disease, the limitation of the disease focus and the intensity of the specific treatment. The reaction is due probably to the fact that specific solvent bodies dissolve the injected debris of spirochetes, the resulting freed endotoxins determining the phenomena of inflammatory reaction. The latter is temporarily specific and reciprocally the emulsion of one form of spirochete can produce reaction in the opposite disease. The experiments are still under way. Generally speaking, luetin reactions behave much like tuberculin reactions.

Rectal Temperatures.—Weinert, after extensive experimentation asserts that after extensive muscular activity the greatest rise of temperature is found in the parts most strained. Tissues not involved directly may show no elevation of temperature. Thus in active walking or running the increased warmth of the lower extremities may ascend to the rectum. The axillary temperature in such cases is usually normal. In bedfast patients, therefore, an increase in rectal temperature would have some significance. Conversely in a patient active on his feet an increase of rectal temperature may have no significance.

Exchange of Nutriment in Parabiosis Rats.—Morpuogo and Satta refer to what we already know of this subject, viz., that there is not an absolute mixture of the two bloods, and that each retains some individuality. How this can occur when both partners share precisely the same food, is more or less a mystery, which the author has sought to solve by elaborate experiments. Some of the results are as follows: If one of the parabiosis rats is fed on saccharose it lives and grows; its partner is fed on a mixed diet rich in nitrogen, and naturally thrives. But this cannot be due to a merely equitable diffusion in the blood of the full nutrient ration. There is some admixture, of course, but it does not proceed indefinitely, so that the caloric requirements of the twins are not covered in a way that we can comprehend. Some new nitrogenous substances must be formed to keep up the balance of nutrition and of these, the authors say, we as yet know nothing.

Fibrolysin in Chronic Pneumonia.—Brenner refers to cases of pneumonia in young subjects which do not clear up at the proper time and are notably resistant to treatment. In a patient of this sort, injections were made between the shoulder blades. The shadow in that locality was seen to clear up remarkably within a few days. Patient began to cough and expectorate freely. In this way resolution promptly set in and the author believes that herein is a great advance in medicine.

Deutsche medizinische Wochenschrift.

July 17, 1913.

Etiology of Acute Psychoses.—Weber states that often in so-called functional psychoses one may find a complication of diseases, no single one of which could explain the rapid and fatal brain disturbance. As a rule in such cases an acute injury of an already long damaged brain forms the essential character of the terminal illness. The chronic pre-existent lesion may be free from symptoms. The acute injury may be traumatic, an infection or intoxication, or an affection of the bloodvessels. The chronic conditions, long present, comprise chronic leptomeningitis, foci of vascular sclerosis, which sometimes can only be shown by the microscope. Naturally in some cases these old lesions, the author maintains, do occasion well-marked symptoms.

Generation in Drunkenness.—Näcke takes up this subject, long a favorite with him. The German word *Rausch* is not really drunkenness in our sense. The author speaks of it as a purely relative term, which is exactly the case. In one connection the word corresponds exactly to our "jag" and similar terms suggesting a short, intensive form of alcoholism, which may soon pass off. The *Rausch* produced in a man bears no relationship to the amount of liquor taken. Psychopaths and epileptics are extremely intolerant, as are some normal persons, in stages of great suspense and excitement. Such may act as if under the influence of laughing gas for a few minutes and then come out of the *Rausch* suddenly. It is selfevident that a man with the latter has good control of himself or he would be unequal to the demands of copulation. It is difficult to determine just when the fecundating coitus occurred, and whether one or several acts occurred during a given interval. Matters of forensic importance must also be considered, for example, the exclusion of coitus with other men. Again, if man or woman or both were weakminded it would be unnecessary to invoke the drink as a material factor. We have very little knowledge of the state of the semen of a temperate man when he copulates while alcoholized. Alcohol applied in minimal quantities to living semen does not appear to cause any impairment of activity. The proof in this problem is so difficult that the author hopes much from forthcoming studies on alcoholism.

Syphilis and Neurasthenia.—Krebs concludes that there is a syphilitic neurasthenia in both the acute and chronic stages of the lues. In all neurasthenias with history of syphilitic infection, the Wassermann should be used—first in the blood and with this negative, the lumbal punctate. In positive cases mercury, potassium iodide, and salvarsan should all be exhibited; while to exclude syphilis the patient should go under a regular course of nerve and general treatment—both sedative and stimulating.

Insurance Medicine.

Results of Study of Family Histories.—Dr. H. A. Baker, Medical Director, Pittsburgh Life and Trust Company, in his annual address as Chairman of the Medical Section, American Life Convention, held at Hot Springs, Ark., February, 1913, referred to a paper read by Dr. Symonds before the Association of Medical Directors, in which was shown the effect upon the offspring of different degrees of parental longevity. One hundred and sixty-six thousand family histories were classified under five groups, as follows: Symbol A—Both parents reach 70; Symbol B—One parent and two grandparents reach 70, other parent living; Symbol C—Both parents living below 70 and three grandparents reached 70; Symbol D—All cases between above and E are to be classed as D; Symbol E—Both parents dead below 60. It will be noted that A shows the best family history and E the poorest. The groups were arranged so as to be homogeneous with reference to factors other than family history, all hazardous occupations and medical impairments being excluded and only average weights accepted and included. The expected mortality was calculated by Dr. Symonds as follows: (1) The percentage mortality of A, B, C possessing a good long-lived history, is distinctly good, being 87 per cent. in A, 86 per cent. in B, and 86.5 per cent. in C. (2) D is inferior, the percentage mortality being 92 per cent. D is composed of those with an average family history and contains the largest number of entrants, of whom a certain number have the possibility of a long-lived family history. (3) E shows a percentage mortality of 110 per cent. and is composed of those with a short-lived family history. The difference between a long-lived and a short-lived family history is only ten years in both parents, they being above 70 or below 60, but the latter gives a mortality twenty-three points larger than the former. It is nearly one-quarter better to be born in a long-lived family. (4) The underweight mortality is not very bad, but the deaths are too few in all symbols for any definite deductions. Dr. Symonds further classified his study of family histories with regard to tuberculosis, and showed that the combination of light-weight, young age, and tuberculosis in the family history is productive of a high mortality, and where one or more members of a family have died of tuberculosis the case is helped by longevity among the remaining members. The following factors which influenced are as follows: (1) Age—Usually a tubercular family history has its maximum effect before 30, its influence diminishing rapidly until after 40 it can be practically disregarded unless the family longevity as a whole is impaired. (2) Weight—A tubercular family history is somewhat neutralized below 30 by a weight which is above the average, between 30 and 40 the effect is less pronounced, and after 40 the overweight seems to disregard the tubercular, and unless care is shown in selection, it will increase the mortality beyond the normal. (3) Amount of taint—Generally considered the larger number of cases of tuberculosis in a family, the more apt the increase in mortality, but this is influenced by the longevity of the family as a whole. If that is good, excellent results may be expected, even with a large amount of tuberculosis in the family. If the longevity is average, the mortality results are average, care being taken with regard to weight, and if the longevity is poor and family short-lived, bad results are obtained even with only one or more cases of tuberculosis in the family. (4) Relationship—A tuberculous brother or sister is as influential in affecting mortality as a tuberculous parent. (5) Heredity and infection—These two factors and the effect of environment were not separated in this study. It is a much mooted question as to whether tuberculosis is inherited or only a weakness of constitution. Nevertheless, the fact that a tubercular family history predisposes to tuberculosis, either by inheritance, infection, or environment is well shown. (6) Kind of insurance—The mortality in the life policies is only 107 per cent., in the limited life policies 101 per cent., and in the endowment policies 144 per cent. While the number of deaths is small, it seems large enough to conclude that the offer of an endowment policy does not improve the mortality due to a tubercular family history, particularly below the age of 40. (7) Family longevity—If the family history is long-lived in general, the tubercular taint has but little effect on the mortality, no matter how much the amount of taint. The family longevity being average, the tubercular taint has considerable effect, and if the family is short-lived the mortality is high, whether the parental deaths be due to tuberculosis or other diseases. Dr. Baker says that the work of the medical director is highly specialized, embracing many subjects and much information not coming within the scope of the general practice of medicine. The literature of his work is limited—confined practically to the proceedings of three associations of medical directors, two in the United States and one in England. He suggested that in the meetings all important events in the realm of insurance medicine should be reviewed in the address of the chairman of the section.

Sugar Assimilation Limit.—Feilchenfeld says that von Noorden's conclusions regarding the sugar assimilation limit are as follows: (1) Normal urine should be free from sugar. (2) The assimilation limit varies with the different kinds of sugars. (3) Glycosuria follows the ingestion of more than 120 gm. of lactose; 150-200 gm. of saccharose; 150 gm. of levulose, and 150-200 gm. of glucose. The assimilation limit is higher on a full stomach. (4) The positive reaction appears in about one hour, and lasts from one to three hours. (5) The assimilation limit for starches is very high. A healthy individual can utilize enormous amounts of starchy food. The glucose test is of importance when there is a question of diabetic heredity or in suspected tendency to diabetes. Feichenfeld also states that if the glycosuria from the ingestion of saccharin may be physiological and at most to be regarded as a sign of diminished ability to utilize sugar, the glycosuria following the ingestion of starches on the other hand, must be regarded as a symptom of actual diabetes. A healthy individual can utilize enormous amounts of starchy food. Martius recommends the determination of the assimilation limit in all cases of diabetic heredity. If there is no glucose in the urine after the ingestion of 150 to 200 gm. (normal limit) in a fasting condition heredity may be ignored. Seifert and Müller state that the physiological glycosuria in healthy individuals is only transitory. A positive reaction after the ingestion of 100 gm. of glucose may be considered as alimentary glycosuria. Permanent glycosuria indicates diabetes mellitus.—*Zeitschrift für die gesamte Versicherungs-Wissenschaft*, May, 1913.

Book Reviews.

The Psychology of Insanity. By Bernard Hart, M.D. (London), Lecturer in Psychology, University College Hospital Medical School; Medical Superintendent, Northumberland House Asylum. Cambridge: At the University Press; New York: G. P. Putnam's Sons, 1912.

This is one of the Cambridge Manuals of Science and Literature, a series of books that aim to present the recent developments in science, history, and literature. In describing the psychology of insanity the author discusses the newer teachings which hold that the manifestations of insanity may be studied by means of the scientific method; that these manifestations operate in accordance with definite laws; that insanity is not a bizarre and inexplicable disturbance of the mind, but may be interpreted as readily as the normal mechanism of the mind. It is pointed out that the fundamental factor in the causation of insanity is conflict—the antagonism of painful mental experiences with those that are not painful. In order to avoid this conflict the mind tries to blot out or submerege these painful experiences, which, however, cannot be eradicated and form disturbing complexes or constellations in the mind. These constitute groups of mental phenomena which lie below the threshold of consciousness, but are potent factors in disturbing the physical and mental well-being of the individual. The author ascribes a dominant rôle in the production of conflict to the operation of the "herd instinct," which is concerned with a vast part of the beliefs and conduct of man—beliefs and conduct upon which the herd has set its seal. "It is possible," says Hart, "that the individual who is faced with an intolerable conflict between his primitive instincts, on the one hand, and who has found a refuge by retiring into a world of phantasy and shutting out the world of reality, can only achieve this by dissociating herd instinct from the other primary forces of the mind and refusing to allow it any longer to play a part therein." The author has written a most interesting volume. His style is remarkable for its clearness, a quality that naturally results from a mastery of the subject matter and the possession of distinct concepts.

A Doctor's Table Talk. By James Gregory Mumford, M.D., Lecturer on Surgery in Harvard University, etc. Price $1.25 net. Boston and New York: Houghton-Mifflin Company; Cambridge: The Riverside Press, 1912.

Extracts from this delightful volume have appeared from time to time in the Miscellany column of the Medical Record. The author presents a number of composite studies of medical men, although no actual individuals are portrayed, under the fictitious name of Dr. Primrose, Dr. Ely, Dr. James, Dr. Flaxman, Dr. Consequence, Scholasticus, Scriba, etc. A vein of subtle humor and satire permeate the author's discourses on various phases of medical life. These include the following: The doctor's habitat, doctor and patient, some doctors and their troubles, Dr. Primrose on women, the doctor as a patient. Dr. Primrose on socialism, reflections—Ambrose Paré, hospital talk, reminiscences, and a letter from Scriba to his son.

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties, and Liabilities of Physicians and Surgeons. By Hugh Emmett Culbertson, of the Ohio and New York Bars; Contributing Editor to the Laning, Ohio, "Encyclopedic Digest," "Notes on the American Decisions and Reports," and many other legal publications. Price $3.00 net. Philadelphia and New York: Lea & Febiger, 1913.

There can be little doubt that most physicians lack an adequate knowledge of their legal rights and obligations, which deficiency is often a matter of embarrassment if not of pecuniary loss. Although many works have been written on the subject of medical jurisprudence, it is remarkable that none has been written with a view of providing an exhaustive survey of the modern law pertaining to physicians and surgeons. This aim is admirably fulfilled in the present volume, the author of which is peculiarly fitted by training and editorial experience to stamp his work with the seal of authority. A summary of the table of contents will give an idea of the scope of this work. Following an introductory chapter, the author presents in Chapter II a series of definitions. In Chapter III he discusses the statutes regulating the practice of medicine. Chapter IV deals with the relation of physician to patient. The important subject of compensation is exhaustively treated in Chapter V. Chapter VI takes up malpractice or negligence, and Chapter VII discusses the criminal liability of physicians and surgeons. Exemptions of physicians and surgeons are dealt with in Chapter VIII. In the following chapter the author discusses the subject of physicians and surgeons as witnesses. The remaining chapters deal with the right to protect professional reputation, with the validity of contract restricting exercise of profession, and with wills. The author cites the judicial decisions in all of his important statements. An enormous amount of material has been gathered in this volume, which goes into the minutest phases of the legal interests and aspects of medical practice. Among these may be mentioned the validity of gifts from patient to physician, liability for compensation, negligence of partner, privileged communications, etc. The book is well written, in a style that has not sacrificed clearness to brevity. It should prove a useful and almost indispensable addition to the practitioner's library.

Analyse des Harns. Zum Gebrauch für Mediziner, Chemiker, und Pharmazeuten. Zugleich elfte Auflage von Neubauer-Huppert's Lehrbuch. Bearbeit von A. Ellinger, Königsberg; H. Eppinger, Wien; F. Falk, Wien: F. N. Schulz, Jena; K. Spiro, Strassburg i. E.; und W. Wiechowski, Wien. Zweite Hälfte. Mit Textabbildungen, 6 lithographischen Tafeln und einer Logarithmentafel. Price, Marks 27. Wiesbaden: C. W. Kreidels, 1913.

In discussing the first volume of this work, on its appearance a considerable time ago, enough was said in its praise to make further commendation of the completed treatise unnecessary at the present time. While it is termed the eleventh edition of the classical Neubauer-Huppert textbook, the collaborators have so remodeled and rewritten it as to make it in all essentials a new work. The present volume of almost one thousand pages is devoted to the nitrogen, sulphur, and aromatic compounds, the purin bodies, nuclein compounds, the proteids, the urinary pigments, accidental components, enzymes, and sediments. The appendix contains sections on the agglutinins and lysins, some methods omitted in the body of the work, and tables of logarithms, etc., useful in chemical calculations. As it now stands this manual is undoubtedly the most complete work of reference on the urine and one which no scientific worker in this field can dispense with.

A Course in Normal Histology. A Guide for Practical Instruction in Histology and Microscopic Anatomy. By Rudolf Krause, A. O. Professor of Anatomy at the University of Berlin. Translation from the German by Philipp J. R. Schmahl, M.D., New York. With 30 illustrations in text and 208 colored pictures arranged on 98 plates after the original drawings. Parts I and II. New York: Rebman Company.

One of the most valuable textbooks on normal histology which has appeared in Germany in recent years is that by Rudolf Krause, and, fortunately, the volume has now been put into English so that it is available for those who could not consult the work in the original. While the introductory portion on technique, the use of the microscope, embedding, staining, etc., follows the regular lines, the special portion, which is really a descriptive text accompanying the ninety-eight plates, is the part in which the originality and skill of the author are best shown. Beginning with a general section on the cell, there follow chapters on epithelium, connective, cartilage, muscle, and nerve tissue, and the blood. The remainder of the volume is devoted to the microscopic anatomy of the different organs. Each section is numbered and refers to a particular plate, of which the magnification is given as well as the method of sectioning and staining, so that the whole forms a practical laboratory guide to histology. The plates themselves are remarkable for their beauty of color and accuracy of drawing. They have been reproduced by half-tone process and are superior to anything of the kind which has appeared heretofore. The translation, however, has evidently been done by some one not altogether familiar with the subject, and occasionally actual errors have occurred which should be corrected in another edition. One of these at least is rather important. Any one who attempts to bleach pigment cells with a mixture of oxalic acid and sulphide of potassium will not be popular in a laboratory. What is meant, of course, is potassium sulphite. For some unexplained reason, too, the publishers have elected to bind the two parts in separate volumes. This is quite unnecessary, as the portion on technique amounts to only eighty-six pages, and it would have been better to have followed the German edition and combine it with the atlas in one volume. The book can hardly fail to be generally adopted by classes in normal histology.

Building a Profitable Practice. Being a Text-Book on Medical Economics. By Thomas F. Reilly, M.S., M.D., Professor of Applied Therapeutics, Medical Department Fordham University, New York City. Philadelphia and London: J. B. Lippincott Company, 1913.

There can be no doubt that this book supplies a distinct want in medical literature. The young practitioner has little to guide him in the actual practice of his profession apart from the scientific knowledge that he has acquired in medical school and hospital. The economic aspects of medicine must be learned, unfortunately, after years of painful experience. This book aims to acquaint the young physician with those extra-scientific aids to success which the practitioner of former days learned partly from his preceptor and which have been all but ignored in modern medical education. An idea of the scope of this volume may be gained by an enumeration of the chapter headings which are as follows: the economics of medicine, post-graduate study, the hospital and dispensary service, State Board examinations and licenses, location, the office, extra-practice sources of income, the start in practice, medical societies, the office call, first visit, medical finance, collections, bookkeeping, the law and the doctor, professional ethics, advertising, commissions, consultating and consultant, certificates, prognosis, errors in practice, dispensing, religious rites, obstetric cases and emergencies, abortion, the doctor as a specialist, automobile vs. horse and carriage, on drugs and the pharmacist, building up an office practice, aids in practice, on making friends, personal manners, personal appearance, marriage, don'ts in practice, answers to patients, and your life work. This book is plain spoken, one might say, to a fault. There are many devices, and methods, in the practice of medicine, tricks of the trade, as it were, which when put on paper do not look as well as they usually appear when spoken of *entre nous*. Nevertheless the author can justify his frankness on the basis of the fierce economic struggle that spells defeat in the case of so many practitioners of the present day. One may however question the propriety of advice such as the following: "Never have the attendant say that you are at a theater, place of amusement, ball game, etc. You are always out on a call or business." Most people nowadays will vouchsafe to the practitioner at least a little recreation, and the young physician should be advised not to visit places of amusement too often, rather than be told to practice deception. Candor, sincerity, strict attention to one's work, are qualities that make for success, and cannot be replaced by any degree of dissimulation, the counterfeit nature of which will not long be concealed. The gift of humor as well as sound common sense pervades the chapter on marriage. He who has not yet entered the blissful state may have an opportunity of heeding the injunctions: "Beware of marrying any young frivolous school girl with poetic aspirations; rather marry one who will be able to do her own housework for a few years. Trained nurses make good doctors' wives. He who marries money often earns it. Beware of a jealous person in the shape of a wife." The quintessence of wisdom is contained in this admonition: "Don't allow your wife, or anybody else, to come unannounced into the office during a consultation. Don't have the doors open so she can hear."

Klinische Beiträge: Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung (mit Ausschluss der Tuberkulose). Herausgegeben von Professor Dr. L. Brauer, ärztlichem Director des Allgemeinen Krankenhauses Hamburg-Eppendorf. Redaktion: Für die Originale: Dr. H. Schottmüller (klinischer und bakteriologischer Teil); Dr. H. Much (immunitätswissenschaftlicher Teil), beide am Allgemeinen Krankenhaus Hamburg-Eppendorf. Für die Ergebuisse: Dr. H. Lüdke, in Würzburg. 1. Band, 1. Heft; Einzelpreis, Mk. 9. 1. Band, 2. Heft; Einzelpreis, Mk. 9. Preis für den Band, Mk. 20. Würzburg: Verlag von Kurt Kabitzsch, 1912, 1913.

One cannot fail to grant a cordial welcome to this new addition to the already extensive and almost bewildering periodical literature of medicine. The title of this publication is "Clinical Contributions: Contributions to the Clinic of Infectious Diseases and Immunity Research (with the Exception of Tuberculosis)." The new periodical will form a companion to the already well known "Contributions to the Clinic of Tuberculosis," both having the common main title, "Clinical Contributions." The purpose of the new publication is to provide a comprehensive survey of the progress in the domain of infectious diseases and immunity. This is afforded by a series of collective reviews of the literature. In addition there are original articles presenting important clinical contributions of real practical value. An idea of the scope of this new publication may be gained by a summary of the contents of the two numbers of the first volume which have just appeared. The first number contains the following: "Orthocrasia, Dyscrasia, Idiosyncrasy, Eucrasia, and Anaphylaxis," by E. von Behring; "The Prevention of the Transmission of Acute Infectious Diseases in Hospitals," by A. Schlossmann; "On Herpetic Fever," by Schottmüller; "On Fat Antibodies and their Significance, with Special Reference to Leprosy," by H. Much; "On the Duration of Passive Immunity," by H. Lüdke and D. Orudschiew. The "Reviews" include the following: "The Etiology of Puerperal Fever," by F. Fromme; and "The Neurophile Leucocytes and Their Blood Picture, as well as Their Significance with Reference to the Physiology and Pathology of the Blood," by Arneth. The second number contains the following: "Diseases of the Sublingual Glands, Resembling Mumps," by C. Hegler; "New Discoveries in Tropical Frambesia," by B. Hannes; "The Demonstration of Materials Foreign to the Blood by Means of Dialysis and the Optical Method, and the Employment of this Method with Observations upon it Relating to the Domain of Pathology," by E. Abderhalden; "Contributions to the Serological Diagnosis of Cancer," by E. Leschke; "On the Regeneration of Renal Epithelium in Diphtheria," by H. Hässner; "On Bacteriemia in Abortion and its Clinical and Theoretical Significance," by C. Römer. The "Reviews" include the following: "On Mixed and Secondary Infections," by H. Lüdke; "Anaphylaxis in Acute Exanthemata with Special Reference to the Peptone Question," by H. Uffenheimer and J. Awerbuch. There is also a reply by von Schilling to Arneth's article in the first number on the neutrophile leucocytes. One of the striking features of this periodical is the excellence of the illustrations. Thus Schottmüller's article on herpetic fever is illustrated with ten superb stereoscopic plates, and three other full-page plates, two of which are colored.

The Milk Supply of New York City and its Control by the Department of Health. By Ernst J. Lederle, Ph.D., Commissioner of Health, and Russell Raynor, chief of the Division of Food Inspection. Monograph Series No. 5, of the Department of Health of the City of New York, September, 1912.

This monograph includes a paper read by Health Commissioner Lederle before the last international hygienic congress, on the sanitary control of local milk supplies through local efficient agencies. It also discusses the following topics: Milk and its properties; the milk supply of New York City; the development of milk inspection; rules and regulations of the Department of Health relating to the sale of milk, country milk inspection, city milk inspection, and the control of typhoid fever. There are a number of illustrations, including approved plans of creameries, charts, permits, and photographs showing methods of inspection, model milk stores, etc. This monograph should prove useful to health officers and to all others who are interested in the subject of a sanitary milk supply.

Clinique et Thérapeutique Obstetricales du Praticien. Par P. Rudaux, Accoucheur des Hôpitaux de Paris; avec la collaboration de A. Grosse, Professeur suppléant d'accouchements à l'Ecole de Médecine de Nantes; et V. Le Lorier, Ancien Chef de Clinique d'Accouchements à la Faculté de Médecine de Paris. Price 8 francs. Paris: Vigot Frères, 1913.

This work deals almost exclusively with the subjects of obstetrical diagnosis and treatment. Each topic is taken up in alphabetical order, thus facilitating reference. The first subject discussed is normal labor; then comes induced premature labor; and so on, through anesthesia in obstetrics, appendicitis, and the puerperium, anteversion and the gravid uterus, gestational autointoxication, gestational arthropathies, abortion, baths, cardiopathies and the puerperium, dacryocystitis of the newborn, etc. The wide scope of this work is indicated in the ample selection of topics pertaining to obstetrics and related subjects. Uterine malformations, sclerema, puerperal psychoses, wet nurses, gavage, cystitis, the cradle, fetal putrefaction, vaginitis during pregnancy, syphilis and pregnancy, are topics selected at random that give one an idea of the comprehensive character of this work. The subject of therapeutics is given full emphasis, as may be noted in the large numbers of useful prescriptions interspersed through the text. Obstetrics is a subject that has reached a high degree of development in France, and a book of this kind cannot fail to be of distinct service to the obstetrician and general practitioner.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Eighty-First Annual Meeting, Held at Brighton, July 18-25, 1913.

(Special Report to the MEDICAL RECORD.)

REPRESENTATIVE MEETING.

The meeting of the representatives which precedes that of the association proper was opened on the 18th and the first of its four special days was largely devoted to official and formal business and to the internal government of the society. It is to be remembered, however, that this representative body can only be regarded as consultative. It consists of some 150 to 200 persons who are delegates only from their branches. They can vote only in the way they have been instructed to do, so that however valuable their discussions may prove, they have no influence on the voting. It is not surprising, therefore, that the constitution is giving some dissatisfaction. At present the association is a limited company—has been so since 1867 when it was registered as such and licensed to dispense with the word limited as being formed for purposes so privileged under the act, such as religion, charity, science, art, and not for profits or paying dividends. Some parties have sought to obtain more powers and for this purpose an attempt was made to gain a Royal charter but the application was refuted. To set the association on a broader basis and enable it to engage in various undertakings, it was next proposed to dissolve the company and form a new one. This matter was discussed at the meeting of the representatives on Friday and they are reported to have formed the conclusion that the cost which would be incurred by that course could hardly be justified in the present state of the funds. This is in accordance with a report of the executive.

In the afternoon there was no little to be said as to whether these representatives should be, as now, merely delegates or should vote according to their own views. It has frequently been found that they have been obliged to vote as directed by their senders although they have spoken in the opposite direction. Last year in the contest with the government about the insurance act the obligation to vote in a special way was found to be inconvenient and sometimes involved absurdity. The meeting concluded that the by-laws did not work well, and as that coincides with the views of the executive and probably with a majority of the members it is likely that means will be found to effect a change.

First Day—Friday, July 18.

The representatives met in the town hall of Hove, which is the united twin of Brighton. They were received by the mayor of Hove in full civic robes and attended by the mace bearer.

A special welcome was also extended to the meeting by the local division of the association, which through their chairman, Alderman Dr. Gervis, J. P., presented a set of hour or rather minute glasses mounted in silver. By using these a chairman can regulate the length of speeches as he pleases to 10, 6, 5, or 3 minutes. As the sand runs out there is a ring which shows only 1 minute left, so the speaker may take warning that he must shortly close and the chairman may, if he thinks well, ring a little bell. The gift was accepted with cordial thanks and there are not wanting those who hope its use will not be confined to the representatives' meetings. For that is nominally a secret conclave though it is not very difficult to find out what passes in the ordinary way.

Last year a number of addresses were given during the meeting on alcohol and its effects on the body. This year the plan is to be extended. Brighton, Hove, Eastbourne, and other coast towns and the neighboring villages are to be favored with addresses, as many as thirty-seven being arranged for. The representatives dined together in the evening.

Second Day—Saturday, July 19.

The fear that one of the amendments to the insurance act proposed in the House of Commons would have the effect of giving the approved societies the administration of medical benefit was fully discussed on this day and the following resolution passed: "That this meeting strongly protests against the amendment to the national insurance act, proposed by Mr. G. Locker-Lampson, having for its object the transference of the administration of medical benefit to approved societies, which would be a distinct breach of faith between Parliament and the medical profession, and will, in the interests of the public and the profession, offer the most strenuous opposition to this or any other attempt of the kind."

There is no doubt that this proposal has brought together in opposition a great number of practitioners both those on the panel and those who are not. Copies were ordered to be sent to the Prime Minister, the Chancellor of the Exchequer, the joint insurance committee, and others. The meeting seemed determined to adopt every possible way of opposing the proposal. They will probably be supported by the whole profession and if the politicians force it through the medical war with the chancellor and the government is likely to break out afresh; for an immense majority who went on the panel were induced to do so by the prospect of being rid of interference by the clubs.

The standing orders were suspended and as a matter of special urgency leave was given to the delegates of St. Marylebone and Chelsea to call attention to and move a resolution expressing "disapproval of any action which might seem to condone the methods used by the government in bringing the insurance act into operation." This was carried almost unanimously, one or two refraining from voting and no little enthusiasm prevailed. It was directed against an invitation by those arranging for the section of medical sociology, to Mr. Lloyd George and Mr. Masterman to be present and take part. The former's engagements prevented acceptance and probably the latter will find an excuse though it is said that at first he hoped to be present. The representatives seem to think this resolution of great importance as showing that the insults heaped on the profession and the unscrupulous measures for inducing men to join the panels ought not to be condoned.

Third Day—Monday, July 21.

The proposal to register the association as a trade union or to encourage the formation of a separate society in connection with or under the control of this organization gave rise to a warm discussion. Those favoring such a plan said registration under the trade union acts would confer immunity for the funds and disciplinary powers over the members wider than could be exercised by a voluntary association. Both these views were disputed and the latter if true was said to be most undesirable. A resolution was proposed favoring some such change and at once met by an amendment, thus putting the discussion in order for obtaining the prevailing opinion. It was mentioned that there is in existence the "Medical Guild" which is duly registered. Last year the proposal was considered and abandoned on account of the danger of doing anything outside the articles of association, in which case the Charity Commissioners might interfere and take charge of the funds. Other objections urged were that medical work was not adapted for regulation by trade union methods and a profession could not resort to such methods which were usually worked by large groups of fellow workers, whereas medical men are scattered as individuals and would disdain the weapons of the workman.

There was some question of rescinding the resolution come to some months ago, asserting that it was derogatory for the profession to serve on the panels or aid the administration of the act. It appeared to be recognized that the possibility of ending the act no longer existed and mending it must only occupy their attention. But the objection to it seemed no less and it can hardly be thought that such should be the case while it was determined to exercise every possible influence to compel exhaustive amendments.

The difficulty arising from some Welsh societies which have attempted to reconstitute contract practice under the clause authorizing certain insured persons to make their own arrangement was also considered and a compromise was effected providing that in every case of such arrangement the essence of the contract between doctor and patient should be only of an individual character. In fact, here and everywhere it was held that whatever difficulties might be propounded every patient should be entitled to choose his doctor as freely as under the old system. Prolonged consideration was also given to other points, as the relation of the payments of uninsured and insured persons of the same class. Strong objection was expressed to any contract being set up for midwifery cases. It was held that district insurance committees should have the same proportion of medical members as the county insurance committees.

Fourth Day—Tuesday, July 22.

The representative body held a further meeting this morning and first of all confirmed by a large majority on the resolution itself, the decision of the previous day on the amendment rejecting the proposal as to trade union. They next considered the other points of the scheme of the State Sickmen Insurance Committee which proposed

to raise a fund for defence to contribute to certain local expenses, to organize the divisions, to pay members for certain services to the association, and so on. It was reckoned that a subscription of £5 from 5,000 members would suffice for the scheme. Those opposed to it contended that such a plan could not succeed on a voluntary basis and as the trade union part of it was rejected it might as well be given up. After debate it was agreed to refer the matter to the divisions and that a special meeting of the representatives should be held later on to decide on this and other points which must crop up as the agreements under the insurance acts will expire early next year.

To the special representative meeting thus determined on was also referred the question of raising the subscription from 25 to 42 shillings, with a recommendation in favor of this course. Those supporting it urged that lack of funds has been a standing difficulty, that it was a great hindrance in the contest with the government and that it is estimated that the deficit for the year with be £5,600.

It seems likely enough that the increase will be adopted but whether that will reduce the list of members remains to be seen.

GENERAL SESSIONS.

First Day—Tuesday, July 22.

The annual general meeting of the association itself, as distinguished from the subsidiary representative meetings, held in advance, was formally opened on Tuesday, the retiring president, Sir James Barr, in the chair. He remarked that his year of office had been a fighting year. That was not with the outside only, for some medical men seemed to think a president had no right to have any opinions. That idea was very prevalent with Mr. Lloyd George's supporters and they threatened him because a year ago he described the insurance act as a fraud on the public. He still held that view. Out of an act costing seven or eight millions the doctors only got five or six and they did all the work—obviously an unfair distribution. Sir James then introduced to the chair his successor, Dr. William Ainslie Hollis.

A vote of thanks for his services was accorded to Sir J. Barr, who briefly acknowledged the honor. The president-elect was then formally introduced by Sir Alexander Ogston of Aberdeen, where next year's meeting is to be held. Sir A. Ogston is surgeon to the King for Scotland and was in similar office to Queen Victoria and King Edward. He is consulting surgeon to the infirmary in Aberdeen and emeritus professor in the university.

The adjourned general meeting was held in the evening, Dr. Hollis presiding. The mayor of Brighton attended to offer a welcome on the part of the town, which he said considered itself as a camp follower of the health army to which the association belonged. Indeed, he reminded them there was high literary authority for claiming to be one of them under the title of "Dr. Brighton" and they were very desirous that the high status of their profession should be maintained.

Thanks to the mayor for his reception and cordial speech having been duly honored, the energetic local honorary secretary, Dr. L. H. Parry, on behalf of the division, presented to Dr. Hollis a replica of the presidential badge, expressing at the same time the hope that his year of office would be most prosperous for the association and the sincere wishes of his fellow townsmen for his personal happiness. The badge was hung round the neck of Mrs. Hollis amid the vociferous applause of the assembly and Dr. Hollis expressed great gratitude for the honor done him and the manner in which the association had greeted his election.

Dr. Parry then introduced foreign visitors and colonial delegates. Dr. T. J. Verrall, chairman of the representatives, presented on behalf of the council, the gold medal of the association to Dr. J. A. Macdonald in recognition of special services extending over a number of years. Dr. Macdonald found it difficult to express adequately his appreciation and could only say in all humility, "thank you."

That the presentation was popular was clearly shown, for the assembly struck up "for he's a jolly good fellow."

The president then presented to Mr. William Leonard Braddon, F.R.C.S., the Stewart prize of £50, which was instituted by the late Dr. Alexander Patrick Stewart, for good research work in epidermiology. It is now presented annually from the fund.

Then came the chief incident of the evening meeting.

President's Address.—On rising to deliver it Dr. William Ainslie Hollis was received with great enthusiasm by the crowded audience. He announced his subject as "The Medical History of Brighton and the Neighborhood." He suggested that if presidential addresses were generally devoted to the results of research into the medical history of the places visited they would in time make an extremely interesting topographical account of English medicine.

Dealing with the prehistoric epoch as it affected Brighton he made a passing reference to the discovery of the Piltdown skull, and then considered the bearing on his subject of the neolithic remains discovered near Brighton. Many of the so-called pygmy flints, with their sharp edges and needle-like points, would make very respectable lancets for the modern general practitioner, and with what was known of the cleverness of the Stone Age surgeon, of his skill in the treatment of fractures and of his ability to trephine the skull of his patient, it was very probable that some of the flakes might have been used for trepanning, blooding, tattooing, or shaving. In a case in the Valley of the Wye a fragment of human bone had recently been discovered, probably of neolithic date, and in it were distinct indications of an operation having been performed during life. After the Norman Conquest, when the overlords were compelled to look after the health and general welfare of the villeins, the monks of the rich Cluniac Priory of St. Pancreas at Lewes built at the beginning of the Thirteenth Century an infirmary for the sick and infirm. During the late Tudors there was apparently so great a dearth of qualified medical men that the sanitary welfare of the bulk of the people was in the hands of a group of ignorant and unscrupulous charlatans. With a view of increasing the supply of doctors a Statute was passed in the third year of Henry VIII, improving their social status, giving them a right to sue the illegal practitioner and mulct him in a fine of £8 a month and releasing him from jury service and carrying arms. Shortly after the middle of the Eighteenth Century Dr. Richard Russel, Physician to St. Thomas's Hospital, discovered Brighton and wrote an essay on treatment by sea water. Of this essay his contemporary, Dr. Speed, wrote: "I think we ought to attribute the alleviation to the prudent use of other select medicines which this author employed rather than to the drinking of sea water." The President referred to the prevalence of rabies at this period, to the advances in surgery, with the practice of trephining for fracture of the skull, and the extensive use of bleeding. Even then, however, professional opinion was by no means unanimous as regarded the value of the latter operation. In illustration of this point he described how a distinguished nobleman lay ill, and the disciples of Galen, who had assembled at the bedside, could not agree as to the necessity of bleeding the patient. At last one of the doctors said he had a butcher ill with similar symptoms. "Suppose I go and order him to be let blood immediately. Then by to-morrow we shall know the result." Next day the medical council met early to hear the report of their colleague, who hastened into the room vehemently exclaiming, "No bleeding, no bleeding, the butcher is dead!" At the commencement of the Nineteenth Century Brighton became the happy hunting ground of charlatans and medical knights errant, and fashionable beauty in distress was much exploited. The induction of a sudden change in atmospheric pressure over a painful joint or within a hollow viscus was a favorite mode of treatment, and was used as a remedy for gout among other diseases. Teddy Palmer, a Brighton blacksmith, conceived a method of treatment by medicated air, by means of which he cured the Regent of a toothache. In conclusion, the President referred to the address delivered by his predecessor in the chair in Brighton, Dr. W. W. Moore, in 1886. Dr. Moore had taken as the subject of his presidential address "The Higher Education of Women." His conclusion could be gathered from the following quotation: "I think that it is not for the good of the human race . . . that women should be freed from the restraints which law and custom have imposed upon them, and should receive an education intended to prepare them for the exercise of brain power in competition with men." He should be sorry to endorse those words as the considered policy of the President of the Association. As regarded the great sex question, public opinion had changed during the last seven and twenty years, and women looked upon the question from a different viewpoint to that they then held. The British Medical Association had always welcomed lady diplomats in medicine, and it had extended to all its members equal privileges, regardless of sex. He trusted that that truly democratic spirit would always pervade its policy.

Second Day—Wednesday, July 23.

The Council met at 9 A. M. Wednesday morning and

the several sections at 10. Groups of the representatives and others were to be found discussing with no slight vigor. The Insurance Act and the various amendments proposed. That of Mr. Locker-Lampoon in the House of Commons was generally condemned as nothing less than handing over the control of the medical benefit to the approved societies which was in direct contradiction to the spirit of the act and opposition to the association. In fact it is regarded as restoring contract practice in a more intolerable form than before. There was a large audience at the Royal Pavilion in the middle of the day to hear the

Address in Medicine.—This was given by Professor GEORGE R. MURRAY, M.D., D.C.L., of the Manchester Royal Infirmary. He took for subject "Some Aspects of Internal Secretion in Disease." He showed the great increase of our knowledge of the ductless glands during the last 25 years. Bernard regarded all products passing into the blood as internal secretions but we now reserve the term for useful products of the activity of certain glandular cells which play a definite part in metabolism. He described the disorders associated with ductless glands and the extent to which gland extracts have been introduced for their relief. It is now recognized that ductless glands have important relationship to one another. The secretion of one may either stimulate or inhibit the activity of others. His own attention was drawn to this aspect by two cases observed 17 years ago. So far we can only recognize well marked maladies due to abnormal ebb and flow of internal secretions or marked changes in structure and function of these glands. Perhaps less definite forms of ill health may arise from minor changes of the kind. But we still desire to discover the means of supplying deficient or increasing activity of these organs. In the afternoon there was a picturesque procession from the pavilion grounds to the parish church where a special service was held. A large number of visitors went to a garden party and other groups visited the various sights of Brighton. In the evening the mayor gave a reception followed by a dance in the dome.

Third Day—Thursday, July 24.

The breakfast given by the National Temperance League as for 42 years passed was the first item and was well attended. The sections continued their work in the morning. The conference of representative of local committees was held. The mayor of Hove gave a garden party in the afternoon and the annual dinner was held in the evening. The usual toasts were duly honored; that of the association was responded to by Mr. Verrall, who was greatly cheered at his reference to recent dissensions and his optimistic view of the future. The joints in their armor, he said, had been only slightly strained. In no bodies could changes be avoided and in theirs he hoped those necessary would be undertaken quietly. But the great event of the day was

The Address in Surgery.—This was delivered by Sir Berkeley Moynihan on the gifts of Surgery to Medicine; not that in choosing the title he admitted any difference between the essentials but he laid down that the advances of late demonstrated the power of surgical research to enlarge the scope and enrich the knowledge of the problems of internal medicine. He gave an account of anoci association, the crabbed name of the theory of Crile as to shock and its prevention under operations by bringing about a local anesthesia around the area to be operated on, so that nerve influences were not conveyed to the brain. That he said could be made to last after the operation for some five days. He had used the plan for months and it added greatly to his pleasure in his work.

SECTION OF OBSTETRICS AND GYNECOLOGY.

First Day—Wednesday, July 23.

The President, D. Sanderson, of Hove, welcomed the members and visitors, mentioning especially D. Schlimpert (Freiberg); he said that the boundaries of the specialty were continually widening and that now biochemistry and investigations of the functions of the ductless glands were included.

Treatment of Malpositions of the Uterus.—Dr. MARY SCHARLIEB of London opened a discussion on the best methods of dealing with malpositions of the uterus, especially with reference to retrodisplacement and prolapse. She said that these ailments were not fatal, but that they entailed an immense amount of suffering. Only a small minority of them required operation, the days of the intrauterine stem pessaries were over, and she wished that she could say the same of the cup and stem form of pessary, which was still in use. The pessaries she used came under the two headings of ring and Hodge, and their numerous modifications, and she found that she was still obliged to use pessaries in some cases. She had opened the abdomen ninety-three times for the relief of displacement. For the purpose of this discussion she would define ventrosuspension as fixation by dealing with some part of the round ligament, and hysteropexy as sewing the uterus to the anterior abdominal wall; these operations were often combined with operations on the perineum or vaginal wall and curetting, or, amputation of the cervix. She fixed the lower part of the anterior wall of the uterus to the abdominal wall, and had known many cases of normal labor after this operation. In doing anterior colporraphy she always took care to separate the bladder thoroughly before putting in sutures.

For rectocele the levatores ani must be freed and drawn together with buried sutures, and she had found Holden's operation very satisfactory.

Dr. HANS SCHLIMPERT of Freiburg said that the latest view was that prolapse was a hernia through the levator ani and fascia and was due to congenital or acquired weakness of those muscles; it was impossible in some cases to get at the edges of the levator ani by the usual methods, so he had devised a method by which he first divided the transversus perinæi by an incision across the perineum; in his opinion the muscle had often been sutured under the impression that it was the levator. After dividing the superficial and deep transversus perinæi muscles, he exposed the edges of the levator ani and sutured them together with iodine catgut. If retroversion was present he always combined a fixation operation because the retroverted uterus slips much more easily through the levator ani; for fixation he did Alexander's or Gilliam's operation or a vaginal fixation, but not hysteropexy. He had had 270 cases of his operation on the levator ani and all had been followed up afterwards; the results had been generally satisfactory, even in the peasant women of the Black Forest, who led very hard lives of manual labor. He had found that there was more tendency to recurrence in partial than in complete prolapse, and thought that the present classification was faulty and that prognosis depended entirely on the condition of the levator ani and this might be less weakened in complete than in partial prolapse. There had been three deaths in the 270 cases, so that it was a more dangerous operation than colporraphy. As an indication for treatment he examined the condition of the levatores ani with a finger in the rectum—if the opening was under two fingers in breadth the case was a suitable one for colporraphy alone; if ¾ finger's breadth he performed an operation; if the levatores were not palpable he treated the case by colpocleisis.

Professor CORBY of Cork said that the causes of prolapse were increased weight of the uterus and laxity of the vaginal wall. He replaced the uterus by the sound, pushing the handle of the sound back to the perineum before doing the "tour de maitre." He advocated transverse colporraphy on the posterior vaginal wall.

Dr. ARTHUR GILES of London said that he operated rather frequently and had published the results of a large number of cases. He had found the percentage of success in 569 cases to be 98 per cent. The following were, in his opinion, indications for operation: (1) Cases of retroversion where replacement was impossible owing to adhesions, and he discountenanced breaking down adhesions by manipulation as an alternative to operation. (2) Displacement with disease of appendages. (3) Displacement with fibroids; in these cases he did myomectomy, followed by central suspension. (4) Prolapse, not amenabe to pessary treatment. (5) Chronic retroversion. He considered operation for simple displacement a proper alternative to pessary treatment; although a pessary was a necessary evil in some cases it produced a cure.

Mr. CHRISTOPHER MARTIN of Birmingham considered that prolapse was a lesion of the pelvic fascia and believed that the success of Schlimpert's operation was due to his bringing together the fascia, rather than the muscle. He advocated Simpson's shelf pessary. For operative treatment he practised hysteropexy, pushing back the peritoneum and fixing the uterus to the fascia of the anterior abdominal wall. He did not like the round ligament operations; in a few intractable cases he had done complete excision of the uterus and vagina.

Dr. CUTHBERT LOCKYER of London said that uncomplicated retroversion in many cases required no treatment and it was often better that patients should not be made acquainted with the condition, but, if symptoms were present in a single woman, he would prefer operative treat-

ment rather than pessary. In married women he would try Hodge's pessary. Simple descent of the uterus in many cases was cured by rest in bed and massage, and a watchspring or vulcanite ring pessary often gave good results. In descent with prolapse of the vaginal walls he used in most cases a ring pessary, but many could not retain it. When the vaginal walls and bladder came down he advised operation. This took the form of an extensive colporraphy, special emphasis being laid on the importance of freeing the bladder thoroughly and well stripping back the vaginal walls so as to get a good grip of the tissue at the sides; after doing this he amputated the cervix and finally did posterior colpoperineorraphy. He did not combine a fixation operation with this, but left the retroflexed fundus alone. For complete procidentia he advocated Le Fort's operation. Central fixation or suspension was useful for retrodisplacements complicated by disease of the appendages; up to 1906 he did central fixation, but since then he had done, exclusively, Gilliam's operation.

Dr. Frances Ivens of Liverpool had done Gilliam's operation in 100 cases, she drew attention to Mayo's modification, which did away with the danger of subsequent strangulation of bowel.

Dr. Ritchie of Glasgow had done round ligament suspension in 40 cases, he had seen two cases of hernia after Gilliam's operation, the protrusion taking place through the scar in the fascia. He used Van Horn's catgut.

Dr. R. Dickinson of New York had seen Schlimpert's work in Freiburg. Meyer of Tübingen had said that retroversion should be left alone. He considered that in many cases the existence of retroversion should not be mentioned to the patient; he thought that the pendulum in American had swung too far against pessary treatment, and that many cases were suitable for it. He advocated the routine examination of all women in early pregnancy and again before getting up after parturition, also after operation, and he showed to the meeting cards of directions which were given to his patients under these circumstances. Cases might be unfitted for operative treatment owing to the general condition such as bronchitis. He used mainly pessaries of the Smith-Hodge or ring type. He had not abandoned ventral suspension but he was surprised to hear fixation of the anterior wall of the uterus advocated; Kelly advised posterior wall and this was generally done in America. Operations on the round ligaments had a large vogue in America, especially those of Baldy and Webster—one great advantage of these operations was that they lifted up a prolapsed ovary and they also had a curative effect on varicose veins in the broad ligament. In America catgut had almost completely displaced silk. Pelvic floor work was of enormous importance and was more thorough in America than in Germany. Hysterectomy was often done in America and was especially advocated by Goffe who used the united broad ligaments as a support for the bladder.

Mrs. Scharlieb in reply agreed that massage was useful but thought that it should only be practiced, for these conditions, by female practitioners.

Dr. Schlimpert in reply said that in Germany the interposition operations of Schauta and Wertheim were going out of fashion.

SECTION OF SURGERY.

First Day, Wednesday, July 23.

Diagnosis and Treatment of Primary Carcinoma of the Stomach.—Dr. G. H. Makins of London opened this discussion. He said that diagnosis in the early stage was extremely difficult; some clue was afforded by a history pointing to the earlier presence of a simple ulcer, followed by symptoms of indigestion accompanied by anemia and progressive loss of strength; and further help might be obtained by a test meal, examination of the feces, skiagraphy, gastroscopy, distention of the stomach by air or carbonic acid, and examination of the blood and urine. Decrease in the amount of free acid was not peculiar to carcinoma, and was probably related to the location of disease in the pylorus rather than to the nature of the disease.

Skiagrams were of doubtful value in the early stage; but later, if taken in series and then combined in a composite picture, they were of value in localization, and by showing diminution of spasmodic movements of the stomach; they might also show a fistulous connection when present between the stomach and colon. With regard to exploratory incision as an aid to diagnosis, this was a safe procedure in the early stage and was to be recommended, whereas it was dangerous in the later stages. If a tumor was found it might be impossible to determine whether it was simple or malignant without resort to microscopy; but too much importance need not be attached to this consideration, because, as a rule, if a gastric tumor was removable it should be removed. Diagnosis in the later stages was aided by the symptoms of pain, vomiting, hematemesis, or melena, and the presence of a palpable tumor with or without dilatation.

The method of treatment depends on the position and extent of the growth. Cardiac growths were unsuitable for any treatment other than palliative; growths in the body of the stomach might be treated by gastrectomy, anastomosis, or, more rarely, jejunostomy; pyloric growths, which formed about 60 per cent. of the series, were the most generally satisfactory for operation. The limits within which radical operations might be undertaken were determined by: (1) The extent of the primary growth, the degree of lymphatic infiltration, and the extent of invasion of neighboring organs. (2) The general condition of the patient; operations were not justifiable in the presence of wide visceral metastases, distant lymphatic enlargements, as in the posterior triangle or groin, when the growth had extended to the umbilicus, or when malignant ascites were present. If the transverse mesocolon and transverse colon were invaded and the midcolic artery involved, the stomach and transverse colon might be excised in one piece. Limited extension of growth to the head of the pancreas, or to the liver and gall-bladder, did not of itself bar removal. As to the respective fieds of gastrectomy and gastroenterostomy, the latter should be restricted to cases in which a partial gastrectomy was impracticable. The best method of partial gastrectomy was on the lines of "Billroth No. 2," namely, closure of the duodenum and stomach after resection, combined with gastroenterostomy. When the remnant of the cardiac end of the stomach is too small to allow of lateral anastomosis, the loop of jejunum might be applied directly to the opening of the divided stomach by the methods of Polya, Reichel, or Wilms. The duodenal stump should be deeply inverted by a purse-string suture. The primary mortality of gastrectomy might be put at 15 to 20 per cent., though Dr. William Mayo had obtained the fine record of 10 per cent. As to the permanent result, a large proportion of patients survived five or more years without recurrence.

Dr. Hey Groves of Bristol referred to the difficulty of diagnosis and deprecated giving too much time to complex and recondite methods of diagnosis which did not lead to reasonable certainty. The majority of cases of gastric carcinoma were preceded by a benign or inflammatory condition, and in the transition stage decisive help was not afforded by the test-tube or gastroscope. Even exploration was not always conclusive, as he had learned from a case of pyloric tumor simulating cancer and associated with two nodules resembling metastases in the liver; he performed gastroenterostomy nearly three years ago and the patient was now in robust health. The speaker advocated complete removal of the great omentum in conjunction with gastrectomy for carcinoma.

Dr. T. U. Dalziel of Glasgow pointed out that when cancer of the stomach had reached the stage of ulceration a new and important feature of the case was the presence of blood discovered microscopically in the stomach contents. He also thought there was a peculiar "facies" that was significant. He was in favor of removing the diseased stomach freely, leaving only enough to attach to the jejunum, and he considered that operations on the stomach were less dangerous than on any other part of the alimentary canal.

Dr. A. Buck of Brighton mentioned four cases of pylorectomy for disease simulating cancer; in each case the microscope showed the swelling to be inflammatory.

Dr. D. P. D. Wilkie of Edinburgh referred to the danger of leakage from the duodenal stump, of which he had seen several examples post-mortem. This complication was due to neurosis of the duodenum owing to closure of the supraduodenal artery by the sutures and consequent interference with the blood supply. From injection experiments on the cadaver he had found that a sufficiently nourished stump could be removed either by cutting the duodenum across close to the pylorus so that the invaginated area lay proximal to the supraduodenal artery, or by dividing the duodenum about one inch from the pylorus and then after division of the hepatoduodenal ligament, making a generous invagination so that the final Lembert sutures were placed in the vascular area of duodenum supplied by the pancreaticoduodenal branches.

Dr. McAdam Eccles of London urged the necessity of early diagnosis by exploration with a view to the detection of induration by palpation of the stomach walls, preferably by ungloved fingers. If still in doubt he advised an open-

ing into the stomach proximal to the induration, and eversion of the affected area for inspection; in some cases a piece of the diseased part should be excised and examined microscopically in a fresh section. The operative indications were: (1) Wide excision; (2) removal of glands in the three sets concerned, whether enlarged or not, and (3) usually a posterior gastroenterostomy.

Dr. Betham Robinson of London emphasized the difficulty of discriminating between inflammatory and malignant lumps by mere naked-eye inspection, and cited a case in which the appearance of the mass was very suggestive of cancer, but was found to be innocent on histological examination.

The president, Mr. Thelwall Thomas of Liverpool, dwelt on the unreliability of the full HCl test, and urged the attempt being made to excise gastric ulcers rather than do simple gastrenterostomy. He held that the differentiation of gastric tumors need not trouble the surgeon, for all removable lumps in his region should be removed.

Experimental Observations on the Cause of Death in Acute Intestinal Obstruction.—Dr. D. P. D. Wilkie of Edinburgh read a paper with this title. He pointed out that the three theories at present held regarding the cause of death in acute ileos were: (1) That it was due to a secondary peritonitis. (2) That it was due to a splanchnic paresis, giving rise to a draining of fluids into the portal area and consequent cerebral anemia. (3) That it was due to toxemia resulting from absorption of poisons from the bowel. He laid stress on the difference between simple obstruction and obstruction plus interference with the blood supply of a segment of the gut. He then detailed experiments dealing with both these conditions and gave the following summary of his conclusions: (1) In strangulation of bowel, death ensues long before obstruction has become a factor of importance. (2) High obstruction differs from that lower down, chiefly in the loss of secretion by vomiting in the former. (3) Absorption of poisons from the content of the obstructed bowel is not the main factor in causing the symptoms of acute ileos. (4) Peritonitis plays no part in causing death in the majority of cases of simple obstruction; but in cases of strangulation it may undoubtedly be a factor. (5) In all varieties of obstruction the bowel content is highly infective. (6) Splanchnic paresis with depletion of the systemic circulation is the main factor in producing the symptom complete of acute obstruction. In treating this factor, besides the operative relief of the obstruction, copious subcutaneous infusions of saline and dextrose solutions are of immense value; and the administration of nutrition is an adjuvant. (7) The prompt relief given by enterostomy in simple obstruction of the small bowel is to be explained, not so much by stopping toxic absorption, as by the breaking of a vicious circle—the distention causing paresis of the splanchnic vessels, and *vice versa*. (8) Operative treatment should be as conservative as possible and only on imperative indications should the lumen be opened. The danger of post-operative peritonitis from the slightest soiling is much greater than that of toxic absorption from a loaded bowel.

Radium and Inoperable Cancer.—Dr. A. A. Warden of Paris read this paper in which he recited cases of cancer in various organs, too advanced to justify a reasonable expectation of recovery by surgical operation, but in which cure had followed treatment by exposure to radium. In one case of epithelium of the pharynx and epiglottis, with extensive infection of the cervical glands, a successful result was achieved by a combination of radiumtherapy and excision of glands from the anterior triangle of the neck.

Section of Medicine.

First Day—Wednesday, July 23.

Dr. E. Hobhouse, President of the Section, in the Chair.

Non-Diabetic Glycosuria.—Dr. A. E. Garrod opened a discussion on this topic. He regarded diabetes not as a single definite disease, but rather as a symptom complex. He dealt both with the pathological and clinical classification of glycosuria. From the pathological aspect most glycosuria was in his opinion, diabetic. From the clinical aspect, there were many forms of glycosuria. There was first, the condition known as false glycosuria, in which such substances as lactose, lacyulox, and pentose were found in the urine. This condition was not a true glycosuria at all. Then there was the so-called renal diabetes. Its characters and features were different to the ordinary diabetes, and its progress was quite uncertain. It was probably less rare than was generally supposed. It was a truly non-diabetic glycosuria. He then dealt with temporary glycosuria, true and apparent, and referred to the clinical importance of the glucose test. There was a condition in which glycosuria was produced when excessive quantities of starch were consumed. Another condition to which reference was made was that of symptomatic glycosuria. This might occur in infective maladies, it might be present in diseases of the ductless glands, e.g., thyroid, pituitary and adrenal diseases, or it might be present in intestinal disorders. It was a symptom of some cerebral lesions, and it occurred in various toxic conditions. The rôle of the pancreas was discussed, the question of recovery from diabetes was gone into. The great difficulty was to determine whether the recovery was a permanent one. The conclusions Dr. Garrod drew were firstly that glycosuria was a very important symptom, and secondly that although our knowledge had advanced in this direction, there was a great need for further investigations, especially in those cases in which the glycosuria was of a temporary nature. He acknowledged, however, that he regarded these investigations as by no means of an easy character.

Dr. Hutchison said that it was very necessary that the greatest care should be exercised before including in the transient glycosuria class, cases which on further examination and more prolonged investigation, would prove to be permanent, and therefore correctly classified as real diabetes. He thought that there was quite a different cause as the basis of the transient cases, as compared with the permanent. He was of the opinion that the former, *i.e.*, the transient class was probably of neurotic origin. It was quite impossible to draw a hard and fast line between gouty glycosuria and the more severe types, the true diabetic.

Dr. Alden Turner referred to the importance of glycosuria in life insurance. He was of opinion that they should be classified under several heads. There was first a distinct class of transitory case which followed overwork, worry and anxiety, and some febrile diseases such as influenza. Another class was that in which there was a family or a personal history of gout. Then there was also a group in which there was a clear history of indiscretion in diet, or in which, owing to occupation or habit, there was undoubted taking of alcohol. Lastly there was that class in which there was a family history of true diabetes. All these factors should be carefully taken into consideration, before coming to a conclusion as to the importance of the finding of sugar in a case examined for life insurance.

Dr. P. T. Cammidge said that all modern research work tended to show that glycosuria, in all cases, was due to metabolic disturbance and that all forms and varieties were related to one another, whether they were transient or permanent.

Dr. I. F. Gordon Dill was quite convinced that there was a very definite relation between gout and glycosuria, some cases undoubtedly arising from an excess of uric acid.

Dr. W. Essex Wynter agreed that as a strictly scientific problem, no hard and fast line could be drawn between diabetes and glycosuria, but in spite of this, in practical medicine, the conditions to the patient were essentially different, the permanent glycosuria of diabetes being a very much more serious disease to the patient than transient glycosuria.

Dr. Blackburn said that he regarded cases of mild glycosuria as a class apart from those of true diabetes; the diseases were quite different.

The whole trend of the discussion was in favor of the view that transient glycosuria was a different disease from permanent glycosuria or diabetes, the latter being much the more serious and incurable condition.

Medical Society of the County of New York.

Stated Meeting, Held May 26, 1913.

The President, Dr. Brooks H. Wells, in the Chair.

Plans for the Reduction of Infant Mortality.—Dr. Ernest J. Lederle, Commissioner of Health of New York City, read this paper, in which he briefly reviewed the history of that function of the Health Department relating to the reduction of infant mortality. He called special attention to the fact that during the first thirty years of this work, from the time of its inception in 1876 until within the past few years, the effectiveness of its work

was limited because its purpose was limited to the treatment of sick babies rather than to the prevention of illness. With the establishment of the special division of Child Hygiene, in 1908, the summer work for babies became an important function of the new division. At that time there was an effort to coordinate and make more effective the work of public and private agencies which were working for the reduction of infant mortality. This was the same idea that was now being carried out by the Babies' Welfare Association, organized in 1912. Successful as the summer work had been the ideal of the department was to treat infant mortality all the year around, and to this end an appropriation had been secured in 1911, which enabled them to operate fifteen milk stations during the entire year. This plan had been so successful that a further appropriation had been granted, enabling them to increase the number of milk stations to fifty-five in 1912. The work of all private agencies was so coordinated as to work more effectively than ever before. All the methods that had been referred to would be carried out during the coming summer. The milk stations were being developed as educational centers and breast feeding was particularly encouraged. The number of mothers who came to the milk station to obtain milk for themselves, so that they might nurse their babies, was encouragingly large. On July 1 all the nurses now doing school work would be assigned to duty in the instruction of mothers. Each nurse would have 150 babies for which to care. The nurses visited the babies as soon as possible after birth and kept them under observation during the hot weather. Every morning each group of two or three nurses met with the department physician and consulted with him regarding the care of sick or delicate babies. If the child was not normal the medical inspector visited the family and referred them to the proper dispensary to have the baby treated if necessary. In 1912 there were 38,000 babies treated and 1,000,000 quarts of milk distributed. Beginning the last week in May lectures on the care of babies were given in all the public schools to all girls over twelve years of age in order to enlist their interest in the formation of Little Mothers' Leagues. These groups would be kept together during the summer by weekly lectures and demonstrations by the nurses and doctors of the department. The same splendid cooperation of private agenceis as had hitherto been given was expected this year. About eighty different agencies were now federated in the Babies' Welfare Association. In addition to the specific preventive work, the efforts of the department were constantly directed toward raising the sanitary quality of New York's milk supply which constituted an important factor in lowering the infantile death rate. Under the strenuous campaign for pasteurized milk which the department had directed the percentage of pasteurized milk to the total supply had risen from 15 per cent. to 50 per cent. in two years. The latest step was the adoption of the requirement that cream should be pasteurized after July 1, 1913.

The Classification of Summer Diarrheas in Infancy.—Dr. Henry Koplik said that the term "summer diarrheas" was incorrect inasmuch as the diarrheas that were prevalent during the summer could be shown to exist during the remainder of the year. These diarrheas occurred almost exclusively in bottle-fed babies, and therefore this paper would be limited to the consideration of conditions met with in artificially fed infants. The Czerny school had made a study of the food itself as an etiological factor in the causation of the class of diarrheas they were considering, and elaborated the theory of food injuries to the intestine. The analysis and classification from the viewpoint of the gross food might be subdivided into the disturbances caused by the various causative elements of the food. A concentrated mixture of wholesome fats, carbohydrates, or cereal might cause a most dangerous weapon against the well-being of the infant. The first element of a disturbing food would be the fats if present in unsuitable quantities. The sugars were looked upon as irritants in certain forms of intestinal fermentation. The sugars derived from the cow's milk were irritating. The carbohydrates in the form of cereal added to the food were an etiological factor in the causation of dyspeptic disturbances, such as a pronounced acidity, flatulence, loss of stationary weight, constipation, and finally diarrhea and vomiting, with progressive emaciation. To the thoughtful the idea of a "food irritant" was nothing new. The old idea that casein must be present in a proportion not much above that of human breast milk (Meigg and others) had been given a more liberal interpretation to-day and much larger amounts of casein were admittedly well borne; but it had been shown recently that a too high percentage of proteids (casein) was not well borne and gave rise to many alimentary disturbances, such as had been described by Vaughan when proteins were injected in concentrated form into animals. Elaborating upon the Czerny theory of food injury to the intestine, Heubner and his associates (Finkelstein and others) endeavored to show the way in which food acted as an irritant, and, though no new facts were contained in these latter-day theories, an attempt was made to map out a purely clinical classification of the summer diarrheas or functional diarrheas based upon the various elements of the basic food. Heubner had attempted to show that in introducing unsuitable food elements into the stomach and intestine, the process resulted in an acid fermentation and late excretion in the stomach, the energy being expended in elaborating the food for absorption, and this was abnormal; there was at first a waste of energy, then a disturbance of metabolic processes due to the presence of a foreign body in the form of unsuitable food, and, finally, from mild dyspeptic phenomena a series of symptoms such as the fermentative formation of gases and increase of abnormal secretions, diarrhea and final catastrophe. Finkelstein had gone a step further and had tried to evolve a classification of sets of cases in which the injuries due to the various elements of food could be treated clinically. He divided his cases of diarrheas into those which began in a series of symptoms of the mildest forms of stomach and intestinal dyspepsia; then the symptoms of decomposition, and finally those of a severe intoxication. He had tried to divide his cases into those which showed merely the dyspeptic symptoms, such as mild fever, flatulence, increased colic, diarrhea, and then he went further to those cases which showed the presence of intestinal decomposition and toxemia, fever, etc., plain symptoms of involvement of the kidneys and other organs, as well as diarrhea, and, finally, the cases in which there was a condition of complete decomposition of the food in the intestine. He laid much stress on the fact that the fats and sugars were causes of an infinite variety of troubles and insisted that the casein had never, in his observation, been a source of trouble to the infant. He believed that their rôle had been much overestimated and a classification on the ground of the introduction into the body of bacterial elements as a causation of diarrhea had obscured the main cause of all the trouble, the food itself. Escherich divided the diarrheas of infancy into those due to external causes of infection, bacteria introduced into the food from without, and those due to bacteria in the gut itself. Why were these diarrheas especially prevalent in the summer? Was it the intense heat? Why was it that the heat could scarcely be said to affect the breast-fed infant to any extent? Why should the artificially fed infant alone suffer? Many theories had been offered and many rejected.

Prophylaxis in Summer Diarrhea.—Dr. Charles Gilmore Kerley read this paper, in which he stated that it was an easy matter to tell what was necessary in order to prevent summer diarrhea in children, but that the working out of the problem among the masses was another thing. A death from summer diarrhea was a most exceptional occurrence among his private patients. This showed that a considerable mortality was unnecessary. The greatest success lay in prevention. The mothers should be taught to keep the baby's digestive tract in a normal state every day in the year. Susceptibility to gastrointestinal disorders due to diminished resistance was a most important factor in summer mortality. This explained the higher mortality of July and August as compared with that of August and September; the susceptible and weaklings succumbed in the earlier months. As a general proposition the milk should be pasteurized during the Summer months among all classes, but especially among the poorer people to whom the best milk supply was not available. He instructed every mother and nurse under his care as to the importance of care in the preparation of milk and also as to the necessity of feeding lightly on hot days. One or two ounces should be thrown out of each bottle and replaced with water. The mother was told not to expect the child to gain weight during the summer. He considered the weight chart a means of much danger and forbade its use. A green stool should be regarded as a danger signal and castor oil should be given no matter how trivial that disorder, and later a cereal decoction for a day or two, and when milk was resumed it should be given in small amounts. It was a safe assertion that nearly all children were overclad in warm weather. Defective heat radiation was a factor of no little etiological importance in summer diarrhea. A knit belly band and a cheesecloth napkin constituted the proper apparel for a hot and humid day. Two or three spongings with cool water added much to the child's comfort. The baby should be kept quiet and not handled. Not all of his infant patients went to the country in the summer, and the com-

forts of a fairly well-appointed home in the city possessed advantages over the cramped quarters of cheap hotels and boarding houses. In those suggestions which gave a mortality of practically zero nothing very remarkable had been suggested, nothing but what the child had a right to demand, namely, fresh air, bathing, right clothing, and ordinary animal requirements. The large infant mortality was not due to city life, congestion of population, or heat, but to ignorance on the part of parents and indifference on the part of the State. What was required was a propaganda of instruction. When the State realized that infant life was worth saving, then measures would be taken to lower the infant mortality. Thus far welfare work and health departments had only scratched the surface and were operative in spots. The results that might be obtained by the correct management of infant life had never been demonstrated better than by W. H. Park in this city a few years ago. Fifty tenement children ranging from three to nine months of age were selected and were all fed on Straus milk. They were visited two or three times a week by physicians especially assigned to them. The mothers were instructed as to the care of milk and other necessary details, and, although these infants were selected at random there was not one death among them. This observation bore out his contention that the deaths of summer diarrhea among tenement children might be greatly reduced by the use of good milk, adequately cared for, and given under proper supervision, supplemented by prompt and competent medical care at the first sign of illness. Perhaps in one per cent. of the cases of summer diarrhea a very severe direct infection was evident, and the condition was grave from the onset. In the remainder the invasion was gradual and if warnings were heeded the illness usually terminated quickly in recovery. Child life could only be effectively saved on a large scale through State control by dividing the cities, villages, and open country into districts placed under the authority of a person or persons possessing knowledge sufficient to see that every child got simple animal necessities and protection. It might be said that this is an argument for socialism or paternalism, but it was the only way in which the high mortality from various diseases would be curtailed in this or any other country.

Medicinal Treatment of Summer Diarrhea.—Dr. WALTER LESTER CARR considered this phase of the subject under discussion. He stated that the medicinal treatment of summer diarrhea became an important part of its therapeutic management when there was neglect of preventive measures. The objects in the treatment of summer diarrhea were: (1) To aid nature in her efforts to clear the stomach and intestines of the material that was the source of irritation; (2) to lessen the effect of gastrointestinal irritability and general toxemia; (3) to sustain strength and the digestive processes, and (4) to restore the normal functions of the intestines. Most cases of summer diarrhea recovered with little medication, but many patients who had severe exhaustion, toxemia, intestinal indigestion, anemia, or kidney disturbance required some medical attention. The treatment might be summarized as follows: (1) Castor oil and calomel were valuable early in summer diarrhea, to get rid of offending material in the intestine, and when symptoms of intestinal irritation occurred. (2) Opium was useful only when the frequent stools of a diarrhea exhausted the child and interfered with a rational routine of management. (3) Intestinal antiseptics, such as salol and bismuth, had a place in the treatment of summer diarrhea where there were secondary intestinal symptoms. (4) Agents to increase digestive power and bacterial preparations that added to the protective forces of the intestinal flora limited the time of convalescence and diminished the waste from the diarrhea. (5) Alcohol, camphor, caffeine, and strychnine assisted nature in limiting the exhaustion consequent upon a protracted diarrhea or a toxemia, but were not of any value unless there was careful dietetic treatment. (6) Vaccines or sera had not shown that they retarded the course of summer diarrhea, but they seemed to have lessened some of the severe symptoms in cases with systemic invasion of pathogenic organisms. (7) Drugs were most needed when the prophylaxis of summer diarrhea was neglected and the diet was not regulated.

Presentation of Childrens' Proctoscope.—Dr. FRANK C. YEOMANS presented this instrument. It was modeled after his pneumoelectric proctoscope. The ocular end was provided with an air tight magnifying window, having a connection for the attachment of a bulb to dilate the bowel with air. The tube was ten inches long and one-half inch in diameter and was graduated in inches. The distal end was smooth and could be introduced into the bowel of children as young as one year, as far as the apex of the sigmoid without causing pain or trauma.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

IDAHO STATE BOARD OF MEDICAL EXAMINERS.

October, 1912.

(*Continued from page* 183.)

MATERIA MEDICA AND THERAPEUTICS.

1. Give the preparations of guaiacum with their physiological action and dosage.
2. What effect has pilocarpus on the (*a*) heart; (*b*) skin; (*c*) salivary glands?
3. What is the difference in the effect of nitroglycerin and suprarenal extract on the blood-vessels?
4. What is meant by Cheyne-Stokes respiration and under what conditions may it occur?
5. What is the official name and composition of (*a*) Fowler's solution; (*b*) Donovan's solution; (*c*) Black wash?
6. What are the medical uses of the phosphates and hypophosphites?
7. What are the physiological effects and dosage of phosphorus?
8. Name the preparations and dosage of (*a*) belladonna; (*b*) scilla.
9. Give the therapeutics of ergot with the physiological effects of acute and chronic ergotism.
10. State the uses of choral hydrate with the toxic dose and symptoms.

PATHOLOGY.

1. Differentiate between typhoid and tuberculous ulcer of the small intestine.
2. Name eight pathological conditions occurring in the pancreas.
3. Describe the primary lesion of syphilis.
4. Define cyst, hypernephroma, adenoma, angioma, myeloma.
5. Name five diseases produced by disturbances of internal secretions.
6. Name six signs of death.
7. Describe the morbid anatomy of acute tonsillitis.
8. Describe the morbid anatomy of Hodgkin's disease.
9. State the pathological anatomy and urinary findings of cystitis.
10. Describe changes occurring in an acute inflammation of the pleura.

DIAGNOSIS.

1. Temperature: What is normal, subnormal, continued fever, intermittent fever, remittent?
2. How distinguish crisis from collapse in lobar pneumonia.
3. What is kyphoscoliosis, Cheyne-Stokes respiration, emphysema, bradycardia, nystagmus?
4. Mention a disease marked by a painful vesicular eruption; by excoriation of vulva by opisthotonus; by sudden, complete unconsciousness; by multiple abscesses.
5. What is ascertained from examination of stomach contents? examination of feces?
6. Give differential diagnosis of chancre and chancroid.
7. Give complete earliest symptoms on which to base diagnosis of pulmonary tuberculosis.
8. Describe all the changes that occur in the heart and its sounds or murmurs in any one valvular lesion.
9. Give diagnosis of laryngismus stridulus, poliomyelitis anterior.
10. Give diagnosis of cerebrospinal meningitis; differential diagnosis of diphtheria and tonsillitis.

THEORY AND PRACTICE.

1. Give the symptoms of arteriosclerosis; state predisposing causes.
2. Give the symptoms and treatment of gastric ulcer.
3. A man of middle age is found in a comatose condition. Make a differential diagnosis between (1) apoplexy, (2) alcoholic narcosis, (3) opium poisoning, (4) diabetic coma, and (5) sunstroke.
4. What are the characteristic symptoms of exophthalmic goiter? Give the treatment.
5. Name the varieties, causes, and symptoms of intestinal obstruction.
6. Give the etiology, lesions, symptoms, and treatment of empyema of the gall-bladder.
7. Give the etiology and symptoms of pernicious anemia.
8. Mention the symptoms of Addison's disease.

9. Give the causes, symptoms, and treatment of spasmodic torticollis.

10. What are the symptoms and treatment of tuberculous peritonitis?

ANSWERS.

MATERIA MEDICA AND THERAPEUTICS.

1. GUAIACUM. *Preparations:* Tincture of guaiacum, dose 3j; and ammoniated tincture of guaiacum, dose ℥xxx.

Physiological action: Diaphoretic, laxative, expectorant, and emmenagog. It is also stimulant to the secretions of the intestinal tract; at times it is a cardiac stimulant, and a diuretic.

2. *Pilocarpus* (1) depresses the heart; (2) stimulates the skin and causes excretion of perspiration; (3) causes secretion by the salivary glands.

3. *Nitroglycerin* dilates the blood-vessels; *suprarenal extract* causes them to contract.

4. *Cheyne-Stokes* respiration is an undulating type of breathing. "The respirations gradually become more frequent and deeper, until a certain point is reached, when they slowly become more shallow and less frequent, until the person seems to have finally stopped breathing. After a pause as long as half a minute respiration again begins very slowly, gradually increasing in depth and frequency. This condition is common in the late stages of tubercular meningitis, in some forms of cerebral hemorrhage, in fatty disease of the heart, in Bright's disease, and in certain intoxications." (*Pocket Cyclopedia.*)

5. *Fowler's Solution* is liquor potassii arsenitis; it is composed of arsenous acid, potassium bicarbonate, compound tincture of lavender, and water.

Donovan's solution is liquor arseni et hydrargyri iodidi; it is composed of arsenic iodide, mercuric iodide, and water.

Black wash is lotio hydrargyri nigra; it is composed of calomel and lime water. It is not official.

6. *Calcium phosphate* is used in cases of suppuration, rickets, scrofula, phthisis, anemia, osteomalacia, and where repair of bone is required. *Sodium phosphate* is a laxative used in biliousness and jaundice; it is also administered in obesity, diabetes, infantile diarrhea, and to children with pasty white stools. The *hypophosphites* are used as calcium phosphate, and also in general debility, chronic bronchitis, and general cachectic conditions.

7. Phosphorus acts locally as an irritant; internally it is a stimulant to the nervous system and also to the bone-forming cells, a tonic, a repairer of waste, a circulatory stimulant and an aid to the formation of red blood corpuscles. It is partly oxidized into phosphorous acid or phosphoric acid. In large doses it increases the urea and other nitrogenous products, raises the body temperature, diminishes the glycogen of the liver, and may cause fatty degeneration. The dose is gr. 1/100.

8. BELLADONNA. *Preparations:* Extract, dose gr. 1/6; tincture, dose ℥viij; ointment; plaster; fluidextract, dose ℥j; and liniment.

SCILLA. *Preparations:* Vinegar, dose ℥xv; fluidextract. dose ℥i½; tincture, dose ℥xv; syrup, dose ℥xxx; and compound syrup, dose ℥xxx.

9. ERGOT. *Therapeutic uses:* To promote uterine contractions during third stage of labor; fibroids, menorrhagia, postpartum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea. *Physiological action:* Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative; it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

Acute ergotism produces nausea, vomiting, colic, gastralgia, purging, and thirst. *Chronic ergotism* produces convulsions, spasms, gangrene, coma, and death.

10. *Chloral hydrate* is used as an antiseptic, counter-irritant, and hypnotic; it relieves the paroxysms of whooping cough, and is of benefit in tetanus and strychnine poisoning.

The *toxic dose* is very variable; death has followed the taking of twenty grains, and recovery has followed the ingestion of over seven hundred grains.

The *symptoms of acute chloral poisoning* are: Deep sleep, congested blood-vessels of head and neck, rapid pulse, dilated pupils; later the pupils contract, the face becomes pale or livid, the circulation and respiration fail, and the body temperature falls.

PATHOLOGY.

1. "In *the typhoid ulcer* (1) the main axis of the ulcer lies parallel with that of the intestine; (2) it lies opposite to the mesenteric attachment; (3) it has smooth floor and undermined edges; (4) it commonly leads to perforation. In *tubercular ulcer* (1) the long axis of the ulcer lies at right angles to that of the intestine; (2) it is not necessarily situated opposite the mesenteric attachment; (3) its floor is not smooth nor are its edges undermined, but rather funnel-shaped and irregular; (4) it is not apt to perforate, but it does not tend to heal, rather to spread." (Hughes' *Practice of Medicine.*)

2. Hemorrhage, inflammation, cyst, cancer, atrophy, necrosis, syphilis, and tuberculosis.

3. The primary lesion of syphilis is the hard chancre; it consists of a collection of round cells which infiltrate the connective tissues. The intima of the blood-vessels is swollen and proliferates, the lumen is narrowed, and round cell infiltration occurs in the vessel walls. A similar round cell infiltration is found in the neighboring lymphatics.

4. *Cyst* is a pathological formation consisting of a more or less well defined wall and enclosing liquid or pultaceous contents.

Hypernephroma is a tumor composed of adrenal gland tissue.

Adenoma is a tumor composed of glandular tissue.

Angioma is a tumor due to the dilatation of vessels (either blood or lymphatic).

Myeloma is a tumor showing hyperplasia of bone marrow.

5. *Disturbances of the internal secretions* may produce: Cretinism, myxedema, acromegaly, Addison's disease, goiter.

6. *Six signs of death:* Coldness, rigor mortis, cadaveric lividity, putrefaction, loss of elasticity of the issues, and adipocere formation.

7. *Morbid anatomy of acute tonsillitis:* "The lacunæ of the tonsils become filled with exudation products, which form checsy-looking masses, projecting from the orifices of the crypts. Not infrequently the exudations from contiguous lacunæ coalesce. The intervening mucosa is usually swollen, deep red in color, and may present herpetic vesicles, or, in some instances, even membranous exudation, in which case it may be difficult to distinguish the condition from diphtheria. The creamy contents of the crypt are made up of micrococci and epithelial débris." (Osler's *Practice of Medicine.*)

8. *Morbid anatomy of Hodgkin's disease:* "The affected lymphatic glands are usually much enlarged, single, painless, and non-adherent to the skin. Though they may feel to the touch hard and solid they are far more frequently somewhat soft and elastic. Their two great characteristics are—they tend neither to suppurate nor to caseate. They may under certain circumstances suppurate and mass together; but such results are to be regarded as accidental. Histologically, the chief change in the glands is a general hyperplasia, with thickening and increased firmness of the capsule, proliferation of the connective tissue and of the endothelial cells, from some of which large multinuclear giant-cells (lymphadenoma cells) are developed, and formation of lymphoid and also eosinophile cells. The amount of new fibrous tissue formed governs the degree of hardness; if the lymphoid cells are abundant the gland is soft; but when the fibrous tissue element is in excess the glands are hard. The spleen is generally enlarged, but not nearly to the same extent as in leukemia; in consistence it is firm, and purple patches from venous congestion often appear on the surface; on section can be seen golden-yellowish masses, consisting of lymphoid cells and pigment enclosed in a fibrous reticulum. The Malpighian bodies appear as translucent yellowish suet-like masses. The general fibrous stroma is much increased, as in the lymphatic gland. Lymphoid tissue is sometimes found in the bone-marrow, and there may be lymphoid nodules in the liver." (Wheeler and Jack's *Handbook of Medicine.*)

9. "*Acute catarrhal cystitis* begins with hyperemia of the mucous membrane, which is manifested by redness, swelling, and edema. If the congestion is intense, the smaller capillaries may rupture, causing extravasation of blood. Following the hyperemia, increased secretion of the small glands at the base of the bladder and an increased growth and consequent desquamation of the vesical epithelium occur. If the inflammation is intense it may terminate in suppuration, ulceration, or in the formation of a false membrane. . . . . The urine is cloudy, of an alkaline reaction, and at times fetid. Microscopic examination shows epithelium, pus, red blood corpuscles, and various forms of bacteria." (Hughes' *Practice of Medicine.*)

10. *Acute pleurisy.* "As in inflammation of other serous membranes there are five stages—hyperemia, exudation, effusion, absorption, and adhesions. The first stage is marked by congestion and irregularly diffused redness of the membrane with scattered flakes of exudation. The second stage is characterized by the copious formation of lymph, which more or less completely covers the membrane, giving it a dull, cloudy, or shaggy appearance. If the inflammation ceases at this point, it is termed dry pleurisy. If the condition progresses, an effusion is poured out into the pleural cavity, which may be serofibrinous, fibrinous, or purulent. The serofibrinous variety is most frequent and consists of a straw colored fluid containing fibrinous flocculi, blood, and epithelial cells. Its quantity is usually rather large. When the exudate is fibrinous, the amount is small and the consistency is greater than that of the preceding. It undergoes organization quickly and gives rise to adhesions and pleural thickening. The exudate becomes purulent (empyema) only as the result of microorganismal infection. The effusion may become bloody in some instances as the result of ulceration (tuberculous or cancerous) and grave blood diseases. Displacement of the viscera is common in this stage; if on the right side, the effusion pushes the heart farther to the left; if on the left side, the heart is displaced to the right, the impulse often being seen to the right of the sternum. The lungs are also compressed and displaced upward and against the spinal column. On removal of the fluid they again expand, except in cases of chronic pleurisy, in which the adhesions interfere with the functional activity of the pulmonary structure. Absorption of the effused material is the natural sequence in most cases. Unabsorbed portions undergo organization, producing adhesions, which, in extreme instances may obliterate the entire pleural cavity. Sacculation of the effusion by adhesions is not uncommon, especially in purulent exudations in which the adhesions form an abscess wall. Varying degrees of adhesion of the opposing pleural surfaces are encountered, depending on the character of the exudate." (Hughes' *Practice of Medicine.*)

DIAGNOSIS.

1. *Normal temperature* is 98.6° F.

Subnormal temperature is below 98.6° F.

Continued fever is one which is without intermission or remission.

Intermittent fever is one in which there are intermissions or periods of complete absence of fever.

Remittent fever is one in which the temperature falls, but not to normal, between the paroxysms.

2. *The crisis* in pneumonia is accompanied by a rapid and decided fall of temperature, and a profuse perspiration; and is followed by a comfortable sleep. *Collapse* shows superficial and ineffectual respirations, absence of cough and sputum, cold extremities, an ashy-gray color or deep cyanosis, frequent and irregular or dicrotic pulse.

3. *Kyphoscoliosis* is a condition of humpback combined with lateral curvature of the spine.

Cheyne-Stokes respiration, see MATERIA MEDICA AND THERAPEUTICS.

4. *Emphysema* is a condition in which there is an excess of air in the lungs, or an excess of air or other gas in the tissues.

Bradycardia is a condition with slow heart-beat.

Nystagmus is an oscillatory movement of the eyeballs.

4. A painful vesicular eruption is found in herpes zoster; excoriation of vulva, in eczema of vulva; opisthotonus, in cerebrospinal meningitis; sudden complete unconsciousness, in apoplexy; multiple abscesses, in pyemia.

5. From an examination of the stomach contents can be learned: the acidity, absorptive power, motor power, presence of lactic acid, gastric digestion, and presence of Oppler-Boas bacilli; pus cells, blood corpuscles and various bacteria.

From an examination of the feces can be learned: the presence of parasites, bacteria, foreign bodies, pus, blood; also the typical character of typhoid, cholera, and summer diarrhea may be observed.

6. *Chancre* is usually single, never appears in less than ten days after inoculation, is not autoinoculable, is part of a constitutional disease, begins as a papule but may ulcerate later.

Chancroid is usually multiple, the lesion is noticed within a very few days, it is autoinoculable, is a local ulcer.

7. The early manifestations of pulmonary tuberculosis are: (1) *Physical signs.* Deficient chest expansion, the phthisical chest, slight dullness or impared resonance over one apex, fine moist rales at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, night sweats, and hemoptysis.

8. *Mitral regurgitation.* There is a systolic murmur heard best in the mitral area and at the apex and transmitted to the left axilla and toward left scapula. It may occur with, or replace, the first sound of the heart; the second sound may be accentuated, particularly in the pulmonic region. The insufficiency of the mitral valve soon leads to cardiac hypertrophy in order to compensate for the diminished amount of blood sent onward at each ventricular stroke. The apex of the heart may be displaced downward and to the left.

9. *Laryngysmus stridulus.* "The child awakens suddenly, coughing in a metallic, resonant tone—the croupy cough—and with great dyspnea, with loud, crowing, stridulous inspirations, the result of narrowing of the larynx from spasm, and with wheezy, stridulous expirations. The entrance of the air is so greatly obstructed that all the accessory muscles of respiration are called into use; the lips and finger nails become blue, the surface cold, the countenance anxious, and the inferior portion of the chest is drawn in, instead of being expanded, during inspiration. General convulsions occur at times, during a paroxysm, also strabismus, and involuntary discharges of the feces and the urine. The paroxysm continues from half an hour to an hour or more, to return after a few hours' sleep or during the following night; the cough, during the day, having the croupy character. The nonfebrile and distinctly intermittent character of the affection with its peculiar crowing inspiration differentiates it from other laryngeal conditions." (Hughes' *Practice of Medicine.*)

Symptoms of acute anterior poliomyclitis: Some fever, chills, and convulsions may precede the paralysis, or the onset may be sudden; certain groups of muscles (generally in the extremities) are paralyzed; hemiplegia is rare; the reflexes are generally lost; the paralysis is irregular in its distribution, and tends to ameliorate, but the recovery is only partial; the affected muscles waste, and the limb is cold and livid.

10. *Cerebrospinal meningitis* begins with a chill, vomiting or convulsions, and rise of temperature. The pulse is full and strong. There are hypersensitiveness to light, sound, and touch and excruciating pain in the head, back, and limbs. A petechial rash appears and sometimes herpes is present. Leukocytosis is the rule. The urine is scanty, high colored, and may be albuminous. If the meninges of the brain are most involved, delirium, stupor, semiconsciousness, paralysis of the ocular muscles, disturbed vision, and deafness may be present; if those of the cord are most affected, there will be opisthotonos, hyperesthesia, paresthesia, rigidity and tremor of the extremities, localized spasms, and convulsions. *Kernig's Sign.*—The patient should be propped up in bed in the sitting posture; then, on attempting to extend the leg on the thigh, there is contraction of the flexors, which prevents the full straightening of the leg. In the recumbent position the leg can be extended. *The diagnosis* is made by the history, mode of onset, character of the eruption, absence of physical signs, symptoms, and lumbar puncture. (*Pocket Cyclopedia.*)

In diphtheria the onset is more gradual; the temperature rises to about 101° to 103° F.; the tonsils are not much enlarged; there is an exudate of a thick grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon reforms, and may be found on the fauces and pharynx as well as on the tonsil; in the exudate the Klebs-Loeffler bacilli may be found. In *follicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are red and swollen, and in the crypts are seen white cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Loeffler bacilli are never found.

THEORY AND PRACTICE.

1. *Arteriosclerosis. Symptoms:* Increased arterial tension, with pipe-stem arteries, hypertrophy of the heart, dyspnea, scanty urine, and apoplexy may result. *Predisposing causes:* Age, high arterial tension, overstrain, overeating, alcoholic and other excesses.

2. *Gastric ulcer. Symptoms:* Pain and tenderness over epigastric area, made worse by eating and by pressure; vomiting, about an hour after meals; increased hydrochloric acid; hematemesis and melena. *Treatment:* Restricted diet; rest in bed; iron, magnesia, bismuth, and morphine; surgical measures are indicated in cases of perforation or very severe hemorrhage.

3. *Coma from apoplexy.* "The coma is usually profound, and the patient can not be aroused. The face is flushed, or pale and cyanotic. The respirations are slow, stertorous, and sometimes of the Cheyne-Stokes type. The lips are blown out, and one cheek flaps more than the other during respiration. The pulse, as a rule, is full, strong, and infrequent, and the arteries are hard. The pupils do not react to light, are dilated, and often unequal. There may be conjugate deviation of the head and eyes. One side of the face is usually paralyzed, as indicated by the smoothing out of its wrinkles, the flapping cheek, and the droop of one angle of the mouth. By lifting the limbs and finding those of one side to fall more flaccidly than those of the other side, the presence of hemiplegia may be demonstrated. The skin is dry and the temperature of the body above the normal."

Alcoholic coma. "It may or may not be possible to arouse the patient. If he can be awakened, he may protest by words or blows. The face is usually flushed, often somewhat cyanotic, more rarely pallid. The respirations are of normal frequency, deep, and sometimes stertorous. The pulse is rather rapid, full, and strong, finally becoming small and feeble. The pupils are equal, and either of normal size or dilated. Very commonly the skin is cool and moist, and the bodily temperature below the normal point. Convulsions are infrequent, but there may be some local muscular spasm or twitching."

Opium coma. "The patient is deeply comatose; the face is dusky and cyanotic; the respirations are slow (12 to 4 or even less per minute); the pulse is also infrequent and full until the terminal stage; the pupils are equal, and contracted to pin points. The temperature of the body is normal, and, except toward the end, the skin is dry and moderately warm."

Diabetic coma. "This variety of coma may occur without premonition, may be preceded by syncope and drowsiness, or may begin with vomiting, headache, delirium, and dyspnea. After coma is established the respirations are either normal or increased in frequency, the pulse normal and full, and the bodily temperature is subnormal. The distinctive symptoms which will enable a recognition of diabetic coma are the sweetish, fruity, or "overripe-apple" odor of the breath, and the discovery of a considerable amount of sugar in the urine."

Coma from sunstroke. "The patient is profoundly unconscious, the face is flushed, the skin pungently hot, the respiration is labored, deep, and often stertorous, and the pulse frequent and full. The excessively high temperature of the body, the heat of the weather, and the circumstances under which the attack has occurred (*e.g.* bodily exertion under exposure to the sun), render the diagnosis easy." (Butler's *Diagnostics.*)

4. The *characteristic symptoms of exophthalmic goiter* are: Exophthalmos, enlarged thyroid, tachycardia, and muscular tremor. Digestive disturbances, flushings, eruptions, and mental alterations may be present. *Treatment:* Rest (physical and mental), fresh air, light diet, belladonna or bromides, ice bag over cardiac area, sodium, arsenic, electricity, iodine, and antithyroidin have all been recommended.

5. form a pear-shaped tumor with thickened walls and fixed to the neighboring parts by adhesions. The patient usually gives a history of attacks of biliary colic, and of persistent pain beneath the costal margin; and the enlarged gall-bladder frequently forms a palpable tumor which is tender on pressure. The temperature is usually elevated two or three degrees. If the condition is left to itself, the gall-bladder tends to become adherent to the parietes, the pus makes its way to the surface and forms a fistula, which discharges pus, and later, mucus; the escape of the gall-stones by the fistula is exceptional. The *treatment* consists in opening the gall-bladder, emptying it of its contents, and providing for drainage. If it is adherent to the parietal peritoneum, it is opened within the adherent area; if not, the peritoneal cavity must be packed off with gauze. The fluid content should be drawn off through an exploring needle before the viscus is incised. When the gall-bladder and cystic duct are readily accessible, cholecystectomy should be performed." (Thomson and Miles' *Surgery.*)

7. Pernicious anemia. *Etiology:* Unknown, but mental anxiety and worry, middle life, syphilis, and male sex seem to be the predisposing factors; intestinal parasites are responsible for some cases. *Symptoms:* Palpitation of the heart, dyspnea, edema, large soft pulse, hemic murmur, fever of a remittent type may be present; the number of the red blood corpuscles is diminished, their shape and size are changed, and some of them appear nucleated; the hemoglobin is reduced, but not to the same extent as the number of the red cells.

8. *Symptoms of Addison's disease:* "The onset is insidious, with a feeling of extreme languor, muscular fatigue, asthenia, indigestion, anorexia, dyspnea, cardiac palpitation, vertigo, melancholia, and excessive drowsiness. The surface is first pale, then changes to a hue like that of melanemia, changing to icteroid, later resembling the color of a mulatto, and then to a lusterous bronze. These changes also occur on the mucous membrane of the lips, tongue, gums, and mouth." (Hughes' *Practice of Medicine.*)

9. Spasmodic torticollis. *Causes:* Neurotic disposition, poor general health, and some nerve lesion in connection with the affected muscles (probably in the cortical centers). *Symptoms:* The head is pulled to one side with the face slightly twisted to the opposite side; the sterno-mastoid and trapezius are contracted; and there is tenderness on pressure over these muscles; the head is retracted, and there is some nodding or jerking of the head. *Treatment:* Massage, electricity, and drugs may benefit mild cases. Severe cases need resection of the spinal accessory nerve of the affected side with similar treatment of the posterior branch of the upper cervical nerves of the opposite side. Sometimes division of the muscles concerned is of benefit.

10. Tuberculous peritonitis. *Symptoms:* Abdominal pain and distention; fever; there may be nodules evident on palpation; diarrhea is common; tuberculosis may be present elsewhere, and the chest and limbs appear emaciated in comparison with the distended abdomen. *Treatment:* Rest in bed; fresh air; proper food (nutritious but easily digested); cod liver oil, creosote, syrup of iodide of iron, and mercurial inunctions have proved useful.

(*To be concluded.*)

Strangulation.	Intussusception.	Twists (Volvulus).	Chronic Intestinal Obstruction.
Subjective Symptoms.	*Subjective Symptoms.*	*Subjective Symptoms.*	*Subjective Symptoms.*
1. Generally occurs after age of 20.	1. Most frequent in childhood.	1. Most frequent after age of 30.	1. Middle life.
2. Pain localized, rapid collapse.	2. Constant tenesmus.	2. Pain diffuse.	2. Pain diffuse, but comes on gradually.
3. Pain intense, paroxysmal in character.	3. Pain develops suddenly and is continuous.	3. Pain paroxysmal; recurs less often than in strangulation.	3. Pain continuous.
4. Constipation complete.	4. Frequent diarrhea, passage of bloody mucus.	4. Constipation complete.	4. Constipation complete.
Objective Symptoms.	*Objective Symptoms.*	*Objective Symptoms.*	*Objective Symptoms.*
1. Temperature often subnormal.	1. Temperature normal or subnormal.	1. Temperature slightly elevated.	1. Temperature moderate; frequently high.
2. Pulse very weak.	2. Same as in strangulation.	2. Same as in strangulation.	2. Pulse of good volume.
3. Stercoraceous vomiting comes on early.	3. Same as in strangulation.	3. Same as in strangulation.	3. Stercoraceous vomiting comes on after first few days.
4. Location in small intestine.	4. Localization in small intestine; bowel frequently protrudes at rectum.	4. Location, small intestine; abdomen often protrudes, in certain areas giving dulness on percussion.	4. Location in large intestine; dulness on percussion.

(*Pocket Cyclopedia.*)

Causes of intestinal obstruction. Strangulation by bands, and through apertures; kinking; volvulus; intussusception; stricture; tumors; fecal accumulations.

6. "When cholecystitis goes on the formation of pus, condition is known as *empyema of the gall-bladder.* It is almost invariably associated with gall-stones, and in practically every case the cystic duct is obstructed. The size of the gall-bladder varies: it may be small, contracted, and buried beneath the liver as a result of previous attacks of cholecystitis; or it may be so enlarged as to

Abderhalden's Reaction in the Early Diagnosis of Carcinoma.—H. Lüdke states that in many cases of carcinoma in the early stages this reaction is positive if one employs extracts of carcinoma and the serum of cancerous patients. But the reaction is not absolutely specific, for occasionally positive reactions are obtained in non-cancerous individuals.—*Gazette des Hopitaux.*

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Miscellany.

Antiquity of the Hunger Strike.—History repeats itself. The hunger strike is not an invention of the suffragists but is a custom of great antiquity. John Scott, in the sixteenth century, while confined in David's Tower in Edinburgh Castle, abstained from meat and drink for thirty-two days in order to show that he was under the special protection of heaven. The procedure of fasting was a legal institution of ancient Ireland. Having exhausted all legal means to conquer the resistance of a powerful debtor, his creditor had only one means of constraint left to him—that of standing before the door of the debtor and of refusing to take nourishment till the debt had been paid. If the debtor allowed the person fasting to die of hunger he was responsible for his death and had to pay his family a considerable indemnity in addition to the original debt. This was called "fasting *against* or *on* a person." Dom Gougaud adds that in no Christian society to his knowledge has there been made such frequent and daring use of this curious process as in medieval Ireland. The custom is frequently mentioned in the Brehon laws. Fasting seems to have been practiced when it was desired to turn a heathen king into a Christian, and the monarch, if hard of heart, counterfasted as a means of protecting himself against conversion. It is recorded that St. Patrick "fasted upon" Loegaire, the heathen overking of Ireland, until the latter embraced Christianity, and in accordance with the superstitions of the times the king and his family felt it incumbent upon them to fast at the same time until this test of endurance was won by the saint. The custom of hunger-striking for the same purpose was formerly common in India, but it is now almost obsolete. It is known in the East as dharna (or dhurna) baithna, or "sitting dharna." It was chiefly resorted to in order to force payment of a debt. The creditor would sit at the debtor's door and taste no food until his claims were satisfied. If the debtor allowed the creditor to starve, it was believed that he laid himself open to supernatural punishment, especially if the starver happened to be a Brahmin; accordingly, Hindus of lower caste would sometimes engage a Brahmin to starve for them.—*British Medical Journal.*

Ancient Hindu Surgery.—Muthu states that surgery forms the first chapter in the Ayur Veda. Susruta, one of the fathers of Hindu medicine, says that "Surgery was the first and best of the medical sciences; less liable than any others to the fallacy of conjectural and inferential practice, pure in itself, perpetual in its applicability, the worthy place of heaven, and certain source of fame." The ancient Hindu practitioners were bold and expert surgeons, performed cystotomy, lithotomy, and embryotomy, and operated for cataract. The earliest works mention no fewer than 125 surgical instruments for ophthalmic, obstetric and other operations. They set fractures and dislocations, reduced hernia, and cured piles and fistula-in-ano. They performed amputations and abdominal section. They were experts in rhinoplastic operations. Hirschberg says: "The whole plastic surgery in Europe had taken its new flight when these cunning devices of Indian workmen became known to us. The transplanting of sensible skin flaps is also an entirely Indian method."—*Proceedings of the Royal Society of Medicine.*

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Original Articles.

THE SURGERY OF THE REVOLUTIONARY WAR.*

By TRUMAN ABBE, M.D.,

WASHINGTON, D. C.

To the fastidious surgeon of today, accustomed to his beautifully appointed twentieth century hospital, its white tiled operating room kept so spotlessly clean, its corps of trained operating room nurses and medical graduates for interne assistants, with the sterilizers, the operating gowns, rubber gloves, and nickeled instruments, with its glass operating table and expert anesthetist, with its vaccine for each type of infection, and pathologist at hand to control the diagnosis—to him it sometimes occurs to wonder what the customs may have been in the early days of our country when the States of which we are now so proud were going through the agonies of separation from their mother land in the struggle that caused as many pains and as great a loss of blood in proportion as occur at the birth of any other infant.

The war that cut the cord that united us to our mother country came at the beginning of the recorded history and rapid growth in surgery, as well as at the beginning of our self-government. Hence many of the things that are the essential parts of our present surgery were then undreamed of. The one great step that made possible the healing of our immense operative wounds of today without overburdening the vital resistance of our patients, the principle of cleanliness to the surgical degree that we think of as antisepsis and asepsis was not appreciated until the day of Sir Joseph Lister nearly a century after the Revolution. The other great step that extended so much the limits of surgery by making possible an operation without pain, came only thirty years before Lister's work, when Dr. Morton, in 1847, gave publicity to the the possibility of ether anesthesia, to be followed a year later by Simpson's anesthesia with chloroform and soon thereafter by the introduction of nitrous oxide gas as a surgical anesthetic.

The establishment of general hospitals for the care of the sick was just begun in this country at the outbreak of the Revolutionary War. In the early part of that century there had been established in Virginia a hospital for the insane, and several private hospitals especially for the care of those inoculated with the smallpox had existed since the days of Zabdiel Boylson, who, in 1721, had demonstrated on his own son and two of his negro slaves in Brookline that inoculation with smallpox could be done successfully. But it was not until 1751 that Thomas Bond persuaded Philadelphia to initiate the movement for a general hospital for the care of the sick. Twenty years later Samuel Bard induced New York to follow this lead by chartering a second hospital. This New York hospital, however, was occupied by soldiers before it was by civilian sick, and the military hospital at Boston established in the second year of the war under John Warren became the third great general hospital.

The schools for training our surgeons were also just starting. The medical school of New York, with John Jones as Professor of Surgery; Samuel Bard, Professor of Theory and Practice of Physic; Peter Middleton, Professor of Physiology and Pathology; John Tennent, Professor of Midwifery; John Smith, Professor of Chemistry and Materia Medica, and Samuel Closy, Professor of Anatomy, gave the first degree of Doctor of Medicine in America, just five years before the Revolution broke out. And in the next year, 1771, the Medical Department of the College of Philadelphia, with John Morgan, Professor of Theory and Practice of Medicine; William Shippen, Jr., Professor of Anatomy and Surgery; Adam Kuhn, Professor of Materia Medica and Botany, and Benjamin Rush, Professor of Chemistry, gave the degree to four more Doctors of Medicine. The Medical School at Cambridge, Mass., under John Warren, did not start until near the end of the war, when John Warren taught anatomy and surgery, and Benjamin Waterhouse (famous for introducing vaccination into America in 1800) taught theory and practice of physic, and Aaron Dexter was Professor of Materia Medica and Chemistry.

So we see that those of the medical profession who practised during the Revolutionary War, unless they had had the opportunity to study in England or Europe, were either trained by apprenticeship to some of the older men or were practising by their own wits without any training. It has been estimated that at the beginning of the war there were some thirty-five hundred practitioners of medicine in the colonies, not more than four hundred of whom had medical diplomas. There were hardly any regularly educated physicians and many quacks. The remedies were largely "simples" while bleeding, purging, and vomiting were freely used. It was indeed not so very long since the days of witchcraft, and some of us with good memory may recall that the first person executed for witchcraft was Margaret Jones, "a physician and doctress of whom it was said she had such a malignant touch as many persons were taken with deafness and vomiting or other violent pain or sickness; her medicines, though harmless in themselves, yet had extraordinarily violent effects, that such as refused her medicines she would tell that they never would be healed."

It is small wonder that, starting with that class of practitioners some qualifications had to be put on the army surgeons. At the outset each regiment

*Read before the Medical History Club of Washington, D. C.

had its own physician, appointed by the colonel, usually from reasons of personal friendship. So that when under the administration of Dr. Benjamin Church, the first director general and chief physician of the American army, the surgeons were put through an examination to determine their fitness for the service, it was with fear and trembling that such good men as James Thatcher came before the examining board and said of the examination: "It was in a considerable degree close and severe." He tells the story of one man, who, coming up for examination and being asked how he would make a patient perspire freely in the treatment of a pleurisy, thinking of his own present state of mind and body, suggested that the patient be brought before a board of medical examiners. Out of the sixteen men examined on the first day six were rejected.

Dr. Church's examinations may have been desirable, but his relations to the British camp were not above suspicion, so that it was not long before the position of director general and physician in chief was turned over to Dr. John Morgan, the best organizer that the medical corps of the army ever had, but when he created the necessary difference in rank between the field surgeons and the hospital physicians, giving the hospital physicians the higher rank, jealousies and insubordinations arose which, in the course of a couple of years, led to the retirement of Dr. Morgan, who was succeeded by his junior colleague at the Philadelphia Medical School, William Shippen, Jr. Dr. Shippen seems to have been but little more fortunate in holding his office than his two predecessors, for just before the end of the war, in consequence of maladministration of his office, he resigned and was succeeded by Dr. John Cochran, who served through the remaining period. To have three of the four medical directors general during the war removed for the benefit of the service suggests the difficulties attendant on the position in those times.

The position, outside of professional circles, held by physicians during the war is also of some interest. The most prominent Boston physician at the outbreak of the war was Joseph Warren, elder brother of John Warren, the first professor of surgery in the Harvard Medical School. Joseph Warren was one of the most active patriots in the years preceding the beginning of hostilities with England. In addition to being the most prominent practitioner of his day in Boston, he was president of the Massachusetts Provincial Congress in 1774 and 1775, twenty-three of whose members were physicians. He was chairman of the committee of public safety, and as such started Paul Revere on his famous ride to Concord and Lexington to notify Hancock and Adams of the advance of the British soldiers. The next day Warren left his patients in the care of his pupil, William Eustis, and went himself to carry a musket in the battle of Concord, where he had an ear shot off. He was offered the position as medical director of the Massachusetts troops, but preferred active service and was appointed major general June 14, 1775. Three days later, not able to resist the temptation to be in the center of activities, after the fighting had begun he went to Bunker Hill. He was offered the command of the troops by Colonel Prescott and General Putnam, but with characteristic courtesy declined and fought in the ranks as a volunteer, standing at his post till his powder was exhausted, his comrades fleeing, and the English closing in. He was shot in the head and died on the field.

The number of physicians in the continental congresses and in the provincial congresses was far greater in proportion than it is at the present day. In the Massachusetts Provincial Congress of 1774 and 1775 there were twenty-two physicians. There were five in the Continental Congress of 1776 that signed the Declaration of Independence, four of whom were eminent in the practise of medicine in addition to their political eminence: Josiah Bartlett and Matthew Thornton, of New Hampshire; Lyman Hall, of Georgia; Benjamin Rush, of Pennsylvania, and Oliver Walcott, of Connecticut. During the war, too, there were many medical men holding military commands. In the medical exhibit arranged by Dr. James M. Flint for the Jamestown Tercentennial Exposition, and now in the National Museum in Washington there are photographs of twenty-five such physician commanders.

The fact that the colonies were not prepared for war has always been appreciated, and the lack of equipment in the medical department was equal to that of any other branch of the service. What was true about the uniforms of the old Continentals in their ragged regimentals as expressed by McMaster was equally true of their medicines. There had been less preparation for the sick and wounded of the war than for the commissary and equipment departments of the army. General Washington, on his journey from Virginia to Boston in June, 1775, inquired in New York City as to powder supply and all that he could find was four barrelfuls. Such a scarcity may well be compared with the medical report of Dr. Morgan in 1776. He ordered all the regimental surgeons to forward to him a report of the medical supplies which they had on hand. Only fifteen regiments responded (the number is significant of the discipline in the medical corps). And "all the instruments possessed by the surgeons and mates, and being used by them in the public service, were their own personal property and amounted to one pocket case for each regiment, and in addition, divided among the fifteen regiments were six amputating sets, two trepan sets, seventy-five crooked needles, four scalpels, three pairs of bullet forceps, half a paper of seventy pins, a very few ligatures, two ounces of sponge, tourniquets, and bandages." Any active surgeon of today would have in his private office more than the equivalent of this entire army equipment. Upon the receipt of these reports Dr. Binney was sent from New York to Philadelphia to purchase the urgently needed surgical instruments. He reported: "There were no instruments to be purchased at any rate, and all the workmen in the city that could make surgeons' instruments were engaged by Congress upon arms and could not undertake any other work for a long time to come." Dr. James Hutchinson wrote that during the winter of 1778 there was such a want of lancets that numbers of the regimental surgeons, and some of those of the flying hospitals, were without one. From Fort George on August 10, 1776, Dr. Johnathan Potts wrote to Dr. Morgan: "The distressed situation is not to be described. Without clothing, without bedding, or a shelter sufficient to screen them from the weather, we have upwards of a thousand sick crowded into sheds and laboring with cruel disorders of dysenteries, bilious and putrid fevers, and the effects of a confluent smallpox. To attend this large number we have four seniors and four mates, exclusive of myself (he was deputy director general of the Northern department) and our little shop doth not afford a grain of jalap,

ipecac, bark, salts, opium, and sundry other capital articles." In May, 1776, Dr. Morgan, as director general wrote to Dr. Warren in charge of the General Hospital of Long Island, just before the battle of Long Island the often quoted "Razor Letter:" "Sir—I have sent to the surgeons desiring the youngest off duty to go to your assistance and take four mates with him, to carry over five hundred additional bandages and twelve fracture boxes. I fear they have no scalpels, as whatever I have committed to the hospitals has always been lost. I send you two, in which case if you want more, use a razor for an incision knife. Let me know from time to time at Long Island. J. Morgan."

There was no military hygiene, and the medical director of New York City wrote: "In every street is a horrid smell; fresh water in New York is very scarce, and the purchase attended with considerable expense." The destitute condition at Valley Forge is familiar to every one. At one time during the winter nearly three thousand men were returned unfit for duty for want of clothing, and it was not uncommon to track the march of the men over the ice and frozen ground by blood from their naked feet. Several times during the winter they experienced little less than a famine in camp. For two or three weeks in succession the men were on half allowance, and for four or five days without bread, and again as long without beef or pork. It was with great difficulty that men enough could be found in a condition to discharge the military duties from day to day, and for this purpose those who were naked borrowed from those who had clothes. In December about one-half of the men were destitute of small clothes, shoes and stockings, some thousands were without blankets and were obliged to warm themselves over the fires all night after the fatigue of the day. Again, in December, 1779, we find the entry in Dr. Thatcher's Journal: "Visited Dr. Findley. Invited to breakfast. The only food he could provide was coffee without milk or sugar, and meager beefsteak without bread or even salt. Our baggage is left in the rear for want of wagons to transport it. The snow is about two feet deep and the weather extremely cold. The soldiers are destitute of both tents and blankets, and some of them are actually barefooted and almost naked. Our only defence against the inclemency of the weather consists of brushwood thrown together. In addition to the other sufferings the whole army has been for seven or eight weeks entirely destitute of the staff of life; our only food is miserable fresh beef without bread, salt, or vegetables." From such conditions we can easily understand the frequency of amputations of the feet for frostbite.

In the summers we see the other conditions, the heat prostrations and the dysenteries. Dr. Shoepff, surgeon to the Hessian troops that were fighting with the British army, makes the comment: "The battle of Monmouth on June 28, 1778, was remarkable from one circumstance which has not its parallel in the history of the new world. Without receiving a wound fifty-nine men fell on our side, solely from the extraordinary heat and fatigue of the day, and many on the side of the rebels succumbed to the same causes in spite of their men being more accustomed to the climate."

Another interesting point of comparison is the payroll of the army surgeons. The Director General and Physician in Chief of the army received $120 a month, the surgeons $60 a month, and the surgeon's mate $40 a month. The apothecary got $20 a month. There was one surgeon to every thousand men, and one male nurse to every ten patients. He got $2 a month. The pay of the military officers, however, was on very much the same scale. The Colonel received $75 a month, the Lieutenant-Colonel $60, the Major $50, the Captain $40, and the Lieutenant $27. So that the army surgeon ranked in pay about where he stands today.

The hospitals for the army were in nearly every case extemporized from commodious private houses, large halls, and public buildings in the towns near the seat of battle, although there were a few exceptions. More than once it became necessary to move one of the larger hospitals on account of the approach of the enemy. When, after the loss of New York, General Washington retreated into Pennsylvania, the hospital in Philadelphia had to be moved to Morristown, and a little later to Bethlehem. At the latter place the Moravian settlement gave up its House for Single Brethren for use as a hospital, and of the two hundred and fifty sick in the hospital taken to Bethlehem, destitute, gaunt, and famishing, one hundred and ten died before the close of the winter. After the hospital opened it was for many weeks without such necessary articles as brooms, and at last it was necessary to take these from the inhabitants of the town. In Bethlehem, in October, 1777, after the battle of Germantown, there were four hundred patients in the hospital and fifty in tents. The physicians said that they could accommodate no more. Allowing four feet for each patient the hospital would hold three hundred and forty-six without crowding. But a week later orders came from Benjamin Rush, then Director General of the Middle Department, to prepare for a hundred more patients. So frame buildings were put up for the attendants and physicians and the sick were put in the houses that had been occupied by these attendants. In December the hospital was terribly overcrowded and filthy, and putrid fever claimed many victims. At one time there were seven hundred patients in the House of the Single Brethren, which had previously been considered crowded with four hundred. Many of the soldiers, too, had entirely recovered, but were unable to return to the army for want of suitable clothing. The overcrowded conditions of the hospitals led to a tremendous mortality. Four or five patients were known to die on the same straw bed before it was changed, and many of the patients admitted for only slight disorders caught the hospital fever and died. Of eleven junior surgeons and mates in the hospital at Bethlehem, ten took the infection, most of them dangerously, and one died. Of three hospital stewards, two died and the third narrowly escaped. Tilton in his "Economic Observations on Military Hospitals," speaks of a discussion between two hospital physicians as to which hospital caused the more mischief. At the Princeton Hospital, Tilton gave it as his experience that "there was a very affecting mortality among the sick and wounded soldiers, that the orderly men, nurses, and other attendants were liable to the hospital infection, that he himself had narrowly escaped death, and five other surgeons and mates had afterwards been seized." The surgeon of the Bethlehem Hospital said that in his hospital not an orderly or nurse had escaped the infection, but few of the surgeons had escaped, and one had died. That of a regiment of Virginia volunteers, forty had come to the hospital and not three would return to their regiment.

At Littitz, another Moravian village in Pennsylvania, where again a Home for Single Brethren had been turned into a hospital, on December 14, 1777, the ordinance directing the opening of the hospital was received. On December 19 eighty sick arrived, and December 20 fifteen wagonloads more. To take care of these wounded men in the newly opened hospital there were two physicians. Putrid fever broke out on the fourth day, and both physicians were prostrated with it. Dr. Adolph Mayer, the Moravian physician, had to fill their places until relieved ten days later by a German physician. There were seven deaths in those ten days from fever. The hospital reports here at Littitz from February 1 to April 20, 1778, showed two hundred and sixty-four wounded and sick soldiers admitted to the hospital, one hundred and forty-two discharged and sent back to camp, eighty-three died or deserted, and thirty still under treatment.

In the Virginia Hospital at Williamsburg, under the French, Dr. Tilton says that the patients were all neat and clean, accommodated with everything, including nightcaps. Nevertheless the physicians were not more successful in their aid to the sick. For the cause he gives the following description: "The hospital was a three-story building with a refuse chute at one end, connecting to all floors and leading to a pit in the earth. Down this chute all filth and excrementitious matter was dropped into the pit. This sink of nastiness perfumed the whole house very sensibly and vitiated the air within the wards." As to their treatment, "the French never used bark or opium, but used principals, ptisans (sweetened barley water) decoctions, and watery drinks fitted only for inflammatory disorders."

Thatcher tells us of the Albany Hospital which had been built at the end of the French and Indian War and was situated on an eminence overlooking the city. It was a two-story building with a wing at each end and a piazza in front and below. It contained forty wards and was capable of accommodating five hundred patients besides the rooms for the surgeons and other officers and stores. On October 24, 1777, after the battle of Saratoga, Thatcher says: "The hospital was also crowded with officers and soldiers from the field of battle. Those belonging to the British and Hessian troops are accommodated in the hospital with our men and receive equal care and attention. The foreigners are under the management of their own surgeons. I have been present at some of their capital operations and remarked that the English surgeons performed with skill and dexterity, but the Germans, with few exceptions, do no credit to their profession. Some of them are the most uncouth and clumsy operators I ever witnessed, and appear to be destitute of all sympathy and tenderness toward the suffering patient. Not less than a thousand sick are in the city. The Dutch church and several private houses are occupied as hospitals. We have about thirty surgeons and mates and all are constantly employed. I am obliged to devote my whole time from eight o'clock in the morning to a late hour in the evening to the care of our patients. Amputating limbs, trepaning skulls, and dressing the most formidable wounds have familiarized my mind to scenes of woe. A brave soldier received a musket ball in his forehead between the eyebrows. Observing that it did not penetrate the bone it was imagined that the force of the ball being partly spent, it had rebounded and fell out, but on close examination by the probe the ball was detected spread entirely flat on the bone under the skin, which I extracted with the forceps. No one can doubt but he received his wound while facing the enemy. But in another instance a soldier's wound is not so honorable. He received the ball in the bottom of the foot, which could not have happened unless when in the act of running from the enemy. This poor fellow is held in derision by his comrades for having the mark of a coward." Evidently the Albany Hospital was in better sanitary condition than some of the others, and surgery was given a chance.

Of the medical conditions prevailing in the army one or two are well worthy of note. In May, 1776, Thatcher makes the following entry in his diary: "As the smallpox is in many parts of the town among the inhabitants and the soldiers, I was advised by my friends to have recourse to inoculation for my own safety, though contrary to general orders. I was accordingly inoculated by my friend, Dr. John Homans, and have passed through the disease in the most favorable manner, not suffering one day's confinement." Then on August 5, 1776: "Col. Whitcombs' regiment (the one to which Thatcher was at the time assigned), consisting of five hundred men, has now gone through the smallpox in this town by inoculation and, except one negro, have recovered." Fifty years before in this same town of Boston, Zabdiel Boylston had had to fight almost the entire medical fraternity when he did the first inoculation for smallpox in America. A smallpox incident near the close of the war sounds so much like modern fiction that it too seems worthy of mention here. October 1, 1781, shows the following entry in Thatcher's journal: "The British sent from Yorktown a large number of negroes sick with smallpox, probably for the purpose of communicating the infection to our army." But in April of the same year we find the order entered by Thatcher to inoculate the troops with smallpox, and the comment that of five hundred inoculated only four died. The prevalence of smallpox and its fearful mortality in those days is scarcely appreciated by us who are accustomed to the disease as modified by almost universal vaccination. In 1700 smallpox was more dreaded than war or famine. It attacked sixty per cent. of mankind, and ten per cent. died of it. Cotton Mather says: "The Indians in those parts had newly, even about a year before, been visited with a prodigious pestilence as carried away not a tenth, but nine parts in ten (yes, 'tis said nineteen of twenty) among them, so that the woods were almost cleared of those pernicious creatures to make room for a better growth." Mather evidently referred to the smallpox epidemic among the Massachusetts and Naragansetts of 1617. The American narratives of the Revolutionary War make it credible that some British officers had attempted to produce a similar epidemic among the Colonial troops.

The principal diseases of the army seem to have been like those of our army of to-day, with a few additions: Autumnal remittent fever, typhus (typhoid was not differentiated from typhus until the work of William Gerhard about 1840), camp dysenteries, yellow fever, small pox, bilious fever, and putrid fever. There were enough cases of nostalgia to call forth the comment, "The troops are troubled with many perplexing instances of indisposition occasioned by their absence from home. In some instances they become so hyperchondriacal as to be

proper subjects for the hospital. Many instances are cured by raillery of the old soldiers, but generally it can be suspended by constant and active engagement of the mind as by drill exercises, camp discipline, and prospect of battle."

Under such conditions we easily understand that the surgery must have been very different from that of to-day. John Jones, the professor of surgery at the New York Medical School, which had just started, wrote a little book, "Practical Remarks on the Treatment of Wounds and Fractures," etc., in 1776, for the use of the army surgeons. From it we get a pretty fair idea of the surgical status of the times. A quotation from Jones' introduction will interest us. "The operation of some of those passions which have so much influence in the affairs of mankind, occasioned the decline and almost complete extinction of surgery. The exterior of this science has nothing pleasing or attractive in it, but is rather disgusting to nice, timid, and delicate persons. Its objects, too, except in time of war, lying chiefly among the poor and lower class of mankind, do not excite the industry of the ambitious or avaricious, who find their best account among the rich and great; for this reason those illustrious men who were at once great physicians and surgeons abandoned the most disagreeable and unprofitable part of their profession to follow that branch alone, which at once gratified their ease, their avarice, and their ambition."

The treatment of wounds in general, the simple wounds, was much as nowadays, except for the cleanliness and antisepsis, which was not appreciated until after our Civil War. The wound was freed from blood clots and edges approximated with adhesive straps or suture. A shoemaker's wax end was a common suture material. The ends of the sutures were left long and they were removed as soon as the edges of the wound were coapted, usually in two or three days. Punctured wounds were dilated. Wounds of tendons were united by bandage and posture, not by suture.

Thatcher recites the story of some pretty extensive wounds in the case of Captain Gregg, who went from the camp with two men to shoot pigeons. A party of Indians shot them all down, tomahawked and scalped them, and left them for dead. "The captain, after some time, revived and perceiving his men killed, himself robbed of his scalp and suffering extreme agony from his numerous wounds, he made an effort to move and lay his head bleeding on one of the dead bodies, expecting soon to expire. A faithful dog who accompanied him, manifested great agitation, and in the tenderest manner licked his wounds, which afforded great relief from his exquisite distress. He then directed the dog, as if a human being, to go in search of relief. The animal, with every appearance of anxiety, ran about a mile when he met two men fishing, and endeavored in the most moving manner, by whining and piteous cries, to prevail on them to follow him into the woods." With considerable difficulty they were induced to follow the dog. Captain Gregg was immediately carried to the fort, where his wounds were dressed. "He was afterward removed," says Thatcher, "to our hospital (Albany) and put under my care. He was a frightful spectacle. The whole scalp was removed. In two places on the forepart of the head the tomahawk had penetrated through the skull. There was a wound in the back with the same instrument, besides a wound in his side, and another through his arm by a musket ball. The unfortunate man, after suffering extremely for a long time, finally recovered and appeared to be well satisfied in having his scalp restored to him, though uncovered with hair."

Thatcher also reports the following case of a rattlesnake bite. "A soldier had the imprudence to sieze a rattlesnake by its tail. The snake threw its head back and struck its fangs into the man's hand. In a few moments a swelling commenced, attended with great pain. It was not more than half an hour when his whole arm and shoulder was swollen to twice its natural size and the skin became a deep orange color. His body on one side soon became affected in a similar manner and nausea at the stomach ensued. The poor man was greatly and justly alarmed. Two medical men and I were in close attention for several hours. Having procured a large quantity of olive oil, we directed our patient to swallow it in large doses until he had taken a quart, and at the same time we rubbed into the affected limb a very large quantity of mercurial ointment. In about two hours we had the satisfaction of seeing the favorable action of the remedies."

Penetrating wounds of the abdomen and thorax were given special treatment. They were divided into three general classes: mortal, hazardous, and accidentally mortal. The distinction was founded on the structures involved and the offices of the wounded parts. "All wounds of heart, aorta, cerebellum, medulla oblongata, and receptaculum chyli are justly deemed mortal because those parts are immediately subservient to life; but those of the lungs, liver, intestines, kidneys, pancreas, gall-bladder, large vessels, spleen, mesentery, bladder, stomach, are only hazardous in proportion to the nature of the offices they perform and the degree of the injury they have received. A view of the nature of the viscera in the cavity shows us how little is to be expected of external applications. The great and principal attention of the surgeon should be directed to the prevention or diminution of inflammation. Therefore, after a proper dilatation of the external orifice, the patient should immediately lose as much blood as his strength will bear, and this from a very large orifice, by which means the hemorrhage, if considerable, will be most effectually restrained. The bleeding should be repeated at short intervals, emolient clysters, cooling nitrous drinks, anodynes to assuage pain, a most rigid and exact diet, consisting solely of diluting drinks, perfect quiet and a posture which contributes to the patient's ease, and the discharge of extravasated matter. Intestines and omentum are to be reduced by hand or by dilatation of the wound by Pott's curved bistoury with a button point, on a grooved director. Mortified omentum is to be cut off, but no ligature applied to the stump and the wound closed with suture compress and bandage with a suitable posture. Penetrating wounds of the thorax are distinguished by the passage of air through the wound, in respiration, and the expectoration of bloody froth from the lungs. Bleeding should be done in proportion to the amount of hemorrhage. If violent, it can be restrained only by long and repeated venesections, frequent doses of niter in barley water or flaxseed tea, and extreme cool regimen and perfect rest. Even speaking should be absolutely forbidden." Thatcher reports a case as follows: "One of our volunteers was wounded through his shoulder and lungs. The air escaped from the wound at every breath. Dr. Eustis came to the lines and dilated the wound in the breast and recommended repeated and

liberal blood letting, observing that 'in order to cure a wound through the lungs you must bleed your patient to death.' He eventually recovered, which is to be ascribed to the free use of the lancet and such abstemious living as to reduce him to the greatest extremity." Traumatic subcutaneous emphysema was recognized as due to escape of air from the punctured lungs into the pleura and subcutaneous tissues, and when the pleura filled with air was the cause of distressed breathing paracentesis thoracis was ordered, and, of course, repeated bleeding.

In regard to fractures, we note the interesting comment that in general all fractures about joints where the capsular ligaments are torn and the heads of the bones injured, require amputation, which should be done as soon as possible. Again, "In compound fractures where a point of bone has been thrust through a small skin wound, many surgeons advise removal of such a portion of the bone as will render the return of it easily practicable. However, before we proceed to this step it will be advisable to attempt reduction by relaxing the muscles and making a free dilatation of the wound, by which means there are few cases, I believe, which will not admit of relief." In fractures of the cranium trepanning was the general custom. Whether the fracture was depressed or not, Jones thought trepanning the safest line of treatment. His chapter on injuries arising from fracture of the skull is illuminating. Thatcher reports a case of fracture of the humerus by windage of a cannon ball without the smallest perceptible injury to clothes or contusion or discoloration of the skin. The patient received proper attention but expired next day. He remarks that "similar instances have been reported in naval battles and are almost constantly attended with fatal effects."

On gunshot wounds, "The first intention is to extract the ball, the next object of attention is the hemorrhage, which must be restrained if practicable by tying up the vessels with a proper ligature as no styptic is to be relied on, exclusive of the mischief they otherwise occasion. In order to extract the ball . . . . we ought not to attempt anything beyond the reach of the finger, though if the ball can be felt under the skin in the opposite direction to the wound, it ought immediately to be cut upon and taken out. The first dressing should be very light. At the second dressing some mild digestive may be used, and where the wound is large, the bread and milk poultice, and if much tension and inflammation attend, an emolient fomentation will be necessary, though the symptoms will be lessened if, when we are first called in, a proper quantity of blood be taken from the patient, his body kept open by gentle clysters and mild purgatives, an easy perspiration promoted, and in general a cool regimen prescribed. To remove the rack of pain recourse must be had to the sovereign and almost divine power of opium, next to which the bark may be added, which Mr. Ranby says no human eloquence can deck with panegyric proportional to its virtues. In all large wounds, particularly those made by cannon balls, the bark may be given in the quantity of a dram every three hours or oftener if the stomach will bear it. The elixir of vitriol taken three or four times a day in a glass of water is in these cases a singular benefit, and proves a very good assistant to the virtue of the bark." (An interesting comment for the days when surely the solubility of quinina in sulphuric acid was not appreciated.)

The chief capital operation of the period seems to have been amputation. Amputation at the hip was first done in the early part of the eighteenth century, but of the fifty-four cases reported by Pancoast in 1846, prior to the discovery of general anesthesia, only nineteen were claimed as successful. Amputation at the shoulder joint was also done at about the same time, but it had been admitted as a regular process of the art of surgery through Baron Larrey in Napoleon's wars. It was probably very seldom done in the American Revolution. The description of an amputation in those days is very interesting. It was the common custom to give a preliminary full dose of opium in the severe operations, to allay excitement and diminish the susceptibility to pain. This was not, however, universally practised. In operations on the upper extremity the patient might be seated in a chair. For amputations of the larger limbs four to six assistants were necessary, some of which at least ought to be professional men or at least well acquainted with the particulars of the proceeding. One assistant was to regulate compression of the main artery, a second to hold the limb above the place of amputation and retract the skin and muscles, the third to hold the limb below and remove it out of sight of the patient as soon as it was separated, the fourth handed instruments. The fifth and sixth were needed at times to assist in ligating arteries and in holding the patient, or to assist in his restoration if he became faint. The description of the major operation of the Revolutionary times quoted at length from Jones' surgery will make a fitting conclusion to our consideration. He says: "As every operation is necessarily attended with a certain degree of bodily pain as well as terrible apprehension to the patient's mind, a good surgeon will be in the first place well assured of the necessity of an operation before he proceeds to perform it; and, secondly, he ought to consider whether the patient will in all probability be the better for it or whether he may not be worse. . . . It is also of no small importance to support the patient's spirits with a cheerful assurance of success, and the appearance of such a degree of modest confidence as may serve to inspire him with it, and by all means to avoid terrifying him with the appearance of the apparatus or a vain and ridiculous parade of any kind.

"When the amputation of a limb is determined on the following apparatus should be prepared in a different room. A large dish with a compress to be placed over the vessel, made in the form of a roller, flattened and sewed to the middle of a slip of linen, between two and three inches wide and of sufficient length to pass two or three times round the limb. The tourniquet or leather with a fillet and stick, a yard of tape rolled up, the amputating knife, catlin, saw, tenaculum, crooked needles armed, and ligatures of waxed thread loose, a pair of straight scissors, and sponges.

"In another dish should be placed a sufficient quantity of lint, some long pledgets of the same, spread with simple cerate or soft digestive. A large pledget or two, of tow armed with the same cerate, and a few soft compresses of tow unarmed. Slips of linen about three inches wide, to cross the stump and retain the pledgets, etc., two rollers of different lengths, and a loose knit woolen cap to draw over the whole.

"If the leg is to be removed, the most convenient posture for the patient is lying on a firm table of convenient height, covered with blankets sufficiently

doubled, and a pillow to support the head. The operator, standing on the inside of the leg (held in a steady horizontal line by the assistants), first fixes his compress longitudinally over the course of the artery in the ham; then bringing the two ends of the bandage to which it is fixed towards each other and passing one of them through a slit made in the opposite extremity as in the uniting bandage, he makes two or three turns round the limb with the longest end, and drawing it pretty tight, fastens it with a pin; over this is fixed the tourniquet, or leather with the fillet and stick (whichever of them are used) and having given it the necessary degree of tightness he delivers it into the hands of his assistant; then fixing upon the part where the first incision is to be made, which is about four fingers' breadth below the patella, he passes the tape about half an inch below this part, and making a turn or two pretty close, fastens it with a pin. He then, beginning the first incision on the outside of the leg, as high as he can carry the knife without constraint, divides the skin and membrana adiposa down to the muscles; and bringing his knife forward terminates his first stroke far enough on the inside to make one half of the circumference of the circle, which is finished by another stroke carried from the point of beginning to meet the opposite point. It is to be observed that this incision is to be made above the tape which then falls below the wound without embarassing the operator.

"The first incision being completed so as to even mark the muscles, rather than suffer any adhesion of the adipose membrane, the assistants are to draw up the integuments as high as possible, when the muscles are divided by two semicircular incisions, quite down to the bones.

"The interosseous ligament must then be separated by the catlin or point of the amputating knife pushed between the bones which are next to be carefully sawed through. (Mr. Bromfield recommends a piece of soft leather eighteen inches long and of proportionate breadth, which being slit half way down the middle, is easily received between the divided flesh, and one flap being lapped over the other, the assistants take hold of the two ends, and drawing them up, not only keep the muscles out of the way of the saw, but by forcing them up higher enable the operator to remove more of the bone and by that means prevent a pointed stump.) The assistants observing to hold the limb in the most exact horizontal line, lest by raising the leg in the beginning or middle of the operation the saw should be compressed by the extremities of the bones, or towards the latter end of it by letting the limb fall from the direct line, the tibia should break off and form a sharp point or splinter.

"When the leg is removed, the principal arteries are to be secured either with common crooked needles and thread or the tenaculum; it is seldom necessary to take up more than three or four vessels, the mouths of which from their size are in general readily enough distinguished without loosening the tourniquet, which, however, ought to be quite loose as soon as the principal vesels are tied that the circulation may be carried on more speedily in the minute collateral branches of the stump, and discover such as need to be secured. In taking up an artery the needle must be passed on each side of the vessel, but no deeper, nor more flesh inclosed than will serve to prevent the ligature from falling off. (The ligatures should be made of shoemakers' thread, which compresses without cutting, and the size of the ligatures must be always in proportion to the largeness of the vessel.) This last part of the operation being finished, the tourniquet removed, and the skin drawn down on the muscles the dressings are next to be applied in the following manner: First two round pledgets of lint upon the extremities of the bones, over which a piece of fine old linen exactly fitted to the muscular part of the stump is to be laid, then dossils of lint sprinkled with flour are to fill up the cavities made by the circular edge of the skin and membrana adiposa; upon this the armed pledgets of lint are to be applied, and over these the large ones of tow, the long compresses of slips of linen are then to cross each other at right angles and pass far enough on the sides of the stumps to be retained by the first roller, a few turns of which, but not tightly drawn, are sufficient for the purpose; the second roller is employed in making several spiral turns from above this joint down to the edge of the stump, where it is fastened with a pin. Lastly the woollen cap is drawn over the whole leg, stretching it from top to bottom with both hands and slipping it on gently. The patient is then to be laid in his bed his thigh a little elevated and the knee gently bent and supported by a soft pillow, a sudorific anodyne to quiet pain and dispose him to a gentle diaphoresis, should be immediately given, and perfect quiet enjoined as an essential requisite to his recovery."

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THE WASSERMANN REACTION IN CANCER.

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During the past few years numerous articles have appeared in the medical literature announcing positive Wassermann reactions in affections other than syphilis. Certain investigators have reported high percentages of positive findings in leprosy, in scarlet fever, in trypanosomiasis, and in scleroderma, while occasionally the reaction has been obtained in such diseases as diabetes mellitus, malaria, idiopathic epilepsy, leucemia, puerpural eclampsia, lupus erythematosis, pellagra, and others. These findings have led investigators to test the reaction in a large number of diseases, and it was therefore quite natural that the blood of patients suffering from malignant disease should be put to the test. It is sometimes difficult, sometimes impossible, to differentiate clinically between certain forms of malignancy and specific disease, and observations which seem to diminish the value of the Wassermann reaction as a means of differential diagnosis should be carefully examined. As a matter of fact, investigators along this line have reported widely different findings, and the purpose of this paper is to briefly review the literature on the subject, and to give our results at the New York Skin and Cancer Hospital.

The highest percentage of positive reactions has been given by A. Caan, who reports that he applied the test in 85 cases of carcinoma with positive reactions in 41 per cent. The test was positive in 6 out of 7 cases of carcinoma of the lip, in 67 per cent. of epitheliomas of the lip and chancroids, in 0 per cent. of carcinoma of the breast, and in 17

per cent. of his gastrointestinal cases. Caan says that he applied the test in all its various modifications in each case, and obtained parallel findings. Leo Newmark reports two unusually interesting cases of tumors, both of which gave positive reactions. His first case was that of a woman suffering from word-deafness and paraphasia. On the strength of a positive Wassermann reaction, treatment with potassium iodide and mercury was commenced and for several weeks her progress was considered satisfactory. Then the original trouble returned, and about the same time a tumor in the left breast was discovered. One month later the patient died. A complete autopsy was not allowed but the tumor in the breast was found to be a carcinoma, and that in the brain a gliosarcoma. Furthermore, there was no trace of syphilis in the brain although the cerebrospinal fluid from the cranial cavity was examined and was found to give a strong positive Wassermann reaction. His second case proved to be an intradural psammoma, although both the blood serum and the spinal fluid had given positive reactions shortly before the operation. The reaction in the cerebrospinal fluid obtained during the operation was negative, and 18 days later the reaction in the blood serum was also negative. Positive reactions have also been obtained by Oppenheim and Marburg, each of whom report a case of fibroma of the pons cerebelli in patients whose blood serum showed inhibition of hemolysis when subjected to the Wassermann test.

While these findings are interesting and suggestive they are not conclusive, for we find other investigators reporting results directly opposed to those given above. In an article in the *Lancet*, Foerster publishes his results on a series of cases which he had tested to find out how often syphilis could be traced in patients suffering from cancer. His tables show further, however, that cases of cancer giving no evidence of clinical history of syphilis almost invariably give a negative Wassermann reaction. In 36 cases, only one gave a positive test. In this case, as he points out, there is reasonable room for doubt, in the fact that both the patient and his wife were in ill-health, and the wife gave a history of miscarriages. Nonne, who has published the results of a very large series of Wassermann reactions on brain and spinal cord conditions, comes to the conclusion that all cases of non-syphilitic conditions of the nervous system with positive Wassermann reactions in the blood have to do with patients who, at some earlier date, have been infected with specific disease and that even a negative section of the tissues is no proof that the reaction in the blood was incorrect, for an individual infected with syphilis can, at the same time, have non-syphilitic condition in any other organ. Further negative results have been reported by Noguchi, who found 38 negative reactions in 39 cancer cases from the wards—his one cancer case having also had a history of chancre some years previously—and 50 negative results in 51 cases in which syphilis could be excluded with a fair degree of certainty, and working with the Noguchi modification, Orleman-Robinson reports 30 negative reactions in 30 cases of epithelioma. Lastly, Boas, of the State Serum Institute at Copenhagen, has published the results of 1,064 investigations with non-syphilitic sera. These included cases of tuberculosis, lobar pneumonia, malaria, leprosy, carcinoma, and other diseases in which the occurrence of the Wassermann reaction has been alleged from time to time. In the entire series, only one result was positive and that was a case of scarlet fever.

In our series, the following technique has been used: Patients' serum, inactivated at 56° C. for half an hour, has been used in doses of 0.1 and 0.2 c.c. Guinea-pig's serum and anti-sheep amboceptor have been used in quantities found necessary by preliminary titration. In 190 of the tests 1 c.c. of a 1:10 dilution of complement was titrated against varying amounts of amboceptor, and 2 units of the latter used in the test. In 25 cases the amount of amboceptor was kept constant at 1 c.c. and the amount of complement varied from 0.4 to 1.2 c.c. of a 1:10 dilution, according to titration. Three antigens have been used: an alcoholic extract of a syphilitic fetal liver, the acetone-insoluble fraction of guinea-pig's heart, and the acetone-insoluble fraction of normal liver. From 0.1 to 0.3 c.c. of a 1:10 dilution in salt solution was required in the test.

The required amounts of serum, complement and antigen were put into respective test tubes and the amount brought up to 3 c.c. by the addition of salt solution. The contents of the tubes were then mixed, and incubated for one hour at 37° C. Then the necessary quantity of amboceptor and 1 c.c. of a 5 per cent. suspension of sheep's corpuscles were added and the tubes again incubated for one hour. The following controls were used with each series tested: (1) Antigen control (antigen, complement, amboceptor and sheep's corpuscles). (2) Serum control (patient's serum, complement, amboceptor and sheep's cells. (3) Hemolytic system (complement, amboceptor and sheep's cells). (4) Known specific serum, with and without antigen. (5) Known negative serum. The series was further controlled, in a measure, by 1,300 reactions which were done in the same series as those on cancer cases.

Table No. I shows that 210 cases of various kinds of tumors gave negative results.

The diagnosis in practically all these cases was confirmed by section or autopsy.

In Table No. II are placed five cases which gave positive reactions.

TABLE I.

Epithelioma of:		*Sarcoma of:*		*Carcinoma of:*			
Lip	16 Cases	Face	3 Cases	Breast	59 Cases	Glioma of brain	1 Cases
Cheek	7 "	Breast	1 "	Uterus	12 "	Malignant papilloma of tongue	1 "
Chin	1 "	Scalp	1 "	Abdominal viscera	12 "	Papilloma of chest	1 "
Scalp	2 "	Neck	2 "	Stomach	1 "		3 "
Ear	5 "	Back	1 "	Glands of neck	31 "		
Nose	6 "	Thigh	3 "	Tongue	21 "		
Back	1 "	Testes	2 "	Rectum	5 "		
Penis	2 "	Mastoid and brain	1 "		141 "		
Eye	5 "	Eye	1 "				
Head	1 "	Sarcomatosis	2 "				
Vagina	3 "		17 "				
	49 "						

Table No. II.

1. Carcinoma of jaw and neck.
2. Carcinoma of jaw and neck.
3. Carcinoma of rectum.
4. Sarcoma of heel.
5. Carcinoma of tongue and jaw.

In this series cases 1, 2 and 3 can be discarded, as they gave a history of earlier luetic infection. Case No. 4 was that of an unmarried girl, 21 years of age and a domestic. At 12 years of age a "corn" appeared on her right heel. She cut it off several times but it always returned. At 18 years of age she took *x*-ray treatments but this seemed to make the condition worse. During the next two years she underwent two operations, and a section following one of the operations was diagnosed keloid. Two months before coming to the Skin and Cancer Hospital a second tumor appeared on the inner side of the right leg and shortly afterwards a third appeared in the right groin. On admission to the hospital, the Wassermann reaction was positive in the blood serum. One month later it was still found to be positive, and an intravenous injection of salvarsan was given, with apparently no result. A section was then removed from the original tumor and a diagnosis of sarcoma was made. A third Wassermann was done six weeks after the administration of salvarsan and was negative. Case No. 5 was that of a man 58 years of age, a sailor. In July, 1910, a part of his tongue was removed on account of a growth, and a pathological diagnosis of epithelioma made. Thirteen months later he returned with enlarged cervical glands which, on examination, were found to be malignant. The Wassermann reaction, ten weeks after his operation, was weakly positive. The patient at this time was anemic, was running a subnormal temperature and was very weak. He had given a history of gonorrhea, but denied the knowledge of luetic infection. An autopsy could not be performed, and there was no means therefore of proving or disproving the reaction given by the blood.

It is quite possible that more than one element has been responsible for the variation in the findings of different investigators. Apart from the various methods of performing the test, and the possibility of an error in technique, it has seemed to the writer that the different kinds of antigen used may have been responsible for many of the results. In view of the more recent work reported by Dungern and others on complement fixation in cancer, using as antigen preparations of cancer material, this seems more than probable. There are, moreover, other factors which may be responsible. The majority of antigens used to-day are not prepared from syphilitic organs, but from normal tissues, human or animal. The reaction is therefore not a specific one. These same preparations may contain bacterial as well as syphilitic antigens, and, in the presence of the corresponding antibody in the serum, may cause inhibition of hemolysis.

It seems fair to conclude, from the above series, that cancer rarely, if ever, gives a positive Wassermann reaction under the technique outlined above, and that, in the presence of a positive finding, a coexisting luetic infection should be suspected.

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SPECIFICS IN THE TREATMENT OF TUBERCULOSIS.*

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At the present time when so much discussion is taking place on the specific treatment of microbic diseases, especially of tuberculosis, some facts on the subject may not be out of place. The literature on this subject has become so enormous that it is impossible for any one man to review it, to say nothing of the possibility of arriving at a conclusion as to the status of such treatment. The claims of the various writers range anywhere from "slight aid" to absolute immunity or cure. There is some truth in all these statements, but tuberculosis is such a variable disease, and governed by so many factors and conditions, that any line of treatment must take into consideration the presence or absence of such factors or conditions. This is especially true if we wish to arrive at a conclusion that has any value from a scientific standpoint.

As a single infection, without complications, tuberculosis has a tendency to arrest or quiescence, as is so often seen in childhood. According to our best authorities, this is the condition that exists in the great majority of mankind. Hamburger says that tuberculosis is as much a disease of childhood as measles, whooping cough, etc., and if the disease manifests itself later in life, it is not a new infection but a lighting up of the old infection acquired in early life. It would be inferred from the work of Roomer and Joseph, that the infection acquired in early life, and remaining quiescent, keeps up a certain amount of immunity against further infection; that is, a person already infected and carrying living, encapsulated tubercle bacilli in the system can not be reinforced by tubercele bacilli from with-

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out, except by enormous doses that can not be easily administered except by artificial means.

When tubercle bacilli are taken into the system, in sublethal doses, they are met by two forces of the body. They may be taken up and destroyed by the tissues of the body, in which case they cause no particular disturbance, or they may become localized in some suitable tissue, there to reproduce their kind and disseminate their poisons and toxins. The result of such localization, except in early infancy, is tubercule formation or the so-called nature's method of handling the disease. Yet, we see every day what a failure nature makes in many of these attempts at cure. In discussing the pathology of the tubercle, Cornet states that if the walling-in process be sufficient, the imprisoned bacilli may disintegrate and die under the process of caseation, liquefaction and absorption, or calcification, and there is no further harm to the economy; but if the encapsulation be insufficient, the bacilli migrate radially and set up new foci of disease. Thus sufficient encapsulation means arrest, more or less permanent, while insufficient encapsulation only retards for a time the advance of the disease and is more or less of a failure. There are many factors which have a bearing on the success or failure of such encapsulation, a discussion of which must be passed over for the present. In the present state of our knowledge any attempt at the "cure" of a bacterial disease must follow in the footsteps of nature's attempt at "cure," and this is more true of tuberculosis than of most any other infectious disease. The most we can hope to do is aid nature to a greater or less extent.

From a consideration of the foregoing, the rational procedure would be to aid nature in raising the resistance of the tissues (immunity) against the tubercle bacillus, and to aid in the process of encapsulation. The work of Sir A. E. Wright and his co-workers on immunity covers the ground so thoroughly that it is almost necessary to refer to Wright's papers on the subject, so that one may get a proper conception of their findings and results. In short, Wright and his associates, by the use of appropriate doses of tubercle bacilli vaccine, were able to produce specific bacteriotropins, or opsonins, in the fluids of the body. These specific opsonins so acted on the tubercle bacilli that were free in the tissues (when the dose of bacilli was not too large) that the phagocytes were able to engulf them and apparently destroy them. (Webb has demonstrated that similar bacteriotropins may be stimulated by the introduction of small and increasing numbers of living bacilli into the tissues. Animals thus treated became so highly immunized that their tissues would take up and destroy many times the lethal dose for control animals. Evidently the small doses of tubercle bacilli that we all must take up at times under our present, almost continuous association with tuberculous persons, have a tendency to immunize us against extensive infection. This latter has been spoken of as a natural immunity, but is really an artificial immunity accidentally produced). However, our first aid to nature in the use of tubercle vaccine can be effective only when the lesions are open and tubercle bacilli are free in the tissues, and then only when the total sum of the open and closed lesions is not great enough to overwhelm the tissues with toxic products, or when other factors that might lower the reactive powers of the tissues are absent. When the animal economy is overwhelmed by the absorption of toxic products, no matter what the origin may be, specific treatment should be withheld.

To consider the second aid to nature, from specific treatment, viz., aid to encapsulation, we must presuppose a working knowledge of the pathology of tubercle formation, and the exciting and reacting factors in the case. Let it suffice at present to state that the tissue irritation from the presence of localized tubercle bacilli and their toxins excites the formation of new tissue around the seat of lesion, with the result that the bacilli becomes walled in on all sides or encapsulated. This walling in process serves two purposes; viz., it protects the tissues from a spread of the disease, and also protects the encapsulated tubercle bacilli from the action of any immune bodies that may be circulating in the body fluids. Here is where nature's second attempt at ridding the tissues of organisms of the type of the tubercle bacillus often fails. While the encapsulation may be efficient for the present or near future, the wall may break down from external causes or the process of necrosis from within. Under such conditions, encapsulated tubercle bacilli are a menace to the host, as bacilli often multiply very rapidly within the tubercle. Should such tubercle rupture when the so-called natural immunity is below par there would certainly be a greater or less spread of the disease. Should a large tubercle, containing not only numerous bacilli but the products of tubercle bacilli growth and necrosed tissue, break into the surrounding tissues or blood stream, there is probably no degree of natural or acquired immunity sufficient to prevent an exacerbation of the disease. Since nature in her early attempts at the arrest of tuberculosis is to a great extent successful (as demonstrated by post-mortem findings in persons dying of other diseases), our main object in the treatment of closed tuberculosis would be to aid nature in building up a tubercle wall so extensive or sufficient that there will be little or no chance for any bacilli to escape or the walling in process to break down. To be sure, causes may come into play that would break down any amount of encapsulation, but in our training of patients we may teach them how to shun many such causes. Without such training any line of treatment of tuberculosis is almost sure to be a failure.

Without attempting to review the literature or recite the various experiments that have been carried out, to prove the part played by specific treatment in regard to its bearing on encapsulation of tuberculous areas, we will consider briefly the findings of Wassermann and Bruck in this line. The reader is more or less familiar with the "Wassermann reaction" in syphilis. Some time before he reported his work on syphilis, Wassermann carried out some very extensive experiments with tuberculin and tubercle bacilli products in relation to their action on tuberculous tissue. These experiments are too technical for present discussion. The results and the facts revealed are very interesting, especially when we come to consider tuberculin or any of the tubercle bacilli products as therapeutic aids in the treatment of tuberculosis, particularly in the closed or partially encapsulated form. This therapeutic action here is spoken of as the local specific reaction. As an explanation of the specific local reaction of tubercle bacilli products or preparations on the tuberculous focus, Wassermann and Bruck have shown by a series of unobjectionable experiments conducted at the Institute for In-

fections Diseases at Berlin that there is present in the tuberculous tissue or organ an antibody to tubercle bacilli preparations. (In the balance of this paper the writer will refer to all such tubercle bacilli preparations, for short, as "tuberculin.") The above investigators also demonstrated that such antibodies do not exist in other tissues or organs of a tuberculous individual who has not been specifically treated. They further demonstrate that, owing to the great avidity of these antibodies situated solely in the tuberculous tissue or focus for their antigen (tuberculin), they were capable of withdrawing from the blood tuberculin in the greatest possible dilution (1-5,000,000) and neutralizing it within the tuberculous focus. This concentration of tuberculin around the infected focus and the reaction that takes place between antigen and antibody, causes a dilatation of the blood vessels in the immediate vicinity, together with a gathering of the leucocytes, thus bathing the parts in an excess of the body juices, stimulating cell proliferation and the formation of new connective tissue, which is necessary to the building up of the tubercle capsule.

It seems quite natural that the amount of antituberculin in the tuberculous focus is limited, and can neutralize only a given amount of tuberculin. As stated above no antituberculin can be demonstrated in the blood or non-tuberculous tissues of a tuberculous animal not specifically treated; neither are antibodies produced in the non-tuberculous tissues of a tuberculous animal when the quantity of tuberculin injected is so graduated that no systemic specific reaction is produced. Further experiments demonstrated that when the amount of tuberculin (antigen) injected was greater than could be neutralized by the antibodies in the tuberculous focus, the excess of tuberculin remaining free in the tissues or body fluids stimulated the production of antibodies to tuberculin. Such free antibodies circulating in the blood would neutralize the next dose of the tuberculin and little or none would reach the tuberculous focus, thus preventing the desired focal reaction. If the dose be kept down to such an amount as to cause only a slight focal reaction, and all of each dose neutralized or taken up by the antibodies in the tuberculous tissue, there will be no excess of tuberculin or antigen left free to stimulate extra antibodies. In so-called closed tuberculosis, it is this local reaction that we wish to produce, so that we may get more blood supply to the focus. This intermittent hyperemia stimulates new tissue growth, and the more new tissue formed the more sufficient the encapsulation and the less the danger of the wall breaking down from any cause at a later date. From the above we would conclude that tuberculin, as our second aid to nature, does its work only when properly administered and when proper conditions are present. The "proper conditions" may be considered as those, as nearly as possible, approaching the normal of all non-tuberculous tissues and organs of the body.

The vast number of factors that may intervene and lower the standard from the normal cannot be considered at present. Probably the most important are the pyogenic bacteria, and the bacteria which cause the so-called infectious diseases and their toxins, also the toxins and poisons absorbed from the intestinal canal. In regard to the latter I would refer to the work of Metchnikoff of Paris and Lane of London. In considering the rôle played by pyogenic bacteria in tuberculous tissue, whether the tuberculosis be extensive enough to be recognized by the ordinary means of examination, or whether it be the so-called quiescent tubercle, which we know so many apparently healthy individuals harbor, we must take cognizance of at least two modes by which such bacteria and their toxins have a destructive influence on tuberculous tissue. For many years it has been observed that tuberculosis in the acute form often follows the acute diseases, such as influenza, typhoid fever, pneumonia, whooping cough, measles, etc. It is not now considered that such tuberculosis is implanted in the tissues of the individual during or following the disease, but that that disease had lowered the natural resistance or immunity of the patient, and allowed the lighting up of the latent tuberculosis already present in the system. Either the encapsulation was not sufficient to stand the effects of lowered vitality of tissue, or the microorganisms causing the disease or associated with the causative organisms have attacked and destroyed the fibrous tissue that makes up the tubercle wall, thus liberating the tubercle bacilli into the surrounding tissue. There are many other factors besides acute infectious diseases that have a similar bearing on latent tubercle. Of these one might mention childbearing, prolonged lactation, overwork, lack of nutrition, poor ventilation, overindulgence, etc. These are the so-called forerunners of tuberculosis.

Many of our most advanced students of tuberculosis are now looking forward to the time when we may be able to control the disease: not by treatment after the disease is recognizable by ordinary modes of examination, or by rigid laws regulating the known tuberculous individual, but by controlling these so-called forerunners of tuberculosis. This means, more than anything else, providing better surroundings and living quarters and all the hygienic regulations that naturally are necessary to control such adverse conditions. Most intimately bound up with this propaganda must be a greater control and prevention of infectious diseases. In fact the great good that has come in our present campaign against tuberculosis has been the result of teaching the people how to live. Keeping the natural immunity above par under all conditions prevents the development of tuberculosis and also prevents other infections in a great majority of cases. You will ask what this has to do with the treatment of tuberculosis. The answer is: Given a patient with a recognizable tuberculous infection who has had his disease arrested, no matter what the line of treatment, he is never free from the infecting organism (the tubercle bacillus) and he must be trained as to his future mode of life, so as to prevent, as far as possible, a recurrence. If we can prevent recurrences in such cases, how much broader our usefulness would be if we could prevent latent infections, in apparently healthy subjects, from becoming a recognizable disease. We treat many suspicious cases, and give advice to a great many more. How many of these we have saved from becoming actively tuberculous cannot be estimated. We can only compare those who follow our advice with those who do not, and even then we can only reach very unsatisfactory conclusions. We have strayed somewhat from our subject of specifics in the treatment of tuberculosis, but the whole subject is so complicated that it is impossible to keep to one phase of it.

We now come to the action of pyogenic bacteria on the tubercle wall, as to its destruction, and the

prevention of healing of a tuberculous process when such bacteria are present. A sufficiently encapsulated tubercle, the walls of which are made up of fibrous tissue, without vascular supply, may remain intact during a lifetime. Such "new" tissue, however, has little or no resisting power against the attacks of pyogenic bacteria, and the result must be a more or less rapid destruction of the tubercle wall, and a liberation of the imprisoned bacilli, which means, if the immunity be low from any cause, a spread of the disease.

In open, ulcerating tubercle, the presence of the pyogenic bacteria prevents the formation of new tissue that is absolutely necessary if we expect to get a healing of the diseased process. Here we see the associated action of these bacteria with the tubercle bacillus. Bacteria whose virulence is not sufficient to infect other tissues of the body or cause any special symptoms often play a serious part when implanted on "open" tuberculous tissue, by preventing the necessary healing of the tubercle. The more virulent species and strains not only break down the tubercle wall, but also cause the destruction of vast areas of otherwise healthy tissue. Sir A. E. Wright says: "The suggestion that the question of mixed infection must be considered in every case of phthisis, lupus, tuberculous caries, tuberculous cystitis, and tuberculous ulceration, will in the very nature of things be unacceptable to many clinicians. Be it acceptable or unacceptable, there is no escape from the fact that practically every case of suppurating lupus is complicated by mixed infection. That which holds true of lupus holds true of the majority of tuberculous sinuses." Ravenel says: "It is a sad commentary on our methods of investigation that with so much material at hand we are at sea as to the exact part played by mixed or secondary infections in the history of a case of tuberculosis."

Laboratory and animal experimentations do not give us much information in regard to the part played by pyogenic bacteria in tuberculous lesions. It is impossible to reproduce in experimental animals similar conditions to those found in the human organism. On the other hand, clinical experience and specific therapy directed against such mixed infections have proven conclusively that associated bacteria do play a large part in producing the symptom complex of the disease and have a great bearing on its pathology. It does not seem necessary at present to go into the history of specific or vaccine therapy, or to dwell on the technique of the preparation of such specific vaccines. It is necessary, however, to emphasize the necessity of the use of "specific vaccines" in all these cases. By specific vaccines is here meant autogenous vaccines. There are several reasons for advocating the use of autogenous vaccines. There may be single or multiple mixed infections; there may be two or more strains of the same organism present; it may be possible to single out the exact offending organism, and very often it is only by culture that we are able to discover organisms of associated infection. By the use of autogenous vaccines, any antibodies that may be produced in the body tissues are specific for the offending organism, and a mistake in diagnosis, which we are all apt to make, has no detrimental effect on our patient. The use of "stock vaccines" either polyvalent or mixed, has the disadvantage of forcing an exact bacteriological diagnosis which would often take more time and labor, to say nothing of the expense, than the making of an autogenous vaccine. Also, by the use of polyvalent or mixed stock vaccines, we are using many organisms that are not necessary, and producing antibodies that are not essential for the conditions present. This tends to overwork the immunizing machinery of the tissues; besides the amount of specific vaccine present in such a combination of organisms must of necessity be small and the specific amount of immune bodies be of little or no consequence.

Every one of these cases of mixed infection should have repeated laboratory examinations, not only microscopic, but cultural. By such control work we often see multiple infections dwindle down to single infections, or new infections show up. It is only by such means that we may hope to battle against the mixed infections of open tuberculosis. Even with the greatest care and attention our vaccines often fail in these cases, and there are many reasons for such failures. We may have two or more strains of the same organism present, and one strain may grow rapidly to the detriment of the others, and thus give us a single vaccine to combat a "poly-infection." Again in multiple infections one species may outgrow another more important one. In these cases and conditions our control cultures and new vaccines often give positive results, where otherwise we would meet with failure. In large ulcerating surfaces, as in cavity formation, with much dead tissue, the bacteria may continue to flourish in the dead tissue, as they are absolutely beyond the zone of action of any immune bodies that may be present in the circulating fluids of the body. Vaccines under such conditions may often appear to be failures, and they are, in so far as getting rid of the bacteria in such dead tissues. Yet we may be able to check the advance of such infection into the living tissues, and prevent consequent destruction of tissues we are anxious to preserve. The lack of proper or sufficient drainage is another cause for vaccine failure, as is also extensive congestion of the infected area with its accompanying blocked lymph and blood streams.

So far we have only touched on the general line of procedure in regard to specific treatment of tuberculosis and its associated infections. It must be understood that such specific therapy is not advocated to the exclusion of other known and tried therapeutic measures. All other measures and therapy that are known to have a favorable influence on the disease must be employed to suit the individual case. When we treat a case of tuberculosis we must ever remember it is the individual patient that we must consider and our aim must be to remove or hold in check any and every factor that may have a depressing influence on that particular individual's resistance. There is no rule for specific treatment any more than for any other therapeutic measure. Our knowledge of the pathology of the disease in its myriads of forms, according to the tissues or organ involved, must be one of our guides. We also must take into consideration altered physiological action of organs and glands and tissues as a result of the greater or less degree of toxemia present. The psychology of such patients should never be neglected, as it often has an enormous bearing on the case. Management and supervision are ever necessary for reasons with which you are all familiar. Vaccine or specific therapy can never be considered a cure for tuberculosis. It is but an efficient aid and only covers a small part of the field of treatment. But years of experience have shown that it is not only an aid to bringing about an arrest of the disease, but

specifically treated patients seem to keep their disease arrested for a longer period of time. The latter statement is based on the well-known fact that climate "cured" patients show a large percentage of relapses when they return to a lower altitude, while specifically treated patients show a much smaller percentage of recurrences. A large number of specifically treated patients have left here and are living in all parts of the United States. Some of them have lived in the East or West as long as ten years and they report that they are still enjoying good health. Perhaps the lesson they learned, while under strict supervision, has much to do with continued freedom from active symptoms.

It does not seem advisable to quote statistics and results of treatment, as we are very apt to be over-enthusiastic over our own work, and may not hew close to the line, and really it is only the lapse of years that can give results a standing that are not subject to great criticism. I beg leave, however, to refer back to a report I made of 167 cases treated between July 1, 1901, and December 31, 1904, and reported in the MEDICAL RECORD, August 4, 1906. In short, that report showed 167 cases with, at the above date, 20 deaths, all of them in Class III. At the present time, a review of those cases shows 37 not heard from, all of Classes I and II, and 36 known dead. Of these 36 deaths, 31 belonged to Class III, which leaves 20 of Class III still living and 8 of these seem to have a fairly good arrest of their disease. There were three deaths, so far as known, in Class II, and two deaths in Class I. The degree of arrest of the disease, together with the improved conditions under which most of these patients continued to live, plus Colorado climate, seem to have enabled them to live and enjoy fairly useful lives. How much can be credited to each factor is one of our unanswerable questions at the present time. The above review does point very clearly to the fact that early diagnosis is one of the greatest factors in getting satisfactory results.

BLUNDERS MADE BY NATURE.

THE PART PLAYED BY NATURE IN CAUSING DISEASE OF THE RESPIRATORY TRACT AND CIRCULATION.

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THE RESPIRATORY TRACT.

THE nose is so full of natural defects that it keeps many a specialist fat and prosperous. Numerous people are born with an unusually high palate which pressing up on the nasal septum pushes this to one side, causing interference with breathing and a tendency to chronic catarrh. Spurs of bone and enlarged turbinates, not due to disease or injury, are likewise frequent and cause much trouble. In a previous article[1] the ease with which the virus of meningitis and infantile paralysis can enter the skull through the roof of the nose was pointed out; likewise the danger of the Eustachian tube in carrying infection from the upper air passages to the inner ear and brain. The nose was once thought to be more of an ornament than anything else, but later physiologists discovered that it served to heat the air passing to the lungs and filter it of dust and bacteria. When nature, however, gave the nose the ability to catch all uninvited germs it did not tell the nose what to do with these germs, and thus, while the lungs are kept free from many dangerous bacteria, these swarm in the upper air passages and cause much mischief. It does not make much difference to the bacteria themselves that nature should limit them to one field, since judging by the large number of diseases which they cause in the nose and throat they are perfectly contented where they are. Neither does it make much difference to ourselves, for while the filter action of the upper air passages lessens the frequency of disease in our lungs, the inability of nature to handle the bacteria which collect above predisposes us to acute "colds" of all kinds, hay fever, diphtheria, epidemic meningitis, infantile paralysis, influenza, glanders, leprosy, scarlet fever, mumps, measles, rubella, and other infections we are not so sure about. Surely if we had no nose and all the bacteria passed down into the lower air passages, we could hardly have a choicer variety of diseases than those mentioned. The worst part of it all is that the nose is by no means a perfect filter; although it stops enough bacteria to cause a number of infectious diseases, it still permits enough to pass to be responsible for consumption, pneumonia, whooping-cough, pneumonic plague, pulmonary anthrax, lung abscess, and purulent bronchitis; tuberculosis and pneumonia, as we know, are the two commonest causes of death. The lungs of persons working in a very smoky atmosphere or who handle coal a great deal soon become black with coal dust; this shows that the nose allows plenty of dust to pass as well as germ life. General anesthesia, with the use of ether or chloroform, is sometimes followed by pneumonia, caused by bacteria passing down from the upper air passages. In cases of this kind when an individual is unconscious with his general vitality lowered, the danger of infection reaching the lungs from above is great. Unwilling to trust the upper air passages any longer, certain surgeons have recently administered their ether through a rubber tube passed directly into the wind pipe in order to sidetrack the nose and throat. From results obtained in many patients, besides large numbers of animals, they report much less frequent undesired after effects than by the usual method.[2] There were no pulmonary, bronchial, or laryngeal complications; postoperative vomiting was rare and the general depression common after anesthesia, especially in the aged, was much less frequent; furthermore the danger of vomited material passing into the lungs was done away with. If the nose is a great filter this does not look like it. Although it is better to breathe through the nose than the mouth this is not because the nose is ideal but because the mouth is merely worse.

Passing down from the nasopharynx to the larynx and trachea, the most glaring defect which attracts our attention is that the windpipe is placed in front of the gullet instead of behind it. All food and drink leaving the mouth en route to the gullet must pass over the entrance to the windpipe. The frequency with which food goes into the wrong pipe is illustrated daily, but the greater frequency with which minute particles laden with bacteria find their way into the air-tube passes unnoticed, although a constant menace to our lungs. If the windpipe were behind the gullet with a ridge between the two it would not only be free from the danger of contamination but it would be a great convenience; we could swallow and breathe both at the same time and would not have to be pounded on the back by some misguided friend who in an effort to dislodge a piece of chicken from our

ventilator sends it further down into regions below. Another good reason for desiring our windpipe behind the gullet is because its present position is too exposed to injury from without. We can live with our gullet shut off long enough to have it repaired, but when the five fingers of some disagreeable assassin close on our windpipe our future is sadly marred. The ease and importance of closing the windpipe is known to all animals and every good dog fight comes to a sudden end when the teeth of the victor settle about the trachea of the victim If nature insisted on placing not only the windpipe but numerous other vital structures in the neck with such free exposure it seems fair that we should have at least a number of little ribs around our neck with a plate of bone in front like the chest in order to protect them. The epiglottis which is hinged above the entrance to the larynx is practically a useless structure; it is intended to close like a lid over the larynx and keep food from entering; but the constrictor muscles of the glottis and not the epiglottis close the windpipe during the act of swallowing. The epiglottis merely stands in the way to catch débris like a snag in a river.

In relation to the great importance of its function the windpipe is too narrow—this pertains especially to the upper orifice or glottis. The walls of the glottis are soft and vascular and it does not take much to cause them to swell shut and prevent air from entering. A whiff of ammonia or even a drink of strong whiskey may shut them tight and in our efforts to breathe the muscles of the glottis go into a spasm and close the orifice tighter still; it might be a matter of only a minute or so before the swelling goes down, but a minute seems like a century on such occasions. In children the stream of air enters such a fine passage that it is a wonder they get enough. It takes only a little catarrh to close their glottis and then comes the gasping for breath, the convulsive movements, the cyanosed face, and the distress incident to croup.

Shortness of breath in many respiratory affections becomes a serious symptom. One reason why we do not get enough air in emergencies is because when we take a breath much of the air does not reach the lungs but passes only as far as the upper air passages, the trachea and larger bronchial tubes, where it becomes mixed with the stagnant air which always lingers in these parts. Only a small proportion of the air in the lungs comes in direct at each inspiration from the atmosphere and only a small proportion escapes into the atmosphere at each expiration. After several breaths all the air first breathed reaches the lung chambers but only after it has become much diluted with stale air, while the air last breathed is undergoing the same stages of dilution. Thus, as a matter of fact, the lungs never get a taste of real fresh air. There is, of course, some value in allowing the air time to become warm and less irritating to the lung air sacs but when we are short of breath it only makes matters worse to keep breathing much of the same air over and over. Many functions of the body have a residual power ready for emergency but the respiration when embarrassed can do little or nothing to help itself and must depend upon the enlargement of the heart in order to get its "second wind."

The lungs coming at a later stage of animal history were not made with the same skill and care that was used on other organs. They are really unfinished structures and for this reason a weak point for attracting disease. Thus it depends largely on the lungs of newborn infants whether they are to live or not and it is the lungs of the aged that usually play them false in the end. Diseases of the lungs—tuberculosis and pneumonia—always head the death list and chiefly because nature has not given the lungs the proper protection. Unsatisfied with making our lungs weak in the first place nature is still using them as a target for its practical jokes. Thus there is a natural tendency for the human trunk to become shorter with a corresponding degeneration of the first rib. As Wiederscheim pointed out[3] this produces a tendency to degeneration of the lung apex and helps explain the great frequency with which tuberculosis arises at this point. Some people in their eagerness to blame corsets for all troubles of the chest lose sight of the natural weakness of the lungs. Corsets in fact are often a benefit to young women in preventing tuberculosis, since by compressing the lower part of the lungs they encourage greater respiration in the spaces where tuberculosis usually begins.[4]

THE CIRCULATION.

The heart handles all the blood in the body and is the distributor to which all other organs look for food. Having such absolute control over the body fluid it would be thought should any organ suffer from starvation it would hardly be the heart. This is not the case, however, since the heart will often starve itself while vigorously supplying other organs. It does not do so from any philanthropic motive but because of its natural makeup. In the heart of lower animals like the frog the blood within the heart chambers soaks through and nourishes the muscular walls, but in the human heart the inner lining prevents this; instead there is a separate set of arteries branching off just above the aortic opening. This spot was unwisely chosen by nature for it is here that the first signs of old age and arterial wear often set in with the accompanying overgrowth of fibrous tissue and plates of lime which tend to plug the portals of the heart's food canals. Thus the heart may bathe in blood without a drop to drink, while the unfortunate owner experiences all the agony of angina pectoris.

Nature's failure to complete the construction of the heart at birth is not very rarely the cause of disease. We are all familiar with the "blue baby" in which the fetal aperture between the two sides of the heart remains open after birth. Other congenital defects are less frequent but the possibilities are many. Wonder is often expressed that the heart can work steadily without rest. As a matter of fact the heart ventricles not only rest between beats but while the auricles are active as well; that is to say they are working three-eighths of the time or 9 hours in 24. The auricles only work one-eighth of each heart circle or 3 hours out of 24. Certainly this is not a remarkable showing for a pump.

In a former article[5] the part played by the end arteries in nature's treatment of disease was mentioned. It certainly was a great advantage to us when nature allowed the ends of many of our arteries to freely intercommunicate so that when one branch becomes plugged another can carry on the blood flow. In many of the chief organs nature failed to do this and the result of this abrupt termination of the blood channels causes much mischief. Thus if one of the end arteries in the kidney or heart becomes occluded the area it supplies with blood turns into a lifeless plug. In the brain this is a very serious matter, since each little spot is so

important and a plugged artery spells apoplexy; if the blood supply of the brain was properly arranged, with free arterial anastomosis, apoplexy from occluded vessels would not occur.

Arteries running along the surfaces of bone are often placed by nature in bony archways for greater protection. This is not such a benefit as at first appears since it predisposes the artery to rupture when the bone is broken, much more frequently than if the artery ran free. Thus within the skull the middle meningeal artery runs along a groove in the bone which often overlaps the artery. There is no sense in such protection inside of the skull; in fact it is often the cause of serious hemorrhage. A blow over the side of the head sufficient to crack the bone frequently ruptures the middle meningeal artery only because the artery is fastened to the bone and cannot bend out of the way.

The most conspicuous natural defect responsible for disease of veins is the commonest of varicosities. Varicose veins would be rare or unknown had nature given the veins proper outside support and supplied sufficient valves. We still have valves in the veins which encircle our chest, no longer of any use since we began walking on two legs, but in the lower part of our body nature gave us altogether too few and too weak valves when it allowed us to take the erect posture. Sometimes people have piles, varicocele, and enlarged veins in the legs from no other cause than a natural incompetency of the valves or lack of outside support to the vessels; in other cases it needs only a little straining, prolonged standing, constipation, or the natural congestion of pregnancy to start the trouble. The greater frequency of congestive disorders of the left ovary is, as we know, caused by the common absence of a valve where the left ovarian vein runs into the left renal, thus allowing the blood more readily to back up and stagnate than in the right ovarian vein which is supplied with a terminal valve at its opening in the inferior vena cava. The greater frequency of varicocele of the left testicle has a similar explanation. We also know that thrombophlebitis is much more common in the left thigh because of defective natural architecture. The right common iliac artery crosses the left common iliac vein and compresses it against the spine; the left external iliac vein is then crossed by the left internal iliac artery at a right angle; and finally there is the greater length of the left iliac vessels and the pressure of the loaded sigmoid bowel on the left side which play a part in making the return of venous blood from the thigh more difficult.

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DREAM INTERPRETATION.

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NEW YORK.

THE divination of dreams has ever been a subject of interest and fascination. No nation has existed but, somewhere, among the people, there circulated a code for the interpretation of dreams as portents of the future. And always the one tendency obtained—to regard the dream as a prophetic vision.

In the Bible notable examples appear in the dreams of Joseph and those of the chief butler, the chief baker, and of Pharaoh which the son of Jacob interpreted. Then Saul complains to Samuel that "God is departed from me, and answereth me no more neither by prophets nor by dreams." And again in Jeremiah we read "Hearken not ye . . . to your dreamers which speak unto you, saying 'you shall not serve the King of Babylon.'"

The words of Joseph to Pharaoh, "God hath shewed Pharaoh what he is about to do" point out a distinction which exists between the religious and the ordinary superstitious attitude toward the reading of dreams. The religious view tended only to credit such dreams as appeared to be an expression of the divine will, ignoring those which in no way revealed the spirit in communication with God. Indeed the Israelites were disposed to honor certain men who, like the "houses-of-dreams" of the Zulu, seemed to be chosen means of revelation. The superstitious attitude, on the other hand, has always been disposed to read from every dream an omen of the future, and there has been formulated code upon code to meet every possible demand.

The Greeks recognized this means of augury and construed these phantasmagoria of sleep as warnings and mandates from their gods. Even Plato assigned prophetic value to some. And the significance that the Romans alloted to dreams appears in the story that Calpurnia saw Cæsar fall bleeding across her knees, in her sleep the night before his assassination. And again in the record that the Emperor Marcian dreamed that he saw the bow of Attila rent asunder the night before the death of the "Scourge of God."

That this superstition has not entirely lost its potency is proved by several instances of more modern record. The story is told that Tartini, the famous violinist, retired one night disturbed and distressed because a melody, which he sought, steadily eluded him, although its influence was persistently haunting. In his slumber the devil appeared before him and offered to play the desired theme in exchange for the musician's soul—a compact to which Tartini readily agreed. Mephisto, at least, kept his part of the bargain and next morning Tartini was able to pen *"Il Trillo del Diavolo."* So also came the inspiration of Kubla Khan to Coleridge in his sleep, and it is said that Condurcet solved complex mathematical problems in a state approximating sleep. To-day dream-books repose on many bookshelves where their presence might not be suspected by strangers, and but a short time ago the Society for Psychical Research collected and published a series of dreams supposedly prophetic in character.

Scientific study in recent years has, in the main, determined but little regarding the exposition of dreams. It has been demonstrated that impulses received by various nerves—for instance of sight, hearing, or sensation—during sleep are capable of

setting the dream mechanism in motion. In this manner the slamming of a door becomes the rattle of artillery, the pain of a wound is transformed into the bite of an animal, and an irritation of the skin causes a dream of insects crawling over the body. The heat of a poultice induced a dream of a journey up Mt. Ætna, the sleeper finding the heat intolerable; and a man who had a blister applied to his head suffered, in his sleep, the experience of scalping by Indians. Professor Ladd has asserted that the dots, lines, and splashes which appear in the field of vision when the eyes are closed determine the form and character of the dream.

Dreams occur so often independent of any apparent immediate external impression, however, and pursue such a consistent course that it is appealing to believe that there might be some underlying mental condition—some state perhaps of the subconscious mind—that controls and directs their content. Thus many people find the same dream often repeating itself in but slightly changed form. One doctor, for example, who practises his profession in New York frequently sees himself, in his dreams, happily located in the town of his birth. Another man, a musician of great capability and ambition, repeatedly dreams that he is directing a large orchestra. And a third, a physician who is always in a hurry, is pursued at regular intervals in his sleep by an angry crowd which he has no difficulty in distancing.

Then there are persons who may wake in the middle of a dream, fall asleep again, and resume the thread of the dream where it was broken off. Such experiences surely seem to point to some sort of influence dominating and determining the character and content of the dream, if we could only discover it.

Poets, philosophers, and scientists have vaguely alluded to such influences from time to time. It was Tom Hood who sang:

"Some dreams are nothing else but dreams
Unnatural and full of contradictions;
Yet others of our most romantic schemes,
Are something more than fictions."

Montaigne expressed himself still more positively when he said, "I believe it to be true that dreams are the true interpreters of our inclinations; but there is art required to sort and understand them." And at length a man has appeared who, building on the same idea, seems to show in a scientific way that dreams do express the realization of a desire. Such is the theory of dream interpretation of Professor Siegmund Freud of Vienna.

There is a group of functional nervous disorders—or so-called neuroses—that has lately claimed the interest and study of psychiatrists the world over. It includes such diseases as hysteria and neurasthenia. In an endeavor to analyze these conditions satisfactorily, and to evolve a successful system of treatment, a practically new method has been devised which is designated as psychotherapy. This consists, briefly, of exhausting every possible means of mental analysis of the sufferer, in order to discover the underlying cause of the condition; and then in exerting the last degree of mental control and influence over him in treatment. It was in this analysis of the psychical condition—psychoanalysis—that Freud, after studying his patient in a state of full consciousness, in the hypnotic state, and in allied states termed hypnoidal, still not satisfied, began his study of dreams to discover what they might reveal, and therefrom evolved his theory and method of dream analysis and interpretation.

A dream, according to Freud, expresses the fulfillment of a wish. That simply and fully states his conclusion. The wish is one which we have repressed—displaced, so to speak, into the background of our consciousness whence it declares itself, from time to time, perhaps in conscious thought or more likely in dreams.

Now, on this basis, the reading of dreams would be easy enough if the dream mechanism accomplished its work in a simple manner. But it doesn't, or rather it does so only at times. In such simple instances as where the dreamer sees a deceased relative in his sleep or where the dreamer has indulged in salty food, and falling asleep thirsty, dreams of sparkling fountains or bubbling brooks, the realization of a wish is patent. So, too, does the child at Christmastide dream of a bountiful Santa Claus—never a niggardly one—and of magnificent pyrotechnical displays when Independence Day is near at hand.

Unfortunately, however, dreams do not always explain themselves so plainly. It must be explained that the dream is dual in composition. It is made up of a manifest and of a latent content. The manifest content is the matter we remember from the dream and is composed of ideas, experiences and pictures relating to our waking state, which may be condensed, displaced, and distorted, but which always upon analysis reveal as the latent content of the dream, a fulfilled wish. With this in mind it may be interesting to examine some dreams and attempt such analyses.

The following is a dream that was related by a lady: She was on the deck of a steamer crossing some body of water and had her child with her. Suddenly there was a cry to go forward to see an airship. She hastened there but on the way released the hand of her child which she regained immediately without pausing to glance at him. She saw the airship and then found that she held a strange child's hand. She hurried back to where they had been momentarily separated but found no trace of the boy, and was convinced that he had gone through the rail into the water. Next she found herself wandering through strange streets on her way to her mother to relate the occurrence. Suddenly she saw a tiger crouching in a doorway, which at once pursued her. In her displeasure she grasped its tail, wrenched it off, and threw it as far as she could. The tiger promptly abandoned her to regain its tail, and meeting a negro immediately after the reclamation of its appendage proceeded in company with its new victim, as it seemed to her, to its lair. Upon investigation it appeared that one day shortly before the dream occurred the lady had been equally undecided between taking her boy to the seaside for a bath and going to an aviation meet then in progress near the city, but largely subdued her desire because she anticipated the receipt of a disagreeable message which was finally delivered by an impertinent colored boy. This set both plans at nought. Her dream plainly enough, in the light of these facts, shows the accomplishment of both the wish to give the child a bath and to see the airships. And perhaps reveals something of her feelings toward the impolite messenger.

To illustrate a slightly greater difficulty in analysis which may be encountered, a dream may be quoted which was related to a German spe-

cialist who sought for a clue to the cause of a nervous disturbance from which his patient suffered.

This is the dream: "I saw a procession—not a funeral. I did not see my husband about. In the crowd I recognized a minister whom I know." Now it may be assumed, says the doctor, that the procession was a funeral because there are no negations in dreams and the fact that the idea of a funeral occurred to her characterizes the procession which she viewed. Likewise she noticed that her husband was not in the crowd merely because he was present but lay in the hearse. Upon questioning his patient closely she admitted that she had lived very unhappily with her husband and had longed to be free from him. In this confession the psychiatrist discovered the hidden factor which he sought. The further statement, in the dream, that she noticed a minister whom she knew, gained significance when she acknowledged that since the minister had lost his wife recently she had considered that he would make a suitable husband for her after she had obtained her freedom.

Another type of dream exhibits a peculiar turn, inasmuch as we are confronted by an idea which does not seem at all a likely one to be the subject of a wish. Yet as soon as we direct the dreamer's thoughts inward the mystery is promptly dispelled. For instance: a mother dreamed that she saw her child injured in an accident, the abdomen indeed, being ripped open. When it is disclosed that the child has suffered repeated severe attacks of appendicitis and that the mother has long harbored a wish which she has not yet been strong enough to form into a resolution to have the boy operated upon, we see the tendency of the dream to express a wish as fulfilled. And happily this exposure of her inclination hastened her consent to the proper treatment.

Another interesting example of the same kind is recorded by Doctor A. A. Brill of a mother who dreamed that she saw her child lying dead in a casket. She contended, naturally, that such a dream not only could not support such a theory as Freud's, but rather tended to controvert it. Upon interrogation, however, the physician elicited that she, a widow with two children, had recently remarried. Her present husband, who had been a widower, also brought two children to the union. Now this woman had often thought that a child would strengthen the bond of this new marital venture, but she had at the same time felt that the family was already too large. Thus the dream fulfilled her desire in showing her the family reduced in number.

Such dreams as have been related scarcely show the extreme degree of involvement that a dream may present. Often the main idea emanating from the wish appears of subsidiary importance to a minor detail which is correspondingly exaggerated as the dream is recalled. Besides there may occur such a condensation of words, pictures, or events that the main idea is not readily discernible. Indeed the dream has been likened to a closely woven material which reveals nothing of its texture until we apply ourselves to unraveling its mesh. Let it be remembered, also, that there is no intellectual process directing the dream and whatever of reason appears to be present in it emanates from the influence of the submerged wish-thought which produces the dream and which works alone with the ideas and memory-pictures of our waking state.

Perhaps the following dream will illustrate this. A young girl dreamed that she was aboard a train. Suddenly there was a commotion and excitement and she realized that a collision had occurred. Now she lay on the floor in what appeared to be an iron foundry and she heard a man bending over her say, "She's all right—her cheeks are red." Next she found herself skating over the ice followed by a dog in whose features she seemed to recognize an admirer. The main idea in this dream is expressed in the words "she is all right—her cheeks are red," for the girl was a sufferer from impoverished blood and her physician in prescribing iron pills had remarked that they would build her up and improve her color. Of course this could only be determined by enlisting the girl's aid in deciphering the dream. Condensation is shown in the transformation of the train into an iron foundry, which like all such changes in dreams occasions no surprise. It is seen further in the episode of the dog as the statement of the dreamer proves. The particular suitor whom she recognized had been referred to at one time, by a mutual friend, as "faithful as a dog," and appears here as a composite with her dog. The idea of a collision probably entered the dream through the fact that her thoughts during the day had dwelt upon the details of an explosion which had occurred, in which a street car had been derailed and the passengers injured.

What, in the light of the method of dream interpretation outlined, is to be said of the various celebrated dreams that have come down to us? In general the prophetic value that has always been ascribed to dreams can be explained in this manner: a wish has determined the dream, and when other processes that the same desire has set in motion finally accomplish the end sought, the dream is recalled with added significance.

As to the dream of Joseph "we were binding sheaves in the field, and, lo, my sheaf arose, and also stood upright; and behold, your sheaves stood round about, and made obeisance to my sheaf," which was supposed to reveal the brothers bowing to Joseph's superior power, it must be said that Joseph made a very creditable interpretation quite in accord with the theory under consideration. And we may view Joseph much as other rulers who have coveted power and dwelt upon its attainment in the depths of their mind long before the realization. Nor is greater difficulty encountered in the dreams of the chief baker and the chief butler which plainly reveal their desire once more to serve their sovereign. But to solve the dreams of Pharaoh, as recorded, would necessitate an interview with the Egyptian ruler which clearly is not feasible. Calpurnia's dream too, presents a problem, but note how Shakespeare meets the difficulty in accordance with our theory:

"It was a vision fair and fortunate:
Your statue spouting blood in many pipes,
In which so many smiling Romans bath'd,
Signifies that from you great Rome shall suck
Reviving blood: and that great men shall press
For tinctures, stains, relics, and cognizance.
This by Calpurnia's dream is signified."

65 West One-hundred and Twenty-sixth Street.

HISTORY OF A BRONCHOLITH, BRONCHIAL CALCULUS, OR LUNG STONE.*

By WALTER F. CHAPPELL, M.D.,

NEW YORK.

Laryngologists and rhinologists are frequently consulted for throat coughs and some forms of asthma; for this reason I am wandering into the bronchial region for an opportunity of presenting this unusual case and of showing that all causes of asthma are not centered in the nose, nor all throat coughs in the larynx.

Mrs. B., age 52, had consulted me off and on for a number of years for slight sore throats, but nothing of a serious nature. On October 10 she was seized with a sudden attack of wheezing, which did not bother her much until the 14th, when it became more severe and was accompanied by spasmodic attacks of coughing, lasting an hour at a time, and by intense tickling in her throat, with little expectoration. Considerable exhaustion followed these attacks.

October 16 my advice was sought. I elicited the history just described and that the tickling was below the larynx and the wheezing in the upper part of the chest in front and behind. No new local conditions in the throat or upper air tract could be found, and I thought the attacks described were due to grapes, which the patient had been eating in considerable quantities. A great deal of mucus was raised during the night of October 19, and considerable relief was experienced on the 20th and 21st, although the wheezing continued. On the 22d a severe fit of coughing occurred and a small calcareous mass was raised. The intense tickling was relieved at once, but the wheezing continued. October 25, coughed very hard all night and was much exhausted and felt strangely nervous next morning, when suddenly she was seized with a great coughing spell and expectorated a large calcareous piece. Immediately all wheezing stopped and her breathing became absolutely free and as normal as it had ever been; and although she was much exhausted, a great feeling of comfort and repose followed. No blood or mucus accompanied the expectoration of the broncholith and no unusual chest conditions could be heard, and her ordinary state of health was resumed. On February 13, 1913, she coughed up, with slight effort, another small calcareous piece, which was brought to me on April 4, with the statement that for a week past there had been slight coughing spells, with expectoration of a little mucous and dark spots like blood, chiefly in the morning. A microscopic examination of this sputum showed that it consisted of pus and mucus, with some blood cells and superficial epithelium. Staining showed numerous pyogenic cocci and nonpathogenic organisms, but tubercle bacilli could not be found.

The first calculus expectorated did not come to my observation, as Mrs. B. was in the country. That of October 16, and February 13, are both in my possession. The former was the larger and in one piece when expelled. The piece of February 13 was quite small, and when placed by the side of the larger one they joined together and formed a round piece as large as a nickel, slightly concave on one side and convex on the other, the general surface being rough and ragged. Chemically it consists of phosphate of lime, as reported by Dr. F. W. Wersebe, of Washington, Conn., who I understand examined it.

An *x*-ray picture was taken of Mrs. B.'s chest by Dr. E. W. Caldwell, and is the only one so examined as far as I can learn. Dr. Caldwell's report is as follows: "I do not find in the *x*-ray plates of Mrs. B. any direct evidence of broncholith. There are numerous shadows of small calcareous bodies, but most of these are undoubtedly due to calcified plates in the costal cartilages and to calcified bronchial glands. The lung shadows on both sides are much stronger than normal and suggest some pulmonary disease. The shadow of the diaphragm on the right side is somewhat irregular and makes me suspect that there may be adhesions at the base of the right lung. There is a faint suggestion of a cavity in the right lung, but we cannot determine this with certainty."

Mrs. B.'s early life history, as told in her own words, relates many medical troubles of various kinds, but whether any of them throw light on the present condition of her chest I must leave to your judgment. "When about four weeks old the nurse drugged me with Winslow's soothing syrup, and it is a wonder that I live to tell the tale, as the next child she nursed died from an overdose of the same kind of syrup. When twelve years of age I developed a deep, hollow cough which was supposed to come rather from my stomach than the lungs. This was followed soon after by a severe and prolonged attack of indigestion, accompanied by distressed breathing and pain in the chest, chiefly the left side, and supposed to be connected with some heart affection. Father died about this time from enlargement of the heart. I enjoyed good health from about the age of fourteen until I was twenty-two, when I had an attack of whooping cough, during the sixth and seventh months of pregnancy with my first child. For several years after I had a great many attacks of neuralgia in my head, and at the age of thirty I had severe intercostal neuralgia, pelvic cellulitis, and a child was born at the seventh month. For the following nine years my health was very good, but during the tenth year I had an attack of nervous prostration and took lessons from an expert in diaphragm breathing in connection with general exercises. Since then my condition has been much stronger and general health very satisfactory until the attack of asthma which resulted in the expectoration of the calcareous masses I have given you."

The history described by the patient does not to my mind give any definite clue to her having suffered from the disease which we would naturally believe must have preceded the formation of the numerous calcareous deposits which we know Mrs. B. has in her chest and some of which she has expectorated. The hollow cough and chest symptoms described during her twelfth and thirteenth years may have been due to an infection of the bronchial glands, which was arrested, became caseous and later calcified, or the same thing may have happened after whooping cough.

Textbooks on general medicine and pathology just mention the possibility and the presence of bronchial calculi. A careful examination of medical literature reveals few reports of such cases in the English language, but French and German books report more cases and speak more fully of the cause and result of this condition. In conversation with my associates I find some who have seen such cases, but never reported them, and it seems not unlikely that these cases are more numerous than we might suppose. Dr. Walter B. James has given me the following story of an unreported case which occurred in his practice.

Mrs. A., age 54. Past history: Weakly at puberty and it was feared she had consumption, but no diagnosis of that nature was made. Later had nervous prostration and a severe bronchopneumonia. Eighteen months ago a severe cough began, worse at night and after talking. Some hoarseness off and on, also fever at intervals, at times as high as 101° F. Sputum was blood tinged after severe paroxysms, but no tubercle bacilli were found, although five or six examinations were made.

Present condition: Appearance healthy, pulse and heart

*Read before the American Laryngological Association in Washington, May, 1913.

normal; prolonged expiration over both lungs, especially the left. Always feels somewhat oppressed and often puts hand to chest. Cough pretty constant, at times severe paroxysms, face diffused, loses breath, especially when talking or laughing. Two days ago while reading severe paroxysmal coughing spells began, accompanied by strangling sensation and expectoration of some blood. After an especially severe coughing spell, which lasted about an hour, she spat up a solid mass, which proved to be a broncholith. This was of a yellowish white color, very hard, ragged, and irregular, with sharp spicules, and measured one-fourth by one-eighth by three thirty-seconds inches. A bloody fluid, with a little grayish mucus, accompanied the broncholith, but no tubercle bacilli were present.

The history of this patient was taken ten years ago and a recent letter to Dr. James states that the cough and bronchial condition, for which he was consulted, ceased with the expulsion of the stone.

7 East Fifty-fifth Street.

POSITIVE WASSERMANN REACTION IN APPARENTLY NON-SYPHILITIC CASES.

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PHYSICIAN TO THE PENNSYLVANIA HOSPITAL, ASSISTANT PHYSICIAN TO THE PHILADELPHIA ORTHOPÆDIC HOSPITAL AND INFIRMARY FOR NERVOUS DISEASES.

The majority of the cases herewith presented have been seen in the clinic of Dr. Morris J. Lewis at the Philadelphia Orthopædic Hospital and Infirmary for nervous diseases. A few of them are office patients. The patients at the Orthopædic Hospital are drawn from a much better class than is usually seen in dispensaries; the majority of them are referred to the institution by their physicians, so that the cases cited in this small series may be classed on an average as belonging to the usual run of office patients. The object of presenting them is to emphasize the value of the Wassermann test, if not as a routine measure, at least as a necessary procedure in those cases where the clinical diagnosis is in doubt or is not substantiated by the results of treatment. The series is brief, but it seems sufficient to show that the Wassermann test should be applied more frequently by the general practitioner in his office work than is the usual custom, just as a differential blood count is an aid too often neglected under similar circumstances. The ubiquity of luetic infection and its protean manifestations are so well understood that its detection in any patient is not wont to cause great surprise, but the results of the examination of the blood in a number of the individuals in this series came somewhat as a shock. As an example, the case of Henoch's purpura, a person of, as far as can be humanly said, blameless life, belonging to a religious order, with none of the usual symptoms of lues, gives both positive Wassermann and Noguchi reactions. The case diagnosed as incipient tuberculosis, occurring in a young man long known to the writer, who with no possible reason for concealment, absolutely proclaimed a life of continence and who never to his knowledge had any signs of syphilis, not only gives a positive Wassermann and Noguchi, but resumes his robust health after two injections of salvarsan. We are informed by those whom we regard as authorities on the subject, that a positive Wassermann, with a positive Noguchi control reaction, means syphilis in the subject examined. All, or almost all of these cases have therefore had the disease. A source of error might arise from faulty technique by an inexperienced or careless laboratory worker. The examinations made here were performed by an acknowledged expert with the greatest care and conscientiousness.

Case I.—*Incipient pulmonary tuberculosis.* Male, 28 years. Family history good. Absolutely denies exposure. Presented physical signs beginning lesion right apex with characteristic symptoms. Sent to mountains, returned within six months in splendid condition. Shortly developed swelling, pain and tenderness end third rib on left. Wassermann positive. (Given salvarsan, three injections.)

Case II.—*Tinnitus aurium.* Male, 25 years; always healthy. Family history good. Circumsized eight years previously for slight erosion of prepuce; no other treatment, no symptoms after. For two years has had ringing in right ear with hypercute heaving. Wassermann positive.

Case III.—*Henoch's purpura.* Female, 50 years. Remarkably interesting case. Supposed to have had phthisis some twenty years ago. Previous to the time of present diagnosis had varied medical experience. Again diagnosed as tuberculosis when she had slight hemorrhage three years ago, later as a duodenal ulcer on account of attacks of abdominal pain with intestinal hemorrhage. Had sacroiliac disease and wears large steel brace. Is profoundly neurasthenic in manner. Has crops of purpuric spots varying in size and number, some as large as a silver dollar, has counted as many as seventeen at an attack. Vision reduced, at present tubular, has no visible ocular lesion except vitreous haze. Gives positive Wassermann and Noguchi reactions. Brother's blood negative to both tests.

Case IV.—*Epilepsy.* Three years. No other evidence of lues. Epileptic seizure one per month. Wassermann and Noguchi positive.

Case V.—*Epilepsy.* Eight years. No other evidence of lues. Epileptic seizure one in three months. Wassermann and Noguchi positive.

Case VI.—*Epilepsy.* Four years. No other evidence of lues. Epileptic seizure one in three months. Wassermann and Noguchi positive.

Case VII.—*Epilepsy.* Thirteen years. No other evidence of lues. Epileptic seizure averaging six per day. Wassermann and Noguchi positive.

Case VIII.—*Epilepsy.* Twenty-nine years. Suspicions of congenital lues. Epileptic seizure from 2 to 8 per week. Wassermann and Noguchi positive.

Case IX.—*Epilepsy.* Thirty-four years. Several attacks daily. Wassermann and Noguchi positive.

Case X.—*Epilepsy.* Four years. Suspicions of congenital lues. Epileptic seizures 2 to 4 per day. Wassermann and Noguchi positive.

Case XI.—*Epilepsy.* Thirty-seven years. Confessed luetic infection. No other evidence of syphilis. Epileptic seizure one per day. Wassermann and Noguchi positive.

Case XII.—*Epilepsy.* Ten years. No history of lues. Mother's blood gives positive Wassermann. Epileptic seizure seven per day. Wassermann and Noguchi positive.

Case XIII.—*Epilepsy.* Forty-one years. No history of lues and no evidence of the disease. For past eight years has had average one attack per month. Wassermann and Noguchi positive.

Case XIV.—*Epilepsy.* Twenty-four years. No other evidence of syphilis. Past five years has had about one attack in three months. Wassermann and Noguchi positive.

Case XV.—*Epilepsy.* Nineteen years. No other evidence of syphilis. Past seventeen years has had from 3 to 4 attacks per year. Wassermann and Noguchi positive.

Case XVI.—*Epilepsy.* Thirty-eight years. No other evidence of syphilis. Past three years from 2 to 3 attacks per month. Wassermann and Noguchi positive.

Case XVII.—*Epilepsy.* Forty-nine years. No other evidence of syphilis. Past three years about four attacks per year. Wassermann and Noguchi positive.

Case XVIII.—*Neurasthenia.* Male 25 years. General nervousness, indigestion, feels weak. Physical examination negative. Denies syphilis. Wife had four miscarriages. Wassermann and Noguchi positive.

Case XIX.—*Neurasthenia.* Male 20 years. Nervousness, irritability, easily tired. No history syphilis. Wassermann and Noguchi positive.

Case XX.—*Neurasthenia menopause.* Female 3 year. Headaches, flushes, cessation of menstruation. Wassermann and Noguchi positive.

Case XXI.—*Hyperthyroidism.* Female 26 years. General nervousness, enlarged thyroid. Wassermann and Noguchi positive.

Case XXII.—*Hysteria.* Female 38 years. Headaches, crying spells, hears voices, insomnia. Wassermann and Noguchi positive.

Case XXIII.—*Headache.* Female 37 years. Had two miscarriages. For two years has had frontal and temporal headaches, especially on rising in the morning, otherwise well. Wassermann and Noguchi positive.

Case XXIV.—*Nephritis.* Male 41 years. Insomnia, depression, edema of feet, weakness; except for insomnia and edema, physical examination negative. Wassermann and Noguchi positive.

Case XXV.—*Neurasthenia.* Male 50 years. Nervousness, depression, insomnia, indigestion, no history of syphilis. Wassermann and Noguchi positive.

Case XXVI.—*Neuritis.* Male 48 years. No history of syphilis. Only complaint is pain in feet, especially in soles, at times slight swelling, examination negative. Wassermann and Noguchi positive.

Case XXVII.—*Sciatica.* Male 34 years. History suspicious of syphilis. For eighteen months has had pain in right sciatic region, not constant, otherwise well. Wassermann and Noguchi positive.

Case XXVIII.—*Arteriosclerosis; arthritis.* Female 50 years. No history of syphilis. Worries over trifles, nervous and timid, complains of trembling of lower jaw. Slight swelling of finger joints. Some arteriosclerosis. Wassermann and Noguchi positive.

Case XXIX.—Male 46 years. No history of syphilis. Past year pain in lower lumbar region, cramps in muscles of legs, this at times interferes with walking; weakness and nervousness, at times has vomiting attacks. General physical examination negative. Wassermann and Noguchi positive.

Case XXX.—*Pott's disease.* Male 29 years. No history of syphilis. For six months has worried over trifles, is depressed, slight stiffness and pain in both shoulders, clavicles, and lateral spinal curvature. Wearing plaster jacket for spinal condition. Wassermann and Noguchi positive.

Case XXXI.—*Habit spasm.* Female 27 years. Has had two miscarriages. Past four months has had twitching of head and left arm, this increased by voluntary movements. Physical examination negative. Wassermann and Noguchi positive.

Case XXXII.—*Birthpalsy.* Male 14 months. Contraction and spasticity of fingers of right hand. No history of syphilis in family. Wassermann and Noguchi positive.

Case XXXIII.—Male 8 years. Mentally defective, twitching of head. Family history not obtainable. Wassermann and Noguchi positive.

Case XXXIV.—*Retarded development.* Male 2 years. No history suggesting syphilis in family. Delivery normal, breast fed, no convulsions, no illness, can stand but not walk, does not talk or seem to understand speech or signs. No teeth, otherwise physical examination negative. Wassermann and Noguchi positive.

Case XXXV.—*Congenital lues.* Male 6 years. Mother had two miscarriages. Convulsions at five years of age, is highly nervous, excitable and restless, no physical signs suggesting syphilis. Wassermann and Noguchi positive.

Case XXXVI.—*Little's disease.* Female 2 months. Mother's blood gives positive Wassermann.

Case XXXVII.—*Little's disease.* Female 4 years. Positive Wassermann and Noguchi.

Case XXXVIII.—*Retarded development.* Female 11 months. Positive Wassermann and Noguchi.

Case XXXIX.—*Retarded development.* Male 11 years. Positive Wassermann and Noguchi.

Case XL.—*Retarded development.* Male 9 years. Positive Wassermann and Noguchi.

Case XLI.—*Chorea.* Male 10 years. Wassermann and Noguchi positive.

Case XLII.—*Chorea.* Female 8 years. Mother had four miscarriages. Wassermann and Noguchi positive.

Case XLIII.—Atrophy of right scapular muscles with wing-like scapular. Wassermann and Noguchi positive.

There has obviously been no attempt in reporting the above cases to draw conclusions as to the percentage incidence of syphilis in the diseases mentioned, but rather to draw attention to the existence of the disease under various symptomatic disguises. As to whether syphilis was the fons et origo mali in these cases is a question impossible of definite answer. All of them have been given antisyphilitic treatment; some showed marked improvement, but even if in the others the presence of syphilis was not been directly responsible for the symptoms, still the discovery of the existence of that disease in any patient must be of great importance.

TREATMENT AND PATHOLOGY OF APPENDICITIS.

By BENJAMIN S. PURSE, M.D.,

SAVANNAH, GA

Of the conditions which cause appendicitis, the overloaded colon and cecum are the exciting factors. The anatomy of these organs show us how this result is produced. The cecum, the large blind pouch, or cul-de-sac, extends downwards from the commencement of the large intestine and is the most dilated portion of that organ. It has two openings; one into the ileum and the other into the appendix. That into the ileum is always protected by a perfect valve. The opening into the appendix is usually patent and free from any valvular obstructions. At times, however, a fold of mucous membrane presents a valvular formation at this point—more or less rudimentary in character. Still more rarely, it is sufficiently developed to become under certain conditions a serious impediment. The open or normal condition when devoid of valvular formation is its safeguard, because its contractile fibers are thus enabled to reject any offending matter which has been crowded into it.

Appendicitis cannot occur unless this resisting power of the appendix has been overcome by repeated attacks of constipation in an appendix in which the valvular formation exists. Dilatation of the lumen of the organ occurs and we have abortive attacks which are readily relieved by purgatives. These attacks can continue through long periods of years without danger to the patient if simple and conservative medical treatment is resorted to. In cases where this treatment is neglected and the anatomical development is as above described, the retained organic contents of the dilated appendix decomposing cause inflammation of the mucous lining and adhesion of the outlet, giving us a typical abscess cavity. I say organic because numerous post mortems prove that inorganic substances seldom, if ever, excite inflammation in this organ. The ascending colon is covered on its anterior surface and sides by folds of peritoneum which more or less completely envelop it.

The appendix is retained in its position posteriorly to the colon by a fold of peritoneum which sometimes forms a mesentery for it. This arrangement of the peritoneal folds forms the second line of defence against the entrance of any intestinal matter through the ruptured appendiceal abscess into the general peritoneal cavity. The contiguity of the inflamed surfaces of the appendix with these peritoneal surfaces produces more or less complete adhesion which retards and slows the escape of the appendiceal contents giving time for the vis medicatrix naturæ by a rapid secretion of lymph to completely sequestrate and wall this off from the general peritoneal cavity, forming a new cavity, which through its connection with the intestinal canal becomes (temporarily) an integral part of that canal, taking the place of the appendix. The walls of this cavity, like all of nature's plastic new formations, are made unusually thick and strong by an over-deposition of lymph, the result of which is that

a secondary rupture is practically an impossibility.

Appendicitis can be divided into four stages: The first stage, during which most of the cases are seen, terminates favorably even without other treatment than that given by the household. This stage ought to be called "appendiceal colic," because the pain which is present is caused by the distention of the appendiceal opening either by gas or by the solid matter which has been forced into it by the weight of the accumulated contents of the colon and the cecum. In the second stage a more serious condition is found. This is the presence, usually, of the more or less developed valvular obstruction. It renders the unaided efforts of nature inefficient to remove or expel the solid contents. Unless prompt treatment is administered, the disease rapidly develops into the third stage. In the third stage the retained contents decomposing produce inflammation of the walls of the appendix. The inflamed walls become adherent, close the outlet and a typical abscess cavity is formed. The fourth stage is reached when the abscessed appendix ruptures into the peritoneal folds which envelop this organ.

In considering the treatment it is first necessary to eliminate the cause. This is the accumulated and hardened contents of the colon and cecum which block up the appendiceal opening. The object of the treatment by emptying the overloaded intestine is to remove the pressure from the appendiceal opening of the cecum and thereby facilitate the reflow of its contents back into its natural channel

All forces, be they within or without the human economy operate in the direction of the least resistance. Hence when we remove the impaction from within the cecum the least resistance will be found at that point. When to this we supplement the compression from the weight of the abdominal organs we obtain a *vis a tergo* of sufficient power to reopen the outlet which had been so recently closed with lymph that it had not had time to become sufficiently organized to offer an effectual resistance to this pressure which reopening this inlet forces the contents of the abscess back into the cecum. If the treatment is not prompt enough to prevent this catastrophe the abscessed appendix ruptures into the peritoneal folds. These folds through the adhesive inflammation which had been induced were thus prepared to promptly sequestrate and wall off this outflow from the general peritoneal cavity—forming a supplementary addendum to the cecum in which the exuded matters are retained until the system recovers from the severe shock. The new formed cavity gradually contracting forces its contents back through this organized channel into the cecum until this new formation has become obliterated and seals up the ruptured outlet by its condensed wall of thickened and organized lymph.

The treatment is simple and usually successful in all stages of the disease, viz., empty the intestinal tract by purgatives; feed the patient with such food as will leave the least residue, and make constant application of hot poultices backed up with hot-water bags. Over twenty-five years' clinical experience with this treatment with its uniformly successful results ought to be accepted as a verification of the pathological anatomy upon which this treatment is based.

THE ETIOLOGY OF "BLACKWATER FEVER."

By GEO. RICHTER, M.D.,

ST. LOUIS, MO.

PROFESSOR OF MEDICINE, AMERICAN MEDICAL COLLEGE (NATIONAL UNIVERSITY OF ARTS AND SCIENCES), VISITING PHYSICIAN, CITY HOSPITAL, ST. LOUIS.

The following theory, based on many well-known facts, would seem to explain the diverse symptoms of this peculiar disease. Material derived from the decomposition of "aged" erythrocytes (probably destroyed in the spleen) is converted in the liver into bile pigments. These are changed by bacterial action in the intestines into urobilin (stercobilin), which is in part reabsorbed and through the portal circulation enters the liver, to be again transformed into bile pigments. The source of bile pigments is therefore hemoglobin derived from the circulating blood, and urobilin derived from the portal circulation.

When either source supplies an excess of material, too much for the liver cells to take care of, or when the liver cells are impaired by some pathological process, and do not functionate properly, then urobilin (from the portal vein) will pass through the capillaries of the liver unchanged, enter into general circulation and be excreted by the kidneys: the result is urobilinuria. Such conditions will obtain in internal hemorrhages (absorption of blood), in acute infectious fevers (destruction of blood), in intense intestinal putrefaction (increased absorption of stercobilin) and in parenchymatous disease of the liver (cirrhosis, etc., even in its initial stages).

The condition is always that bile enters the intestinal canal, that there is no obstruction of the bile duct, or no urobilin can form in the intestinal canal. Instead of urobilin we find then bile pigments in the urine. Parenchymatous liver disease may easily remain occult until increased work is thrown on the liver.

In malaria erythrocytes are destroyed by the plasmodia and as long as plasmodia are present we find always a urobilinuria, even when plasmodia cannot be demonstrated in the peripheral blood. Other causes for urobilinuria being excluded in a given case, the presence of urobilin proves the presence of plasmodia (in the spleen) also when not undergoing their usual cycles of generation (in chronic malaria). Only the continuous absence of urobilin in a patient's urine after malaria proves that a cure has been obtained.

A coincidence of insufficiency of the liver, perhaps heretofore occult and also due to malarial infection, of malarial blood and eventually of the toxic effect of quinine by its inhibitory effect upon enzymes (bile forming), will have the effect that not only portal urobilin is not converted into the pigments, but that the free hemoglobin in the plasma (derived from destroyed red corpuscles) is not transformed in the liver, but arrives in the kidneys, giving rise to hemoglobinuria, that is to say, blackwater fever.

A case under observation now in the city hospital, convalescing from tropical malaria, exhibits not only an enormous amount of urobilin in the urine, but also, after precipitating the urobilin, a very large amount of hemoglobin, though the urine when passed had a normal color. No plasmodia have been found in the circulating blood. The liver and spleen much enlarged and very tender on pressure.

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MODERN STUDIES ON SMALLPOX AND VACCINATION.

At no time more than the present has there been greater need of an authoritative and convincing statement as to the value of vaccination in preventing and in mitigating the attacks of smallpox. This need is all the more urgent in view of the fact that there is still a large body of people who object to vaccination on various grounds. Moreover the rare occurrence of smallpox at the present day has created a false sense of security in those who will not recognize danger until it is imminent. In this country practically all school children are vaccinated, but unfortunately there are no laws compelling revaccination at stated periods, as in Germany, where owing to strict governmental supervision in this respect, smallpox has been abolished. In fact, the adult population of the United States, although in most instances vaccinated in infancy and early childhood, are, through the loss of immunity, practically unvaccinated. It is the duty of sanitarians in their campaign of education, and of physicians in general, to emphasize the importance of vaccination and particularly of revaccination—for no one knows when the land will again be visited by the fell scourge of smallpox.

A splendid document on this subject, and real because it is based on cold facts and figures, is presented in the studies in smallpox and vaccination by William Hanna.* The City and Port of Liverpool with their ever changing tides of population furnished ample opportunity for the investigation of this subject. The cases of smallpox admitted to the hospitals during the past ten years furnished the basis of this study. The majority of these cases occurred during 1902 and 1903 when there were 2,280 cases with 161 deaths. It is painful to note that the disease was introduced into the English seaport by cattlemen from Boston. The author made a statistical study of 1,163 cases of smallpox of which 943 had been vaccinated in infancy and 220 had been unvaccinated. Among the latter the mortality ranged from 25 to 40 per cent., while among the former the mortality was only 3 per cent. In the unvaccinated the mortality is greatest at the extremes of life, that is, in children under 10 years of age and in old people, being as high as 50 per cent. It is important to note that no cases of smallpox occurred in vaccinated children under three years of age; that no deaths were recorded in vaccinated individuals under 20 years of age, and that the protective power of vaccination gradually diminished with advancing age. The author's observations also bore out the well-known fact that in cases in which vaccination does not succeed in preventing the development of the disease, it nevertheless renders its course exceedingly mild as regards both the constitutional symptoms and the eruption.

There is generally prevailing among physicians at the present day the opinion that the site of the vaccination need not be a large one in order to confer the fullest measure of protection against smallpox. In fact the smallest possible scarification is advised. The enormous and multiple scars of former days, and even at the present time in the case of immigrants to this country, are usually looked upon as unnecessary and unsightly sacrifices to an obsolete idea that the larger the scar the greater the protection. Hanna made a special investigation of this point and examined 943 cases of smallpox with the view of determining whether there is any definite relationship between the severity of the disease and the size of the scar area. The conclusion at which the author arrived as a result of this investigation was that after all the idea which was thought to be obsolete is the correct one, namely, that the larger the area of the scar, the milder is the character of the disease.

What is the value of vaccination if performed after a person has been infected with smallpox? Definite answers to this question are furnished by Hanna. If the infected individual is vaccinated during the period of incubation, the vaccination will "take," but if he is vaccinated at any time after the invasion of the disease the vaccination will not "take." If the operation is performed within three days after infection the individual is protected against the subsequent outbreak of the disease, but this protection may not be absolute in the case of persons vaccinated for the first time, although in this instance the resulting disease is quite mild. Even if performed after the initial three days following infection, at any time up to and following the onset of the symptoms of smallpox, vaccination is found to be of service in mitigating the severity of the disease. Hence vaccination is a measure of distinct therapeutic no less than of prophylactic value.

Most of the above facts have already been recognized but never have they been so well established by searching scientific inquiry as in the study conducted by Hanna. His book deserves careful reading by all those, and unfortunately they are many, whose faith in the efficacy of vaccination has weakened in the presence of fanatic opposition. The numerous photographs portraying smallpox in the unvaccinated and smallpox as modified by previous or coincident vaccination furnish an argument that is unassailable.

*Studies in Small Pox and Vaccination," by Wilham Hanna, M.A., M.D., D.P.H.; Assistant Medical Officer for the Port of Liverpool; Visiting Physician to the Port Isolation Hospital. Price $3.00 net. New York: William Wood & Co., 1913.

ORTHOCRASIA, DYSCRASIA, IDIOSYNCRASIA, EUCRASIA, AND ANAPHYLAXIS.

Modern doctrines of pathology have their roots firmly embedded in ancient beliefs and teachings. The humoral conceptions of early medicine was not entirely abandoned when cellular pathology reached its ascendant. Like the revival of old fashions there is a tendency nowadays to rehabilitate the older diatheses. There is an increasing recognition of the importance of individual peculiarities in the genesis of disease. With almost prophetic vision the fathers of medicine perceived the goal of modern scientific research. If they drew largely upon their imagination in explaining the phenomena of disease, they created nevertheless phantasms which recent experimental investigation has tended to endow with real flesh and blood.

It is quite fitting that E. von Behring, who has contributed so much to the present knowledge of immunity, should turn his attention to an historical survey of the doctrines which paved the way for modern progress. The result of this study is an illuminating article contributed to the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. I, No. 1. He shows that it was Rokitansky who in 1846 systematized the knowledge of the "crasias," the individual temperaments or constitutions which were regarded as potent factors in disease. He classified dyscrasias into those which he thought depended on an excessive coagulability of the blood (hyperinosis) and those which he thought depended on a diminished coagulability of the blood (hypinosis). Among the former he included the croupous, the tuberculous, the pyemic, and the aphthous crasias; among the latter, plethora and the typhous, exanthematic, and cancerous crasias, etc. The modern study of the infectious diseases owes much to humoral pathology and the theory of the crasias, but in a different sense than taught by Rokitansky.

Virchow who based his doctrine of disease upon the cellular structure of the body, nevertheless did not ignore the teachings of humoral pathology. In fact, he tried to reconcile the differences of the two schools. He pointed out that the vital properties of the body fluids, no less than those of the body solids, depended upon the living cells. Moreover he had rather more than an inkling of what has been established by recent investigation, when he stated that infectious diseases are the result of the action of abnormal catalytic agents. He was far ahead of his time when he discovered the important and intimate relationship between fermentation and life, on the one hand, and disease on the other.

More than a half century ago the conceptions of inflammation, suppuration, metastasis, exudation, and infection were subjected by Virchow to critical analysis. To-day these conceptions continue to challenge the interest of clinicians. The term dyscrasia has by no means passed out of medical nomenclature. Expressions such as purulent, suppurative, and inflammatory diathesis, pyemia, and disposition to suppuration are used in the same sense as was the purulent dyscrasia of early days. A distinction has arisen, however, in the use of the word diathesis as designating a disposition to disease, and of the term dyscrasia as denoting the disease itself. In modern terminology the word dyscrasia has largely been supplanted by the more exact terms, parasitic and toxic infection.

The conception, idiosyncrasy, which is nowadays freely used in the language of medicine as denoting an individual susceptibility, suggests the antonym, "orthocrasia" which connotes that similar individuals of the same species react similarly, *e.g.* to ingested foreign protein. Exceptional modes of reaction are to be attributed to definite causes. Repeated ingestion of the same protein may cause diminished susceptibility or immunity, or may cause increased susceptibility or anaphylaxis. This term is used if one can attribute the hypersusceptibility or increased reaction to the previous ingestion of a certain substance, as strawberries, shellfish, etc.; but if one cannot explain the phenomenon upon this basis, then the term idiosyncrasy should be used.

Von Behring points out that just as there may be an idiosyncrasy of increased susceptibility, so there may be one of diminished susceptibility. The latter phenomenon, eucrasia, is rarer than the former. An example is cited in the case of an English breed of guinea-pigs which evince a remarkable degree of resistance to the diphtheria toxins. Such differences in susceptibility are looked upon as simple biological variations, of the same nature as differences of size, color, etc. They are transmitted by heredity, while a diminished susceptibility which is artificially produced, as by the formation of antibodies, cannot thus be transmitted. Both forms of diminished susceptibility are denominated immunity and are to be looked upon as a useful biological mechanism. But hypersusceptibility may in some instances be regarded also as a protective phenomenon. Immunity with respect to cholera, smallpox, plague, and many other infectious diseases is attributed to an anaphylactic hypersusceptibility with reference to the exciting infectious agent.

Nail Extension in Fractures.

A few years ago it was almost impossible to find a collective account of this subject. No one seemed inclined to give the latter monographic treatment. Metal devices for patellar fractures, etc., had long been known and may be left out of account. In 1903 Codivilla, of Italy, used nails to secure extension in fractures of the lower extremity, the nails being attached to the splints, and for some years nail extension enjoyed a monopoly in that country. According to Becker, in an article on fractures (*Berliner Klinische Wochenschrift*, July 7), Steinmann was the first German to adopt the Italian idea, which has undergone numerous modifications by German surgeons. While Wilms and others obtain superior results from nail extension others see no advantage over the old methods. Quite recently Steinmann laid down the fixed indications for nailing, viz., old fractures with false joints, fresh simple fractures which have not done well under the classical method, correction of shortening of extremities for several causes. The author mentions

the use of nails, pegs, screws, clamps, etc., employed, so to speak, for riveting comminuted fragments. He regards all such measures, however, as of value only in special cases, and believes that in some if not in most instances the procedure is of little or no service. It seems absurd to see the work of Lane (who treats nearly all his fractures with his permanent "plates"), and of Lambotte, whose atlas of a thousand plates illustrates the same universally applicable resource, dismissed in two or three lines as unimproved and ineffective.

Biological Studies of Dementia Precox.

It is some years ago that the relations between dementia precox and a possible autointoxication factor began to be studied, and numerous were the claims that the precox affection resembled paralytic dementia in having some organic substratum, both affections thereby being separated from ordinary psychoses. At the recent meeting of the Southwestern German Neurologists and Alienists (*Münchener medizinische Wochenschrift*, July 8), Hauptmann speaks of the recent introduction of Abderhalden's dialysis method into psychiatry. Thus Fauser found that the serum of precox patients could disintegrate testicular and ovarian tissue; and in certain cases brain (cortical) tissue was similarly disintegrated, notably in sera which also attacked the genital glands. This was especially the case with serum from paralytics. Hauptmann and Bumke repeated Fauser's experiments, and arrived at contradictory results. These enzymes which disintegrate ovarian and testicular substances, peptolytic in character, also are to be found at times in healthy sera. This fact does not antagonize the original find but introduces some unknown factor which must be discovered in the future—perhaps nothing more than defective technique.

The Still-Chauffard Symptom-Complex.

At a very recent session of the Gesellschaft für innere Medizin und Kinderheilkunde of Vienna (*Münchener medizinische Wochenschrift*, July 1), Pollitzer demonstrated three cases of the so-called Still-Chauffard syndrome. Two women had suffered for years from simple chronic rheumatism, the affection finally settling in the hands or feet, respectively, of the subjects. The third subject, a male, suffered only in the smallest terminal joints All three patients showed enlarged spleen and enlarged lymph nodes. The two women were shown to be victims of bovine tuberculosis, seated in the lungs. The man showed none of the phenomena but instead an affection of the lymph nodes, which while resembling tuberculosis was found to be nonspecific. It is to this pseudotuberculosis that the term Chauffard's syndrome is applied.

News of the Week.

International Medical Congress.—On Thursday, the second day of the Congress, Dr. Harvey Cushing of Harvard delivered the Oration on Surgery, in which he argued that medicine and surgery were interdependent and could not be divided one from the other. He also entered a plea for vivisection, arguing that animals benefited as much from the knowledge so derived as man. On Friday Professor Paul Ehrlich delivered the Address on Pathology, in which he dwelt largely upon his own work in chemotherapy and on the invention of salvarsan. He said this drug may have a useful application in malaria when the plasmodia have become immune to the action of quinine; in such cases a dose of salvarsan will either destroy the plasmodia at once or will break down their immunity to quinine so that another dose of that remedy following 606 will complete the cure. He held out the hope that the time was near at hand when medicine would be armed with specifics against all the diseases due to animal microparasites. On Monday the general address, delivered by Professor William Bateson, was on Heredity. He said too much resistance was laid on the abuse of alcohol and other drugs and the strain of the modern struggle for existence in the causation of insanity; these factors doubtless entered into the case but the real cause of the increase of insanity lay in the preservation of definite strains of mental weakness. But he said there was danger of excess in trying to prevent the reproduction of defectives; he ridiculed the so-called eugenic legislation, especially that concerned with the purely physical side, in some of the United States and he wondered how genius and the arts would fare in a community governed according to the ideas of such legislators; they might possibly stamp out some diseases of body and mind but they would certainly stamp out genius and promote a race of dullards. On Tuesday Mr. John Burns gave the Address on Public Health. He dwelt on the mutual relation of medicine and the State and showed how the saving of many thousands of lives by improved sanitation and the consequent reduced prevalence of many former scourges had resulted also in an enormous economic gain. The proceedings were enlivened by several suffragettes who interrupted the speaker a number of times before they were led out by the police.

This was the closing session of the Congress. The committee on prizes announced the following awards: Moscow prize to Prof. Charles Richet of Paris for his work on anaphylaxis; Paris prize to Prof. A. v. Wassermann for his work on experimental therapy and immunity; the Hungary price to Sir A. E. Wright for his work on vaccine therapy. Munich was designated as the place of meeting of the Eighteenth International Congress in 1917, and Prof. Friedrich v. Müller of that city was elected president of the Congress and of the permanent committee.

Many interesting papers were read and discussions held in the various sections during the week. Dr. F. H. Albee of New York gave a demonstration of his method of splinting the vertebræ in Pott's disease by means of a strip of bone removed from the tibia. Dr. John Ridlon of Chicago read a paper on the mechanical treatment of tuberculous hip disease in which he expressed the belief that few cases of this affection called for operative treatment. The Orthopedic Section passed a resolution looking to the formation of an international orthopedic congress. The question was referred to a committee, two members of which were Drs. R. W. Lovett of Boston and C. L. Starr of Toronto. There was much discussion in several of the sections on syphilis and the general opinion was that it should be made a notifiable disease and that there should be a concerted movement among all nations looking to its prevention. The sanitary authorities in the Army, Navy, and Public Health Service of the

United States received much praise for their work in the repression of yellow fever, malaria, smallpox, the hookworm, plague, and other widespread diseases. All of the reports of the Congress agree that this has been perhaps the most brilliant and successful as well as the most largely attended of the entire series.

City Death Rate.—During the week ending August 2, 1913, there were reported in New York City a total of 1,310 deaths, giving a death rate per thousand of 12.72, as compared with 13.78 for the corresponding week of last year. There was an increase of 25 in the number of deaths due to pulmonary tuberculosis, and a decrease of 85 in the deaths of children under one year of age. For the first thirty-one weeks of 1913 the death rate was 14.61, against a death rate of 14.80 for the corresponding period of 1912.

Sacred Heart Hospital.—A ten-story brick hospital building is to be erected at 230 East 20th Street, New York, by the Missionary Sisters of the Sacred Heart, to replace the small hospital now standing on that site. The latter, with two adjacent buildings, will be demolished to make room for the new structure, which it is estimated will cost $100,000.

Home for Mothers.—Plans are now being prepared for the establishment at Babylon, Long Island, N. Y., on a tract of land between Great South Bay and the ocean, of a maternity hospital and home for expectant mothers before confinement.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission states that during the month of June, 1913, there occurred 28 deaths from all causes among employees in the Canal Zone, of which 16 were due to disease and 12 to violence. The total annual average death rate per thousand for the month was thus 5.75, the lowest on record for the month since 1902. For the entire population of the cities of Panama and Colon and the Canal Zone, including employees and civilians, the annual average death rate per thousand for the month was 22.11. Among employees the principal causes of death were as follows: dysentery, 1; lobar pneumonia, 1; malarial fever, 1; organic disease of the heart, 2; tuberculosis, 4. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

Personals.—Dr. M. S. Kakels announces his removal to 35 East 61st Street.

Dr. Reuben Ottenberg has removed his office to 15 West 89th Street.

Correction.—Through error the address of Dr. Jacob Teschner was incorrectly given at the end of his article on the treatment of flat foot in the MEDICAL RECORD for July 12, 1913. Dr. Teschner's office is at 134 East 61st Street.

Federation of Medical Boards.—The Federation of State Medical Boards of the United States will publish its first bulletin, the *Quarterly*, on October 1, 1913. The *Quarterly* will be devoted to the interests of State medical examiners. Dr. O. V. Huffman, Secretary of the New York Board, is the editor of the new publication.

Admitted to Practice.—Twenty-two candidates have been admitted to practice in the State of Connecticut as the result of recent examinations held by the State Board.

Militants Horsewhip a Doctor.—As a sort of side-show to the International Medical Congress, a group of suffragettes attacked the physician of Holloway jail on Saturday, as he was entering the prison gates, and hit him once or twice with horsewhips. They said he had not been as gentle with the suffragette prisoners as he ought to have been, so they proceeded to deal with him in their own gentle method.

Lepers are again causing trepidation in the hearts of various health officers. One was brought from the west lately to be deported; he came in a freight car and when he left it on arrival at the port of sailing, the car was burned. Another leper was found in St. Louis and sent to an isolation camp to keep company with a leprous Chinaman. He escaped, but St. Louis has not yet been burned by way of disinfection, nor has the ship in which the first leper was deported been scuttled in mid-ocean. This culpable lack of precaution will doubtless expose thousands of innocent voyagers and a vastly greater number of St. Louisians to the risk of contracting this loathsome and highly infectious disease.

Obituary Notes.—Dr. JOHN BAKER SWIFT of Boston, Mass., a graduate of the Harvard Medical School, Boston, in 1877, a member of the Massachusetts State and Suffolk County Medical Societies, and the Obstetrical Society of Boston, and formerly an attending physician at the Carney Hospital and the Free Hospital for Women, Jamaica Plain, died at his home on July 29, after a long illness, aged 60 years.

Dr. JOSEPH C. WUNDER of Baltimore, Md., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1889, died at the Maryland State Sanatorium for Tuberculosis at Sabillasville, on July 20, after a lingering illness, aged 47 years.

Dr. JAMES E. MORRIS of Liberty, Ind., a graduate of the Starling Medical College, Columbus, Ohio, in 1857, and of the Bellevue Hospital Medical College, New York, in 1874, and a member of the American Medical Association and the Indiana State and Union County Medical Societies, died at Bay View, Mich., on July 20.

Dr. WILLIAM H. MCLENATHEN of Brooklyn, N. Y., a graduate of the New York Homeopathic Medical College and Hospital in 1878, and a member of the Brooklyn Homeopathic Medical Society, died at Scragswood Camp, Willsboro, N. Y., on July 30.

Correspondence.

ROENTGENOSCOPIC EXAMINATION *VS.* CLINICAL METHODS IN THE DIAGNOSIS OF GASTRIC DISEASE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Dr. G. H. Stover, in your issue of August 2d, criticizes my statements published by me in the issue of June 14th. Your readers may be sufficiently interested in the subject to justify you in printing this final statement by me upon the subject. He says, "Fluoroscopy is decidedly secondary in importance to the method of serial röntgenography, especially after the technique of Holtzknecht and Haudek." Dr. Stover takes the liberty of including the majority of röntgenologists as coinciding with his opinion. A personal visit to the x-ray laboratories of Berlin last year and a study of the methods employed there convinced me that the fluoroscope is the preferred method of reach-

ing a diagnosis of gastric disease in so far as the *x*-ray renders this possible. Plates were used only as a means of recording unusual conditions. The use of the fluoroscope enables the operator to employ forcible palpation at certain stages in the peristaltic cycle which is quite impossible even with the very expensive method of moment röntgenograms.

Certainly no busy general practitioner could possibly give the time required to learn the technique of serial röntgenography or even of fluoroscopic examinations. Nor could the man who devotes his attention to diagnosis in internal medicine afford to do so. Allow me to suggest, however, that *x*-ray examinations of the stomach do not require the production of beautiful tracings upon a fluoroscopic screen or the development of technically perfect plates but the interpretation of the shadows produced upon a screen during the actual functioning of the organ. This art can readily be acquired by the specialist in clinical diagnosis. He is thus enabled to form a proper concept of the case correlating the interpretation of the screen appearance with the anamnesis, clinical findings, and laboratory revelations.

I have never been convinced that the röntgenologist possesses a peculiar type of intellect which renders him alone capable of interpreting the fluoroscopic picture of the stomach. To be sure the employment of this diagnostic measure requires time in study as does every other means which he employs but it is a link in the diagnostic chain and the internist who neglects this method as a routine practice will miss the diagnosis quite frequently. The most conclusive refutation of Dr. Stover's contention will be found in an article by Dr. R. D. Carman of the Mayo Clinic published in the *Journal of the American Medical Association*, August 2, 1913. "Fluoroscopy being so advantageous in gastrointestinal work, attention is directed anew to its possible dangers. . . . . In the effort to secure protection many of the installations have been made complicated, unwieldy, and often inefficient. In a personal communication, Haudek states that with quite a simple apparatus he has screened over 12,000 patients without harm to himself or to them. . . . Radiological diagnosis of duodenal ulcer unless corroborated by clinical data is in most instances a mere guess." This surely justifies my conclusion No. 7: "Röntgenoscopy of the stomach is no more an exact mathematical method than percussion. At best deductions must be made from shadows." Dr. Case of Battle Creek says: "Röntgenograms present a very nice map of the static conditions present but give relatively little of the information obtainable by means of fluoroscopy when one employs intelligent manipulation of the bismuth shadows under the guidance of the fluorescent screen examination." Dr. Carman added: "Plates are made only for reference purposes and to detect those details which might be overlooked on the screen."

JOHN DUDLEY DUNHAM, M.D.

COLUMBUS, OHIO.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The letter by Dr. Stover in reference to Dr. Dunham's article has suggested to me that both of these gentlemen are a little too extreme. Practical experience shows that there is no doubt of the value of röntgenology above fluoroscopy in the diagnosis of gastrointestinal disorders, but at the same time, even after the technique of Holtzknecht and Haudek is employed, considerable advance in the development of this method must be made to bring it to a sufficiently accurate basis in a universal way. To-day, however, whatever may be said to the contrary, my own experience shows that it is the most valuable single method of examination of patients that we have, and I agree fully that a complete röntgenographic examination should be made in the diagnosis of an abdominal case which is at all obscure, which cases practically comprise all that are seen. While in a general way Dr. Stover's statements are true, I feel that to some extent he is presenting a radiographist's side of it. There are a few gastroenterologists who are doing exceptionally good work in röntgenology of the abdomen, are sufficiently able in up-to-date technique, and are giving sufficient time to the examinations. It is to the fact that these men exist that I would draw Dr. Stover's attention, and state further that their knowledge and ability as clinicians and of the laboratory side of the work, added to their abilities as röntgenologists, makes them both better clinicians and röntgenologists than either one working alone, for, after all, a person who understands the clinical side of abdominal diagnosis, even to surgery, and who is thoroughly equipped with a laboratory and an *x*-ray plant to aid or confirm diagnosis, renders a more complete service to a patient than either one alone, or even the two in combination on a case. This is my belief based upon an experience which dates from the very beginning of röntgenology, and an observation of both clinicians and radiographists since that time.

ANTHONY BASSLER, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE BRITISH MEDICAL ASSOCIATION AT BRIGHTON—IMPERIAL CANCER FUND; REPORT, IMPORTANT PROGRESS—ROYAL MEDICAL COMMISSION PROPOSED—COMPLAINTS ABOUT PANEL DOCTORS—MR. FENWICK'S LEGACY—MR. THOMAS' GIFT—OBITUARY, DEATHS OF FOUR MEDICAL MISSIONARIES IN CHINA.

LONDON, July 25, 1913.

THE doings of the British Medical Association are intruding into most of our conversations this week, for although a good proportion of the members are attending the meeting at "London-on-Sea," as we call Brighton, there are plenty remaining in the metropolis. In fact the nearness of Brighton and the railway facilities make it easy enough to run down and back in the day, and that is what some are doing. While waiting to receive some of the news from friends, one comes in who has given up going, as he can always take a week-end there and does not care for the crowd. Another reports he will make two or three trips, dine there, and so on. Dr. A. is announced, and on his entrance I say, How is it you are not at Brighton? He responds, I shall go for one day. But, I say, you are president of a section. Yes, he says, I shall open it and come back by the late train. But the other days of the section? I exclaim. Well, he laughingly says, give my vice-president a chance. From all this you will see that the lists of attendants at the meeting will include men who were there for very brief periods.

But if Londoners can thus play at putting in an appearance, there have been members enough to make crowded audiences and join in the many entertainments provided. The work of the meeting is twofold. The medico-political, which is done by the representative meetings, and the scientific and medical, by the sections. As your special reports will give you account of these I pass to other subjects.

The annual meeting of the Imperial Cancer Research Fund was the medical event in London yesterday. The Duke of Bedford presided and all the leaders of the medical world seemed to be assembled. Sir William Church moved the report, saying more convenient quarters had been taken during the year, and the work has been directed mainly to marshaling of facts proved to be constant, and the varying results obtained from propagating strains of cancerous growths from different spontaneous tumors. Statistical investigations in the Colonies, in India, and among uncivilized races had been continued, and were confirmed by German statistics, showing that new growths in the tropics do not differ from those in Europe, and none occur in one which are not found in the other. Age and sex appears to be more important as determining factors than climatic or local conditions. Various claims of possessing cures had been brought to the notice of the Fund but in no case was there any reliable evidence of anything of the kind. The breeding experiments had been continued as to heredity and a comparison could now be made of two strains of mice. The number of female mice bred was 800; of these 476 descended from those whose mother and one or both grandmothers were cancerous, and 324 when those ancestors were non-cancerous; of the 476 cancer developed in 98, or 20.58 per cent.; of the 324 of non-cancerous ancestry 38, or 11.69 per cent., developed it. Only female mice were considered, as in that sex the disease is more frequent. Histological researches into the acquisition and loss of immunity under certain circumstances had been carried on during the year. The tendency to one or the other could not depend on structure, but there must be some hitherto unrecognized property possessed by some continuously, but by others only more or less temporarily. Evidence had been obtained that resistance to growth induced by the inoculation of normal or of tumorous tissue was identical in nature, the maximum resistance in both being reached in about ten days, but lost again gradually. Normal susceptibility was regained in eighty days. The power of inducing resistance to the development of tumor tissue seemed due to some property inherent in the tumor itself and not to depend on other causes.

Sir Alfred Pearce Gould, seconding the report, said they had succeeded in throwing a good deal of light on the very dark problem of cancer. His feeling was that the report proved the value of the continuous work carried on by this fund for eleven years. As the work progressed further unknown fields became evident, and a speedy conclusion could not be expected nor any limitation to the area over which it might extend. Had Dr. Bashford and his fellow workers been content to work with a few experimental tumors or for a short time with them they would not have been in the position they now were as regards the knowledge of cancer. No one could doubt they were approaching nearer and nearer the longed-for day when the blessed word "cure" might be used about cancer.

The report was adopted, and on the motion of Sir Rickman Godlee, seconded by Sir Watson Cheyne, the munificent donor, William Edwin Tate, was appointed a vice-president. It was due to such gifts that their endowment fund had attained an amount of £56,000, and that they had been able to move into better premises and fit up new laboratories. The Duke of Bedford, replying to a vote of thanks awarded him, closed an excellent speech by saying the best equipment and most capable brains must be secured to continue the work. In other words, the public must aid the conquest of this terrible disease by finding the necessary money.

An appeal for the appointment of a Royal Commission to investigate the prevalence of venereal diseases and to recommend what measures should be taken to cope with them has been published this week in the general newspapers. The appeal is signed by the presidents of the Royal Colleges, medical societies and a number of the leaders of the profession. A similar appeal has previously been made or rather the same, but it is now issued generally to the public. It is not alarmist exactly; indeed, it is couched in most moderate terms. It declares the facts ought to be made known, it believes a Royal Commission the best method, but a substantial majority of medical men should be members. It is pointed out that the Royal Army Corps during the last few years has shown what great results can be brought about by systematic efforts. The appeal has been well received by the public and is sure to receive the approval of the mass of the profession. It was endorsed by the Brighton meeting. Notice of a question on the subject has been given in the House of Commons for next week.

Charges of neglect by panel doctors have already been made. Insured persons say their doctors are too busy to attend and their surgeries are overcrowded. On the other hand, some patients have a notion that the panel man is inferior and they prefer the parish. In one case brought before me the parish doctor complained that numbers came to him who were insured and ought to apply to the man on whose panel they were, he being paid to attend them so they should not be admitted to the parish infirmary or any other institution. I hear that such complaints have been brought before the Commission.

A sum of £50,000 has been bequeathed by the late Mr. J. G. Fenwick, formerly a Newcastle banker, to the Royal Infirmary there. The money is to be invested in trustees as a permanent endowment fund. Mr. Fenwick also left £1000 for the general purposes of the infirmary.

Mr. W. J. Thomas, owner of Welsh coal mines, has offered to defray the cost of a new medical school for the University of South Wales, to be equipped on a par with the chief schools of the kingdom.

The mail from China reports the deaths of four English medical missionaries. They were Dr. H. S. Jenkins, M.D., Lond., F.R.C.S., of the Baptist station in Sianfu, and Dr. Robertson, M.B., B.S., and F.R.C.S., at the same place; Dr. E. H. Hart, who for eighteen years was in charge of the Wuhn General Hospital, and Dr. F. Hall of Peking, who is thought to have contracted typhus fever from patients in the hospital of the medical college of which he was dean and a member of the American Presbyterian Mission. All four are reported to have died from typhus.

OUR PARIS LETTER.

(From Our Regular Correspondent)

SURGICAL SOCIETY—WOUNDS OF THE SINUSES OF THE DURA MATER—THE SURGERY OF MODERN WARFARE AS EXEMPLIFIED IN THE BALKANS—ITS CONSERVATIVE CHARACTER—TINCTURE OF IODINE AS AN EFFICIENT ANTISEPTIC ON THE BATTLEFIELD—THE BENIGN CHARACTER OF BULLET WOUNDS—COMPARISON OF WOUNDS MADE BY BULLETS AND SHELLS.

Paris, June 15, 1913.

Wounds of the sinuses of the dura mater was the subject of a paper presented before the Surgical Society by M. Morestin, who prefaced his remarks with the report of a case. The patient was a woman twenty-five years of age who two hours before she entered the hospital had received two shots from a revolver fired by her lover. One bullet lodged in the left parotid region without producing any marked effects, while the other entered the skull a little above the external occipital protuberance and caused considerable hemorrhage. While the wound caused by the first bullet presented no indication for operation, this was not the case with the wound in the cranium, which was probably a penetrating one and constituted, therefore, a serious lesion. The proper procedure was to explore the wound, clean it, and take all the necessary precautions to guard against infection. After having dissected and separated the edges of the cutaneous wound, which were blackened and macerated, there was revealed a wound of the skull near the external occipital protuberance. This wound was filled with a blackish clot, removal of which was followed by a spurt of blood which was projected to a height of five or six centimeters. The wound was rapidly enlarged, the index finger was applied to the bleeding part, and the hemorrhage was stopped. On account of the alarming symptoms presented by the patient, who had lost considerable blood, a firm packing of iodoform gauze was placed in the wound, outside of which a thick rubber compress was applied and fastened by means of a tight bandage. The patient rallied from the operation and gradually improved. She was soon able to get out of bed and to take her regular diet. But twenty-one days after the exploration of the wound the dressing was found to be saturated with cerebrospinal fluid which frequently flowed in large quantities from the wound. In a short time, however, this flow disappeared entirely and the patient left the hospital completely cured.

The discharge of cerebrospinal fluid in this case was an interesting observation. It certainly began following the recovery from the meningeal wound, when the packing which had stayed the flow of blood was removed. M. Morestin recalled that the most important collective investigation on the subject of wounds of the dural sinuses was made at his suggestion by Georges Luys in 1900, who was rewarded for his thesis with a silver medal by the Medical Faculty of Paris. Tamponade is an excellent and easy method in the treatment of wounds of the dural sinuses. It enables one to control a severe hemorrhage, effecting a permanent hemostasis and cure.

An interesting discussion followed the reading of this paper. Rovillois concurred in the treatment advocated by the author. Paul Thiéry said that tamponade is infinitely better than ligature of the sinus, which often is very laborious and in certain cases impossible to accomplish. According to Lucas-Championiere, catgut rolled up into a compact mass and applied to the bleeding spot and kept there for some time effectually arrests hemorrhage from the sinuses of the dura mater. This is preferable to simple tamponade. Broca is of the same opinion, for he has observed in one case that as soon as a tent tampon was removed hemorrhage recurred. The use of well-soaked catgut brought about a speedy recovery.

Military surgery in the Balkans was the subject of a paper read by Soubbotitch, surgeon of the State Hospital of Belgrade, who discussed the work of the Sanitary Service in the hospitals of Belgrade since the beginning of the war. Bullet wounds have been in most instances of benign character. Several of the wounded showed a number of spots of penetration, in one instance there having been as many as nine. Instances occurred in which bullets entered the skull, and traversing the trunk, emerged from the perineum. Such cases were not rare, being the result of the prone position assumed by the soldiers in battle. Wounds produced by projectiles of large caliber are infinitely more serious.

The saddest of all cases were those in which the spinal cord was wounded. These cases terminated fatally. Disinfection was accomplished with the aid of tincture of iodine. Conservative treatment was followed; the wounds were disturbed as little as possible. This method of treatment required for its effective results a thorough initial cleaning of the wound and careful transportation of the wounded. Operation on the battlefield is no longer advised except in the case of emergencies. These methods make the wounds of modern warfare, with its antisepsis and its weapons of small caliber, less terrible than those of the warfare of the past.

Monprofit detailed his experiences in the Balkan war. He stated that the chief element in the progress of military surgery is the immediate cleansing of the wounds on the battlefield, by the soldier himself, employing the emergency package with which he is provided. The use of tincture of iodine was general and yielded good results. Modern military surgery is above all one of watchfulness and expectation.

The wounds made by guns of small caliber are remarkably benign, provided that they do not involve the vital organs. The pointed bullets, endowed with considerable speed, traverse the soft parts, pushing aside the tissues which come together after the transit. The orifices of entrance and exit are very small and seem to be lightly cauterized by the extreme heat of the projectile. On the other hand wounds produced by shells are always serious, shattering the bones, tearing the soft parts, and crushing the thorax and cranium. The immediate effects are frightful and the remote results are much more serious than those produced by bullets.

Ferraton said that medical men have always favored the use of miniature projectiles, which would cause just enough injury to halt the enemy, without producing serious lesions. In fact, the pain produced by such bullets is slight. Shrapnel, with its storm of leaden bullets set free by the explosion of a shell represents an engine of awful destructive power.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE GERMAN SURGICAL SOCIETY—SYMPOSIUM ON DUODENAL ULCER — AMERICAN INITIATIVE — SYMPTOMATOLOGY OF DUODENAL ULCER—SIGNIFICANCE OF PAIN—SURGICAL TREATMENT—DUODENAL ULCER AND THE VEGETATIVE NERVOUS SYSTEM—PHARMACOTHERAPY OF GASTRIC AND DUODENAL ULCERS—X-RAY FINDINGS IN THE LATTER—ETIOLOGY OF DUODENAL ULCER.

BERLIN, June 15, 1913.

AMONG the many subjects recently discussed before the various German medical congresses, one of the most important was the subject of duodenal ulcer. This was the principal theme before the forty-second annual meeting of the German Surgical Society. It is not so long ago since the knowledge reached this country that duodenal ulcer was frequently diagnosed and treated surgically in America, and it was the belief of German surgeons that this condition occurred more frequently in America than in Germany. As the result of improved methods of diagnosis, this belief has since been shown to be erroneous. With characteristic Teutonic thoroughness duodenal ulcer has now been studied by German surgeons. Küttner, of Breslau, presented a paper on this subject. His study was based upon his own material as well as upon a questionaire addressed to eighty surgeons, and comprised a series of eight hundred cases. The pains, such as the hunger pain, the night pain, and the delayed pain, are indeed frequently present in duodenal ulcer, but they are not found exclusively in this condition and are occasionally present in gastric ulcer and carcinoma. A more characteristic phenomenon in duodenal ulcer is the periodicity with which healing and recurrence alternate with each other. Hyperchlorhydria is not common, but hypersecretion, even in the case of a fasting stomach, is fairly constant. Motor insufficiency is an intermittent phenomenon. Spontaneous pain is referred to the epigastrium, usually somewhat to the right of the middle line. Here also pain on pressure is complained of. Since after laparatomy ulcers only on the anterior wall can be seen or felt, it is necessary to open the duodenum. Very frequently ulcer of the stomach is associated with ulcer of the duodenum. A good practical landmark showing the dividing line between gastric and duodenal ulcer is Mayo's vein. Since the scars of healed duodenal ulcers are rarely found, the tendency to spontaneous cure in these lesions is to be regarded as slight. Surgical treatment can only seldom be a direct one, for resection can be performed only when the ulcer is seated on the anterior wall of the duodenum. If stenoses are present, good results are obtained with gastroenterostomy; if stenoses are not present, they may be produced artificially. Direct treatment by means of infolding the duodenal wall at the site of the ulcer, by excision of the latter, or by encircling it with a row of sutures is not generally advocated. The best results are obtained with gastroenterostomy. Even with this the mortality is still too great and the danger of late hemorrhage may not be avoided. A careful after-treatment is in every case indispensable. If perforation has occurred operation can be successful only if undertaken during the first forty-eight hours.

Duodenal ulcer and the vegetative nervous system was the title of a paper read by von Bergmann, of Altona. That duodenal ulcer is not uncommon was shown by the fact that during a period of nine months the speaker had made the diagnosis in forty cases, in thirty of which the diagnosis was confirmed by operation or subsequent hemorrhage. In former times most of the cases were characterized as neuroses. To be sure in these patients there are found a number of neurotic manifestations. *X*-ray pictures show two types, the hyperperistaltic and the maximal secretory forms. Other cases show transition stages between the two. The maximal secretory form closely simulates gastrosuccorrhea. In thirty cases the stigmata pertaining to the vegetative nervous system were carefully studied. There were found evidences of sympathetic involvement such as wide and staring pupils, and also evidences of vagus involvement, as bradycardia and hypersecretion. Frequently both sets of symptoms were found in the same patient. The neurosis is the primary, and the ulcer is the secondary manifestation, in the case of duodenal as well as of gastric ulcer.

The pharmacotherapy of gastric and duodenal ulcer was the subject of a paper read by van den Velden, of Düsseldorf. The intravenous injection of 5 c.c. of a five to ten per cent. solution of common salt accelerates the coagulation of the blood and thereby controls hemorrhage. Since the content of the blood in fibrinogen is for a few days increased by the injection of gelatine and foreign protein, it is desirable to resort to this method previous to the injection of the salt. Opiates are not to be recommended, since they increase the tonicity of the stomach, and in the case of disease of this organ they excite pains. If they are used, atropine should be administered in order to eliminate the tonic action of the vagus.

The *x*-ray findings in duodenal ulcer were described by Haudek, of Vienna, as follows: Duodenal stenosis, persisting shadows in the upper part of the duodenum, the recesses represented by small bismuth shadows, an abnormally rapid passage of the gastric contents into the duodenum, very pronounced gastric peristalsis, and fixation of the pylorus. Finally there must be considered all those radiographic findings that are not present in gastric ulcer. The *x*-ray evidences should be interpreted from three different viewpoints. (1) Positive findings may substantiate or verify the diagnosis. (2) A normal gastric and duodenal *x*-ray picture can never exclude the possibility of the presence of a duodenal ulcer. (3) Associated with a positive clinical diagnosis, a normal *x*-ray picture points to an ulcer of the duodenum rather than to an ulcer of the stomach. With a normal or an accelerated emptying of the stomach one should advise against the performance of gastroenterostomy alone. In such cases the shutting off or the narrowing of the pylorus is to be recommended in addition to the gastroenterostomy.

Researches into the etiology of duodenal ulcer were carried out by Schmieden of Berlin. Under normal conditions the duodenum should empty itself rapidly. The delayed passage of acid chyme causes irritation of the duodenal mucosa and the formation of an ulcer. Ptosis of the stomach leads to the formation of an acute-angled kinking of the superior portion of the duodenum and therefore causes retention. At the same time this kinking prevents the addition to the acid contents of the alkaline intestinal juices and thus increases the damage.

The surgical treatment of duodenal ulcer was

discussed by Bier, of Berlin. He performs gastro-enterostomy and infolds the duodenum at the site of the ulcer, following Moynihan's method. Kalb of Heidelberg, obtains good results by sewing around the ulcer with autoplastic material, employing for this purpose strands obtained from the fascia lata or the omentum. Adolf Schmidt, of Halle, favors medical treatment, basing his opinion on the well recognized spontaneous remissions to which duodenal ulcer is subject..

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CURE OF LEPROSY—POPULAR EDUCATION REGARDING BERIBERI—CHANGES IN OBSTETRICAL SERVICE—PERSONAL.

MANILA, P. I., June 26, 1913.

On June 11 there were released from San Lazaro Hospital two persons who were formerly afflicted with leprosy and have now been pronounced free from the disease.

One is a male Filipino, age 27, admitted to the San Lazaro Leper Hospital, Manila, May 29, 1909. On admission the case presented thickened reddish spots on the nose and thickening and discoloration of the lobe of the right ear. Smears made from the lesions were positive for leprosy bacilli. Beginning August, 1909, he received vaccine treatment at intervals for one year but apparently there was no change in his condition. From September, 1910, to November, 1910, he took chaulmoogra oil by mouth in ascending doses. Beginning November 10, chaulmoogra oil was administered hypodermically, combined with oil of camphor and resorcin. On May 6, 1911, the lesions above described had disappeared and he was microscopically negative for leprosy. The hypodermic treatment was continued and frequent microscopical examinations were made, all of which continued to be negative. On account of the fact that a period of over two years had elapsed, and all evidence of the disease having disappeared, the patient was discharged on probation as cured.

The second case was that of a Filipino woman, age 22 years, admitted to the San Lazaro Leper Hospital, Manila, on January 7, 1910. She had a generally suffused countenance due to generalized infiltration and showed small red areas on the cheeks, forehead, and chin. Scrapings from the lesions were positive for leprosy bacilli. She was immediately placed on vaccine treatment for five months but at the end of the first month the use of crude chaulmoogra by mouth in ascending doses was administered in addition to the vaccine treatment. Examination made on May 6, 1911, showed her to be negative for the leprosy bacillus. At this time on account of the nausea which the oil produced it had to be discontinued. The use of chaulmoogra oil combined with oil of camphor and resorcin administered hypodermically was then begun. Treatment was continued and frequent microscopic examinations were made, which invariably resulted negative. On June 11 or for more than a period of two years she still continued to be negative for leprosy bacilli and was discharged from the hospital on probation.

It is not known whether the vaccine treatment had any influence in the cures. It may be said, however, that there are a number of other cases at San Lazaro Hospital that have been negative for nearly two years, which presented more marked lesions than those already discharged, and yet they received only chaulmoogra oil, no vaccine being employed.

Apparent cures have been reported from time to time in the past from San Lazaro Hospital, but unfortunately all of these relapsed soon after a period of one year had elapsed. These cases have now been negative for a period of over two years and there seems to be hope that the results will be more permanent.

About a year ago when the beneficial results of the hypodermic method of administering chaulmoogra became known, some twenty patients were placed under treatment by the same method, but only a few of these have shown any decided signs of improvement. From the foregoing, it is apparent that however well chaulmoogra oil may act in some cases, it cannot be regarded as a specific as yet for leprosy. The prospects seem to be fair that if an extended laboratory investigation could be made perhaps more satisfactory results could be had. The proposition of financing such an investigation has been presented to a number of philanthropists in the United States.

The Bureau of Health has just had printed 100,000 copies of a popular circular with regard to beriberi. It is proposed to teach its contents in the public schools and to begin a campaign of education throughout the islands with the hope that it will result in suitable legislation, which would restrict the use of polished rice among those who use it as a staple article of diet. It is estimated that there are at least 5,000 deaths annually from beriberi in the Philippine Islands which could be prevented, and perhaps the high infant mortality would also be most favorably influenced by an unpolished rice diet for nursing mothers.

The obstetrical service which has heretofore been conducted by midwives employed by the Bureau of Health and by the medical staff of the College of Medicine and Surgery is shortly to be changed. On account of the fact that there are now available graduate Filipino nurses, and on account of the poor training of municipal midwives, it has been deemed advisable to replace them by nurses. The authorities of the Medical College feel that, however desirable a certain number of obstetrical cases are for the teaching of students, the cost of a general charity service is one which does not properly belong to a medical school. In view of the foregoing, the city of Manila has now made an appropriation by which the expenses of the charity obstetrical service will be defrayed by it and a sufficient number of cases will be made available to the college for instruction purposes.

Dr. O. E. Denny, a 1913 graduate from the University of Pennsylvania, arrived in Manila and has been appointed as interne in the Philippine General Hospital.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 31, 1913.

1. The Outdoor Treatment of Surgical Tuberculosis. R. W. Lovett and John E. Fish.
2. Psychopathology and Neuropathology: The Psychopathic Hospital as Research and Teaching Center. E. E. Southard.
3. Some Aspects of Labor Mechanism at the Pelvic Brim. A. K. Paire.
4. The X-Ray Method in Diagnosis of Gastric and Duodenal Ulcer. F. W. White and A. W. George.
5. Modified Adenoid Forceps. By Joseph Prenn.

1. Outdoor Treatment of Surgical Tuberculosis.—R. W. Lovett and J. E. Fish present definite figures as to the effect of life in the outdoor air on children with surgical tuberculosis. Even in the winter climate of New England this is not attended with the risk of exciting respiratory

troubles, frost bites, or pneumonia. Coughs, colds, and sore throats are infrequent among the children living out of doors and much less frequent than among a group of healthy boys who do not live wholly out of doors. Infectious disease has not spread among the children as easily as would have been expected. After admission weight increases faster than in normal children and hemoglobin also increases. Symptoms of autoinoculation, as shown by increased temperature, are as a rule absent and the power of resistance and repair improves under these conditions.

3. **Labor Mechanism at the Pelvic Brim.**—A. K. Paine states that in those comparatively rare cases in which the high forceps operation is the operation of choice, the best results are obtained if the head is brought through the superior strait in the position providing the most room, *i.e.* the transverse. To accomplish this, Williams recommends applying the blades obliquely to the head, rather than striving for a perfect cephalic application, his contention being that with the cephalic application the handles cannot be depressed posteriorly sufficiently to make traction in a line at right angles to the superior plane. With a properly dilated perineum, which should antecede all operative deliveries, it is on the contrary anatomically possible to make traction at right angles to the plane of the inlet with the blades antero-posteriorly applied, this cephalic application permitting and encouraging flexion, which is of the utmost importance. Further, no great force is necessary to bring the head into the pelvis in any case in which the operation is justifiable. Force is only necessary to overcome the resistance of the soft parts, which are, unfortunately, imperfectly dilated in the greater portion of these cases, and manual dilatation, if ever so carefully and thoroughly done, cannot lessen resistance to the degree that does normal dilatation. As the head comes into the pelvis, rotation will occur, permitting the use of the axis traction, if desired. Care should be taken not to bring about too rapid rotation, the best results being obtained when the head is allowed to get as far into the pelvic canal and as completely flexed as possible before anterior rotation takes place, improper flexion offering greatly increased resistance to the improperly dilated cervix.

4. **X-Ray Diagnosis of Gastric and Duodenal Ulcer.**—F. W. White and A. W. George point out that gastric and duodenal ulcers have been and can be diagnosed in the majority of cases by means of the clinical history and the ordinary physical examination, including the stomach contents and feces; but the *x*-ray method is a great help, and the *x*-ray data are just as important as any of the chief symptoms or signs of this disease. No other method approaches this in exact localization of the ulcer and its deformities. Many ulcers are latent, important symptoms may be absent, and any additional aid in diagnosis is most welcome. The *x*-ray often gives definite information not otherwise obtainable, and may occasionally be worth more than all the rest of the examination put together. Like every other clinical method it is not perfect; exceptions and artifacts occur, and results may be misinterpreted; nevertheless, the method has great value. It has already taught many new things about the digestive tract, and it has a great future. The hope has been expressed that the *x*-ray will take the place of the stomach tube, since most people would rather swallow bismuth paste than a tube. The tube is still needed since the *x*-ray can give no information about secretion and pathological products of the wall, such as mucus, blood, etc., data essential to diagnosis. The *x*-ray is a part of the physical examination and needs to be so used to give best results.

New York Medical Journal.

August 2, 1913.

1. Report of Twenty Cases of Inflammatory Affections of the Labyrinth. W. C. Phillips, Ed. P. Fowler, S. J. Kopetzky and J. C. Sharp.
2. Pellagra, Surgery, the Colloids, and Strong Drugs; Also Introducing a Possible New Etiological Factor. H. Shoemaker
3. The New Pocket Clinical Sphygmomanometer. L. N. Boston
4. The Mental Symptoms of Renal Insufficiency. W. B. Cornell.
5. Surgical Aphasia. W. L. Chapman, H. A. Morris and G. W Simrell.
6. Chronic Appendicitis in Its Relation to Hyperacidity of the Gastric Juice. H. Illoway.
7. Acute Retropharyngeal Abscess. I. H. Alexander and H. Montague.
8. Immunity by Scientific Bacterination versus Natural Immunization in Self Limiting Diseases of Bacterial Origin. C. G Roebr.
9. Gelatin and Olive Oil in the Liberal Diet of Typhoid Fever I. Bram.
10. Efficiency and Health. S. H. Brown.

2. **Pellagra and Its Surgical Treatment.**—H. Shoemaker concludes from his experience that pellagra begins and for six to nine months remains as a mild catarrhal indigestion confined to the upper abdomen. Patients have recovered following surgical operations upon the gall bladder, appendix, and pelvic organs and muscles. Patients have recovered following the use of metallic drugs. Two patients have recovered spontaneously. The possibility of a patient in the lowest state making a spontaneous recovery should warn the physician never to give up.

5. **Surgical Aphasia.**—W. L. Chapman, H. A. Morris and G. W. Simrell state that the exposed position of the head, with the slight protection which the scalp affords, renders it freely accessible to injury through falls or blows, but the most frequent cause observed has been from the use of obstetric forceps during delivery. About 80 per cent. of all cases seen by the writers could be traced to this cause. This is not surprising when one considers the condition of the bony tablets at birth and the amount of pressure frequently exerted upon them. As a rule, the indentation made by the forceps blade soon disappears, owing to the elasticity of the then cartilaginous bones, but in some cases the inner tablet is split, a callus is formed upon its inner surface through the escape of osteoblastic cells, and thus the dent remains. In any injury to the head the inner tablet is more liable to fracture than the outer, for while any force applied to the skull causes only compression of the outer tablet, it puts the inner tablet upon the stretch. Epidural and subdural hemorrhages may result from the same pressure, either by laceration of the blood-vessels of the meninges or from exposed diploe. As a rule, the blood from these hemorrhages is absorbed, and therefore they produce no pathological changes, but in some cases fibrinous collections remain and form adhesions, producing pressure by their own bulk, or by promoting the development of bone cells which have escaped through the laceration of the inner tablet, at that time practically a membranous endosteum.

9. **Gelatin and Olive Oil in Typhoid Fever.**—I. Bram has found that moderate quantities of gelatin administered to typhoid fever patients tend strongly to the prevention of intestinal hemorrhage. This seems to have been overlooked by the profession at large. It has been universally conceded that gelatin possesses hemostatic properties, and if this be true, it should be administered to all patients suffering from conditions in which hemorrhage may occur as a symptom or complication. Furthermore, gelatin possesses nutritive properties simulating the proteins, as well as serving to assist in overcoming the monotony of the sameness in the diet. Therefore in a measure it aids in the prevention of the starvation to which the enteric patient is usually subjected. Pure gelatin is usually nearly colorless, odorless, and tasteless. The easily prepared gelatins on the market are often colored and flavored with chemical substances injurious to the economy, *e.g.* sulphuric acid, sodium benzoate, etc., and should be avoided. It should be made from government inspected calves' feet, treated with pure boiling water, and then delicately flavored with pure light wine or lemon. The author also believes that olive oil has a broad field of usefulness in typhoid fever and should be employed throughout the course of the disease. As a food administered in doses of from

one to three ounces, three times a day, it is a valuable adjuvant to the diet. It not only assists in overcoming the tendency to emaciation, but in many cases the patients show a gain in weight during convalescence over and above the weight possessed by them before the onset of the disease. As a laxative, olive oil has no equal in typhoid fever. By its bland soothing influence it permits the intestinal contents to escape without irritating the inflamed Peyer's patches. In this way the tendency to intestinal hemorrhage is diminished. The intestine, kept clean and free from gas-forming elements by this oil, is practically never distended, and thus, in the absence of tympanites, there is little fear of intestinal perforation. A high rectal injection of lukewarm olive oil as occasion demands is also very gratifying to these patients.

Journal of the American Medical Association.

August 2, 1913.

1. Clinical Effects of "Natural" and "Synthetic" Sodium Salicylate. A. W. Hewlett.
2. The Techniques of Roentgen-Ray Examination of the Gastrointestinal Tract and the Interpretation of Screen and Plate Findings. R. D. Carman.
3. Intracranial Division of the Auditory Nerve for Persistent Tinnitus. Charles H. Frazier.
4. Mycosis Fungoides Following Psoriasis. H. Fox.
5. An Absorbable Plate for Use in the Open Treatment of Fractures. A. McGlannan.
6. A Case of Lymphangioma Circumscriptum. P. E. Bechet.
6. Primary Sarcoma of the Lower Lip. A. J. Markley.
7. The Conception of Homosexuality. A. A. Brill.
8. Diuretics in Cardiac Disease. A General Review. A. D. Hirschfelder.
9. The Significance of Plasma Cells in the Tonsils. A Preliminary Report. J. G. Wilson.

3. **Intracranial Division of the Auditory Nerve.**—C. H. Frazier refers to the usual delay in resorting to surgical procedure in case of lesions of the intracranial nerves and the needless suffering this delay permits. Up to the present time, surgical therapy has been applied to the treatment of functional disturbances of only three of the cranial nerves—the trigeminal, facial, and auditory—and of these the auditory nerve has been the last to be brought under the scope of surgery, though what has been said of the evils of delay is equally applicable to this nerve. There are several circumstances in which intracranial division of the auditory may be properly resorted to: when obstinate vertigo is associated with tinnitus and for the relief of certain forms of persistent otalgia, though there are no available records of the operation for this purpose. If this is due sometimes, as Hunt claims, to neuritis of both the seventh and eighth nerves, both would have to be divided and this would simplify rather than complicate the operation. The third indication is that of persistent and intractable tinnitus, which is sometimes so severe as to cause grave neurasthenia or severe mental disturbance. Of course there should be careful selection of cases and those of possibly central origin should be excluded. The author presents the history of a patient in whom the operation was performed for persistent tinnitus with occasional vertigo, following fracture of the base of the skull, which was thus operated on. The occipital bone to the left of the median line and below the superior curved line was exposed, and the portion beneath the emissary sinus and the median line and from the level of the lateral sinus downward for three cm. was removed with rongeur forceps. On the reflexion of a dural flap, a brain retractor was introduced beneath the cerebellar hemisphere, which was gently elevated to allow of the escape of cerebrospinal fluid from the cisterna magna. At the same time the author's assistant punctured the dural sac in the lumbar region, but the withdrawal of the cerebrospinal fluid in this way did not allow any greater displacement of the hemisphere, which was considered possible. The latter was gently displaced backward and gradually the petrous bone was uncovered as far as the internal auditory meatus. With good artificial illumination, the auditory and the facial nerve were identified. The auditory was readily separated from the facial nerve and divided with alligator scissors. An electrode applied to the facial nerve gave an immediate response. The dural wound was closed with interrupted silk sutures and the musculocutaneous flap restored. There was no troublesome hemorrhage and the patient's condition at the conclusion of the operation was satisfactory. He made a good recovery.

8. **Diuretics in Heart Disease.**—S. D. Hirschfelder discusses this subject under five headings: (1) infective endocarditis; (2) arteriosclerosis with periodic attacks of the various disturbances associated with localized arteriosclerosis, vertigo, headaches, transitory cardiac asthma, or pulmonary edema, angina pectoris, and vasomotor crises; (3) chronic or paroxysmal hypertension without edema; (4) acute cardiac overstrain, and (5) broken systemic compensation with chronic passive congestion, and edema with or without general anasarca, ascites, hydrothorax, or hydropericardium, arising from myocardial weakness, valvular insufficiency, or adherent pericardium. The first of these need not be discussed as it should not be treated under the head of cardiac disease, but rather as a primary nephritis. In arteriosclerosis and chronic hypertension, one might be tempted to resort to diuretics to remove autotoxins or relieve plethora, but it is better in both these conditions to spare the arteries and kidneys from overwork with a light diet and restriction from salt and water than to try to remove these substances with diuretics. Acute cardiac overstrain is a condition of transient duration when seen in athletes, etc., and can be generally left to cure itself. The chief condition when active diuretic intervention is advisable is in broken systemic compensation with edema from stasis in the systemic veins, either from failure of the right ventricle, tricuspid-stenosis, or adherent pericardium. Digitalis is the diuretic of choice in all cardiac conditions with failure of the circulation. It is important to obtain a standardized preparation. It makes little difference which of the special digitalis preparations or derivatives are used. Other drugs of the digitalis group are mentioned but it is a question whether any of them is more efficient. When a more powerful diuresis is desired one can make use of the purin or caffeine group—caffeine, theobromine, theophylline, or theocin—and the most convenient form is the water-soluble acid-theocin sodium in 3-grain doses three times a day. The phthalein test of Rowntree is a simple, quick, and easy method of determining the extent to which the kidney epithelium has been damaged or whether it would be too much fatigued by the use of these drugs. If the phthalein is low—30 per cent. or less in two hours—it would be better to rely on digitalis and try to improve the circulation before stimulating the kidney. The same precaution applies to the saline diuretics, though they are probably less irritating to the kidney, and the test is specially desirable when calomel is used as a diuretic. In general one should aim first to know the exact state of the kidneys; second, to improve the circulation with digitalis or to spare it with the Karell diet; and, third, to resort to theocin or the saline diuretics to relieve edema if the renal epithelium is not severely injured.

9. **Plasma Cells in the Tonsil.**—J. Gordon Wilson does not believe that the tonsil is a vestigial organ or that plasma cells are necessarily an indication that the tonsils are subject to disease from the earliest periods of life and therefore should always be removed. Plasma cells are the result of irritation and are derived from the lymphocytes. Their function is to remove and utilize cell material that is broken down and in the tonsil they indicate not so much a diseased organ as an organ that is reacting to disease. Instead of showing that the tonsil is a source of danger they are evidence of its protective function. It protects the body from poisons absorbed from the pharynx and probably also, as Metchnikoff holds, they pour into the pharynx large numbers of defensive lymphocytes. Of course one

may have diseased tonsils that require extirpation, just as one may have diseased lymphnodes that require it. The plasma cells are not degenerated cells but cells actively combating toxins that pass through adenoid tissue, and their presence shows that the tonsils are functionally active. In excess they indicate a focus of disease but not necessarily a local one.

The Lancet.

July 26, 1913.

1. Some Aspects of Internal Secretion in Disease. G. R. Murray.
2. The Gifts of Surgery to Medicine. Sir Berkeley Moynihan.
3. Arsenic Cancera. A. Harwood Nutt, J. M. Beattie and R. J. Pye-Smith.
4. The Rapidity with which Contamination of the Thoracic Cavity and its Contained Glands Follows Infection of the Peritoneal Cavity. C. C. Twort.
5. The Use of Arsenical Compounds for Syphilitic Disease of the Nose and Throat: a Note on 16 Cases. H. L. Whale.
6. Early Diagnosis of a Case of Leprosy Much Assisted by the X-Rays. T. Miller.
7. The Decalcifying Action of Oxalic Acid. Illustrated by Three Cases of Oxalic Acid Poisoning. H. J. B. Fry.
8. Medical and Surgical Experience in the Balkan War. C. M. Page and S. V. Appleyard.

1. Internal Secretion in Disease.—By G. R. Murray. (See MEDICAL RECORD, August 2, 1913, page 207.)

2. The Gifts of Surgery to Medicine.—By Sir Berkeley Moynihan. (See MEDICAL RECORD, August 2, 1913, page 206.)

3. Arsenic Cancer.—A. Harwood Nutt, J. M. Beattie, and R. J. Pye-Smith report a case belonging to a definite group whose clinical and etiological recognition is chiefly due to the remarkable powers of observation brought to bear on so many fields of study by the late Sir Jonathan Hutchinson. It is mainly owing to his teaching that arsenic as a causative factor in certain cases of cancer of the skin has now been generally accepted by dermatologists, but as the records of such cases are mostly to be found in journals devoted to dermatology the general practitioner has scarcely yet had his attention drawn to the subject.

4. Infection of the Thorax from the Peritoneum.—C. C. Twort records a series of experiments which demonstrated that, although the peritoneal cavity is provided with an extensive protective mechanism, inoculated bacilli escape from this cavity and can be found living and virulent in the thoracic glands shortly after inoculation. The rapidity with which this transmission takes place is remarkable, the bacilli being found from two to five minutes later in the glands, and from these cultures may be easily obtained. The bacilli found at the end of five minutes are mostly free, but a few may be already within the cells, and as the interval of time between the inoculation and the death of the animal is extended the number of bacilli not only becomes progressively greater, but the proportion of intracellular to extracellular is relatively much higher than in the animals killed earlier. It is interesting to note that as early as five minutes after the inoculation of the animal cultures can also be obtained from the pleural fluid, but the possibility of contaminating the fluid during the manipulations by the severing of the lymphatic channels is evident. On examination soon after inoculation of the cervical, submaxillary, axillary, and groin glands no bacilli can be found. No bacilli were found microscopically in specimens made from the thoracic glands and pleural fluid of animals that were killed before making the intraperitoneal inoculation and an examination made five minutes later. A sufficient number of experiments of this description have not yet been performed to allow of very definite conclusions being drawn from them, although positive cultures were obtained. It does not necessarily follow that the human subject would react in the same way as the animals used in these experiments, but there is no reason to suppose that the reaction would be different.

5. Arsenic Compounds in Syphilitic Disease of the Nose.—H. L. Whale concludes that salvarsan and its allies offer a fair prospect of arresting tertiary syphilitic disease of the bones or cartilages of the nose and throat, syphilitic laryngitis, and nonulcerative inflammations of the pharynx and nasopharynx. When repeated injections are not contraindicated either by technical difficulties or by unwillingness on the part of the patients, neosalvarsan is the safest preparation to use.

7. The Decalcifying Action of Oxalic Acid.—H. J. B. Fry reports a series of cases which show that the effects of oxalic acid poisoning probably manifest themselves in almost every system of the body. These general effects are not merely secondary to cardiac depression, but must be regarded as due to a precipitation and removal of lime salts from the tissues. None of the many other theories of the action of the poison accords so well with the facts or can be supported by experimental evidence.

British Medical Journal.

July 26, 1913.

1. A Medical History of Brighton and the Neighborhood. W. Ainslie Hollis.
2. Some Aspects of Internal Secretion in Disease. G. R. Murray.
3. The Gifts of Surgery to Medicine. Sir Berkeley Moynihan.

2. Internal Secretion in Disease.—By G. R. Murray. (See MEDICAL RECORD, August 2, 1913, page 207.)

3. The Gifts of Surgery to Medicine.—By Sir Berkeley Moynihan. (See MEDICAL RECORD, August 2, 1913, page 206.)

Berliner klinische Wochenschrift.

July 21, 1913.

Similarities and Contradictions in Plant and Animal Pathology.—Baur states that heredity may be active in both kingdoms. Malformations are strikingly common in the vegetable world, and may be much more readily studied in the latter. Plants show a high degree of immunity in regard to certain parasites. The effects of injuries show numerous similarities. Plant wounds show a marked tendency to heal and transplantation is far more in evidence than in animal tissues. In some cases we can insert the stem of a leaf into the ground and it develops into an entire plant, the stem becoming a trunk. There is hardly any limit to this sort of regeneration. Plants may be frozen or burned, and poisoned. Poisoning is, however, local only; for the plant has no circulation or nervous supply. Naturally some poisonous gases in large amounts may kill plants. Very important for vegetable pathology are the results of the withholding of food substances. Lack of iron, potassium, and phosphorus causes marked disturbance of metabolism, and of course has to be remedied by treatment of the soil. Plants suffer the greatest ravages from certain parasites like the ustilago, and also become thereby injurious to man. Bacteria likewise cause disease in plants far more than fungi. Some endogenous bacteria act favorably in the plant, but there is an entire series of diseases due to bacteria and their toxins. If the plants had any true circulation they would quickly yield to certain bacteria with powerful toxins as the human organism yields to the diphtheria bacillus. Plants are very vulnerable to animal parasites which usually cause gall-like and other tumorous swelling. Some of the plant tumors resemble strongly animal neoplasms.

Bronchoscopy in Diseases of the Lower Bronchi.—Söbernheim gives a general review of this subject. In 1908 Chevalier Jackson began to study tracheobronchitis in this manner. Ephraim by the same means found no less than three forms of chronic tracheobronchitis, viz., the ordinary type, the nervous type, and one recognized only by the bronchoscope alone. In this the pale mucosa has become red and constricted, causing secretion-retention. The nature of this type is so plain that it is readily overcome in practice. In excluding the presence of foreign bodies, and for recognizing the foci in pulmonary gan-

gene and abscess and bronchiectasis, von Schrotter, Kahler, and Ephraim have made finds. The former saw pus oozing from the third tube of the bronchial tree. The patient may be stood upon his head in advance to allow secretions to loosen themselves. Bronchiectasis has been greatly benefited, the illumination having made it possible to treat the cavities directly with hydrogen peroxid. Sokoloff treated an abscess of the lung in the same manner. In case of bronchial asthma treatment of the bronchitis has benefited the asthma. The bronchoscope often shows a relatively normal bronchial membrane. Treatment by direct applications to the irritable areas on the whole appears to give very good results. Much has been done in connection with syphilis of the lungs by bronchoscopy. Von Schrotter demonstrated a cancer of the lungs by the bronchoscope. There is evidently a great field awaiting the future bronchoscopist in this sphere

Münchener medizinische Wochenschrift.

July 22, 1913.

Pneumolysis.—Two papers are devoted to this subject with especial reference to tuberculosis. Baer refers to the extrapleural operation with subsequent plumbage which is practiced immediately after pneumolysis. It is hoped that this will prove an advance upon our knowledge of surgery of the chest. The material for plumbing is paraffin mixed with antiseptics. Baer seems to have used this resource in but two cases. Sauerbruch has operated in three such cases and Tuffier in four. The advantages are as follows: There is no bone involvement; the paraffin heals in aseptically; plugging of the cavity cuts down at once the expectoration enormously; after operation expectoration is easy. The configuration of the thorax remains unchanged. Sauerbruch used 1,100 cm. to fill one cavity. The second article is by Jessen. He states that Baer revived an old procedure introduced by Friedrich and also by Tuffier under the name apicolysis. Jessen experimented largely on animals before undertaking operations on man. He performed six of these and concludes that the intervention is less severe than in thoracoplasty; because if the pneumolysis is completely successful no plumbing is necessary. If incomplete then it is requisite. The author resects a piece of rib, unlike Baer.

Paroxysmal Tachycardia.—Grassmann reports fifteen cases and seeks the causal elements. It is generally held to be a neurosis of uncertain character. If with vagus tonus preserved the accelerator nerves are stimulated, the heart's frequency suddenly increases and as suddenly diminishes. Hence it appears to be a neurosis. A study of possible factors in the author's fifteen cases are syphilis, alcoholism, neurasthenia, nearly every infirmity of the heart, obesity, arteriosclerosis, nervousness, overexertion, vasomotor irritability, thyroid cachexia, Grave's disease, etc. An attempt to elucidate any combination of causes to fit such cases is vain. Hardly one of the patients seemed in perfect health outside of the tachycardia.

A Diseased Finger Joint Replaced by a Toe Joint.—Goebell speaks of Wolff's successful transplantation of finger and toe phalanges and of Lexer's transplantation of joints. The opportunity for such cases is rare, and he was so fortunnate as to be able to improve one. A violinist came to the author for trouble in the left little finger which interfered with his playing. There was pain in the second interphalangeal joint. The *x*-ray revealed a marked thickness of the latter. Pain and crepitus followed active motion. Externally the joint showed a spindle shape. There had been a severe inflammation of the joint. As the finger must be made as straight as possible, only a similar structure must be used in transplantation. The patient was willing to sacrifice a toe joint and after the finger joint had been resected the former was placed in the breech. The *x*-ray showed that it had healed in completely although there was a slight distortion, which could be avoided in a second case. The patient is under treatment and nothing is said of his ability to play the violin.

Deutsche medizinische Wochenschrift.

July 17, 1913.

Medicine in Central Asia.—According to Weissenberg, medical conditions in these regions are not in strict accordance with our legendary beliefs. There are, however, in certain localities numbers of cases of leprosy, Biskra button, filariasis, etc. There is a leprosorium at Tashkend. In Bokhara, however, lepers move about freely. There are few restrictions, one being that they may not touch other people; another that they must keep the coins, etc., given in charity and not send them back into circulation. The inhabitants are very indifferent to the possibilities of contagion. The general hospital at Bokhara is hopelessly backward. The wards abound in flies and vermin. There is, however, a strict separation of the sexes, and this leads more people to visit the hospital. On account of the Russian ignorance of the native tongue interpreters are used. The out-patient department of the hospital swarms with patients. The Oriental has a natural fondness to be doctored. Cases have to be disposed of rapidly. Of frequent occurrence is the medesia worm (*Filaria medinensis*). A set of implements is required to remove these parasites. As the surgeons of the country are also its barbers, much of this work is done in barber shops. It is evidently quite an art to remove successfully these creatures. As for the Biskra button, it prevails widely under various names. Most appropriate might be the "one year boil." The word Oriental Boil is used by many as a general substitute for all local designations. At the onset it looks like herpes tonsurans. The common situation on the face makes conservatism in treatment necessary. One or two applications of the paquelin usually suffice. Some surgeons plead for a nonirritating plan of treatment with the idea of shortening its duration.

Aleucocytary Animals.—Lippmann and Plesch describe ordinary leucocytosis. The polynuclear cells are generally believed to proceed from the blood, but we are doubtful as to the source of the mononuclears, several facts having been adduced in support of other views. The authors have studied leucocytosis in serous exudation. They find that with the aid of thorium-X animals may be rendered entirely "aleucocytic." To quote the author's summary in aleucocytic animals irritants which should produce naturally an exudation of polynuclear leucocytosis now produce only mononuclears—as if these were derived from the pleural endothelium. Aleucocytic animals when their muscle tissue is irritated yield no blood exudate, but, on the contrary, only muscle necroses. The experiments show the fundamental biological differences between the pleura and peritoneum, for the latter yields in aleucocytic animals upon irritation polynuclear cells; while the pleura, as already stated, yields only mononuclears.

Prevention of Trypanosomiasis.—The British Government has appointed a committee to report: (1) Upon the present knowledge available on the questions of the parts played by wild animals and tsetse flies in Africa in the maintenance and spread of trypanosome infections of man and stock; (2) Whether it is necessary and feasible to carry out an experiment of game destruction in a localized area in order to gain further knowledge on these questions, and, if so, to decide the locality, probable cost, and other details of such an experiment, and to provide a scheme for its conduct; (3) whether it is advisable to attempt the extermination of wild animals, either generally or locally, with a view of checking the trypanosome diseases of man and stock; and (4) whether any other measures should be taken in order to obtain means of controlling these diseases.—*Medical Press.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

EXPECTATION OF LIFE.

THE following table is included in many of the instructions to examiners, and this seems to have created the erroneous impression that it is used in some way in the computation of the premiums, as they not infrequently qualify their recommendations by stating that, in their opinion, the applicant will or will not live out his expectancy:

EXPECTATION OF LIFE—AMERICAN TABLE

Age	Exp.	Age	Exp.	Age	Exp.	Age	Exp.
10	48.72	32	33.92	54	18.09	76	5.88
11	48.08	33	33.21	55	17.40	77	5.49
12	47.45	34	32.50	56	16.72	78	5.11
13	46.80	35	31.78	57	16.05	79	4.74
14	46.16	36	31.07	58	15.39	80	4.39
15	45.50	37	30.35	59	14.74	81	4.05
16	44.85	38	29.62	60	14.10	82	3.71
17	44.19	39	28.90	61	13.47	83	3.39
18	43.53	40	28.18	62	12.86	84	3.08
19	42.87	41	27.45	63	12.26	85	2.77
20	42.20	42	26.72	64	11.67	86	2.47
21	41.53	43	26.00	65	11.10	87	2.18
22	40.85	44	25.27	66	10.54	88	1.91
23	40.17	45	24.54	67	10.00	89	1.66
24	39.49	46	23.81	68	9.47	90	1.42
25	38.81	47	23.08	69	8.97	91	1.19
26	38.12	48	22.36	70	8.48	92	.98
27	37.43	49	21.63	71	8.00	93	.80
28	36.73	50	20.91	72	7.55	94	.64
29	36.03	51	20.20	73	7.11	95	.50
30	35.33	52	19.49	74	6.68		
31	34.63	53	18.79	75	6.27		

The expectation of life, a better term for which is "average future lifetime," merely shows the *average* length of time that a number of persons of a given age will live according to the table of mortality so often referred to in these columns. For instance, it is seen by the American Experience Table that of 63,364 persons living at age 56, 3 will live 39 years to age 95, 18 will live 38 years, 2,091 will live 24 years, 1,980 will live 9 years, 1,260 less than one full year, etc., and that the whole body will live for an average time of 16.72 years, which is therefore the expectation of life at age 56.

The expectation of life at a given age does not indicate the middle point in the lifetime remaining to all persons at that age. For example: At age 43 the expectation of life is 26 years, but it does not follow that half the persons now living at age 43 will die within the next 26 years. On the contrary, by consulting the mortality table it is seen that of 75,782 persons living at 43 there will be 40,890, or considerably more than half the number, still living 26 years later at age 69. One-half the original number, 37,891, according to the mortality table, will die within 27 years, 3 months and 12 days, instead of 26 years. There always remains a definite probability in each case of the individual living to any age up to 96, according to the mortality table, the degree of probability varying according to the length of the period under discussion. For instance, as 40,890 of 75,782 persons living at age 43 will still be living at age 69, the probability at the former age of living may be expressed by the fraction 40890/75782, while the probability of living 50 years to age 93 may be expressed by 79/75782, since out of 75,782 persons at 43, 79 will still be living at age 93.

These illustrations show the fallacy in supposing that a man who will probably live through his expectation of life is for that reason a good risk, or that a man who has paid his premium for that length of time has paid the full cost of his insurance. This theory would be all right if life invariably ended with the attainment of one's expectancy. If every member of a hypothetical company of 63,364 individuals, each one 56 years of age, were to be relieved of paying premiums 16.72 years later, his expectation of life, the total required receipts would be reduced by several million dollars and the net premium, consequently, would have to be materially increased. The distinction must be made between the probability of dying within a certain number of years and the probability of dying in a *particular* year.

The table of expectation of life may be considered then as of little value in the business of life insurance. It represents only averages and does not take into account the fact that the death rate increases more rapidly than advancing age, while at the same time the increase is not according to any definite or fixed ratio. In other words, the increase from year to year is neither by the addition of a fixed number nor by multiplication by a fixed multiplier. This is shown in the following table:

Age	Death Rate per 1000	Increase in Death Rate	Percentage of Increase
70	61.99		
71	67.66	5.67	9.15
72	73.73	6.07	8.97
73	80.18	6.45	8.75
74	87.03	6.85	8.54

A condition like this makes it impossible to calculate the compound interest involved in the cost of life insurance on the basis of the average future lifetime. Consequently, the compound interest, an essential factor in the computation of the premium, must be made from year to year instead of upon the misleading basis of the average time involved.

Heart Affections and Life Insurance Limitations.—In discussing the risks life insurance companies may take with reference to heart affections, Dr. Wethered says that different considerations arise when a man is examined as a private patient and when examined as a candidate for life insurance. As the latter he is looked upon as one of a class, a fact not always appreciated in life insurance work. Life insurance tables are founded upon averages, and the difficulty is often increased because some cases are insured with profits, that is, receiving some share in the profits made by the company. Here a new element is introduced, the financial aspect to which attention must be paid when a decision is made on what terms a life may be taken. There can be no fairness in placing a man with a mitral regurgitation, although perfect compensation be maintained, in the same class as a man possessing a sound heart. It is much more fair to give these applicants endowment policies instead of whole life policies. A man with a murmur may be in practically normal condition at twenty-five years of age, but what is to be expected of him during the dangerous age from fifty and upwards, when compensation is liable to break down? Will the reserve of heart power last until the age at which he will become a profit to the company? This is the problem which makes life insurance of these substandard lives so difficult.—Life Assurance Medical Officers' Association Meeting of March, 1913.

Book Reviews.

The Medical Diseases of Children. By T. R. C. Whipham, M.A., M.D. (Oxon.), M.R.C.P.; Physician to the Eveline Hospital for Sick Children; Assistant Physician and Physician in charge of the Children's Department at the Prince of Wales Hospital; Lecturer on Diseases of Children at the North-East London Post-Graduate College. With sixty-seven illustrations. Price $3.75. London: University of London Press; Hodder & Houghton and Henry Frowde, 1912.

This volume is one of the series termed the "London Medical Publications." The refuge of the tired book reviewer, the preface, is lacking. Nor is the book dedicated to any one. In spite of these omissions, even cursory examination of the text enables one to quickly reach the conclusion that this volume is one of unusual excellence among the many books on children's diseases that have appeared within recent years. It is practical, it is not crowded with theoretical or problematical details; it is complete, including descriptions of such rare conditions as acholia, suprarenal apoplexy, chloroma, etc. The classification of diseases is according to the latest teachings. Thus, under pneumococcal infection are discussed the following: pneumonia, bronchopneumonia, empyema, pneumococcal pericarditis, pneumococcal meningitis, pneumococcal otitis media, pneumococcal peritonitis, pneumococcal arthritis, and other pneumococcal infections. The same comprehensive scheme is followed in discussing the other infections, as tuberculous infection, rheumatic infection, and meningococcal infection. It may be noted that in accordance with the latest British teachings posterior basic meningitis is included under meningococcal infection. The illustrations in this book have these virtues: they are clear, and in many instances portray rare conditions. The latter quality is exemplified by the three illustrations showing successive stages of the peristaltic wave of the stomach in hypertrophic stenosis of the pylorus. The work is well written, handsomely printed on fine paper, and clad in an attractive binding. It may be recommended without reserve as a valuable textbook for both student and practitioner.

Practical Physiological Chemistry. By Sidney W. Cole, M.A., Trinity College, Cambridge; Demonstrator of Physiology, Cambridge University. Third edition. Price, 7s. 6d. Cambridge: W. Heffer & Sons, Ltd., 1913.

There is no lack of books intended to cover the field to which this one is devoted, but the present volume easily takes rank among the best. Unusually good judgment appears to have been used in selecting the subjects for discussion and in apportioning the space given to each, so that while the book is not a large one it represents an admirable survey of the most important aspects of physiological chemistry. A feature of some practical importance which adds to the comfort of the user is the fact that whenever a new reagent is mentioned in the description of a method or experiment, the formula for its preparation is given at once in its proper place, so that the reader is not obliged to hunt through the appendix—the usual limbo to which such data are relegated—in order to find it. A particularly good chapter is the one on the qualitative analysis of the urine, in which the new microchemical methods devised by Folin are described and recommended. As the book is intended for class room as well as for laboratory use, blank spaces are provided in which the student can sketch the various crystalline substances studied and there is also a series of charts in which absorption spectra can be drawn. No omissions of importance have been noted, and the volume contains much information of a practical nature not usually included in textbooks.

Clinical Pathology. By P. N. Panton, M.A., M.B., B.C. Cantab., Clinical Pathologist to the London Hospital; formerly Assistant Director of the Louis Jenner Clinical Laboratory, St. Thomas's Hospital. With 13 plates (11 colored) and 45 illustrations in the text. Price $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

The chief virtue of this book consists in its availability for the purposes of the student and general practitioner. It is complete, but not surfeited with a multiplicity of methods, one or two important and useful methods of laboratory examination being chosen for each diagnostic procedure. The work is handsomely gotten up, the paper, typography and binding leaving nothing to be desired. The illustrations are particularly of a high order of artistic merit, the colored plates excelling anything of the kind that has ever been attempted. The chapters dealing with the examination of the blood take up the technique of preparing specimens and stains, and discuss in order the various diseases in which hematological changes are present. The technique of the Wasserman reaction is described in detail. So is the mode of preparation of vaccines, of blood cultures, etc. The section on the examination of the urine, of transudates and exudates, and of tissues are also well written. There are separate sections on the alimentary system, on the eye and skin, on the respiratory tract, and on histology. The book may be heartily commended to student and practitioner.

The Treatment of Disease in Children. By G. A. Sutherland, M.D., F.R.C.P., Physician to Paddington Green Children's Hospital, and to the Hampstead and North-West London Hospital; Late President, Section for Diseases of Children, Royal Society of Medicine. Price $3.75. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, 1913.

Although this volume has been written as a guide for the young practitioner, it will greatly interest the more experienced physician who may desire to check up the results of his own observations by the results obtained in the practice of another. The American physician in search of new light on pediatric subjects will find ample sources in the writings of English pediatrists. In no other country than England are there more special hospitals for children's diseases, and although the strictly scientific and laboratory phases of pediatrics have not been studied in England to an extent as great as in Germany, nevertheless, from the strictly clinical viewpoint, pediatrics has reached a stage of development in England that has not been exceeded elsewhere. One admirable feature of Dr. Sutherland's volume is the fact that he tends to give full details regarding one definite line of treatment for any disease, rather than a list of remedies or of methods of treatment. Of particular interest are his remarks regarding the dosage of the salicylates in rheumatism. The tendency in America is to advocate the use of rather large doses of sodium salicylate. Sutherland alludes to the gastric disturbance, and the risk of acid intoxication from the accumulation of the drug in the system. His remarks on this subject deserve quoting. "If in a case diagnosed as rheumatic fever one does not get the usual satisfactory result with moderate doses of salicylate of soda, what is the reason? One possibility is that the case may not be one of rheumatic fever at all, but the illness may be due to some form of septicemia or pyemia, or to rheumatoid arthritis. Or again there may be a mixed infection present, a secondary infection grafted on the original rheumatic one. In all of these cases salicylate of soda fails to act in what is recognized as its typical manner in rheumatic fever, and it will not act any better by giving the patient four or five times the ordinary dose. . . . Because the patient is already in a seriously toxic condition from rheumatic infection it does not follow that he will benefit from toxic doses of salicylate of soda. Even in these severe cases it seems more reasonable, and it is certainly safer to persevere with moderate dosage as described above." In this and in other subjects the author gives evidence of soundness of judgment and a reliance upon his own experience rather than what has already been written upon the subject by other authors and copied from one textbook to another. The methods of treatment advocated are eminently practical. The book is well written and handsomely printed and bound.

A Synopsis of Medical Treatment. By George Cheever Shattuck, M.D., Assistant Physician to the Massachusetts General Hospital, Assistant in Clinical Medicine at the Harvard Medical School. Boston: W. M. Leonard, 1912.

The virtue of this book is its brevity. In synoptic form it presents the principles of treatment with reference to a few important diseases as follows: Cardiac insufficiency; nephritis; acute infectious diseases, including typhoid fever, pneumonia, rheumatic fever, lobar pneumonia, and bronchiectasis; and gastric and duodenal ulcer. The methods of treatment are those that have been tried out at the Massachusetts General Hospital or in private practice. There is a very interesting chapter on drugs. The book should prove useful to the general practitioner who would desire to review his knowledge of the elements of therapeutics in the light of recent developments. Of particular value is the opportunity which this little handbook affords, of gaining an insight into the important rules of treatment as carried out in one of the largest and oldest hospitals of this country. The worth of this book is out of all proportion to its size.

Blood Pressure Technique Simplified. By W. H. Cowing, M.D., Rochester. Taylor Instrument Companies, 1912.

This book presents a brief account of the physiology of blood pressure, of the technique of its measurement and of its condition in various diseases. There are chapters on insurance and blood pressure; on the relation of blood-pressure to disease of the eye; on the relation of arterial hypertension to subconjunctival hemorrhage; on blood pressure in surgery; on the reduction of blood-pressure by auto-condensation (high frequency), by baths, and by medication; on blood pressure in the practice of medicine and in life insurance; on types of sphygmomanometers, etc.

Elementary Biology, Animal and Human. By James Edward Peabody, A.M., Head of the Department of Biology, Morris High School, Bronx, New York City; author of "Studies in Physiology" and "Laboratory Exercises in Anatomy and Physiology," and Arthur Ellsworth Hunt, Ph.B., Head of the Department of Biology, Manual Training High School, Brooklyn, New York City. Price $1.00 net. New York: The Macmillan Company, 1912.

It is gratifying to note in this recent addition to the many high-school textbooks on elementary biology, pictures of Pasteur, Koch, Jenner, Walter Reed, and Lazear. The aim of this book is to emphasize the relation of biology to human welfare. It is written simply and clearly for the immature pupils of the high schools, and presents the subject of biology in a manner that should prove interesting to the average pupil.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. Third Edition, Completely Revised and Rewritten. Edited by Thomas Lathrop Stedman, A.M., M.D. Complete in eight volumes. Vol. II. Illustrated by Numerous Chromolithographs and Seven Hundred and Fifty-four Fine Half Tone and Wood Engravings. Sold by Subscription. Price, per volume, $7.00. New York: William Wood & Company, 1913.

At the risk of repeating in part what may have been said about the first volume of this work, it may be stated that a cursory examination of the second volume reveals a comprehensive description of the various branches of medical science and of its auxiliary sciences; a full discussion of diseases, symptoms, syndromes, and methods of treatment; a wealth of biographical data; detailed information regarding health resorts in all parts of the world; and complete notes on the materia medica, including the latest remedies. One is particularly impressed with the fact that whereas this work is designed primarily for ready reference it is nevertheless available for casual reading and systematic study. The inclusion of the most recent advances in medical science; the brevity and terseness of the text; the system of cross references which enables one to correlate and unify a large number of articles pertaining to a certain subject, all render this work one that may be used as a collection of standard texts or of monographs. To illustrate this point one may cite a few of the articles appearing in this volume. Cancer is a subject that at the present day occupies the limelight of medical interest. There is, in the first place, an article of fifteen pages on the general etiology, diagnosis, and treatment of cancer. The author, Michailovsky, discusses the theory of cell autonomy; the increase of cancer; the influence of age, heredity, trauma, chronic injuries; the rôle of precancerous states such as leucoplakia; the relation of cancer to other diseases, such as tuberculosis, syphilis, and erysipelas; the general clinical phenomena, and the diagnosis, including the investigation of the precipitins, the meiostagmin reaction, leucodiagnosis, the hemolytic tests for cancer, the cutaneous hemolytic test, the detection of heterolysins, the antitryptic test, and the Freund and Kaminer reaction. The subject of spontaneous recovery from cancer is alluded to. Recognizing that early surgical intervention is the only logical method of treatment in the light of modern knowledge, the author nevertheless presents a complete survey of all other known methods of treatment, including the use of drugs, *x*-rays, radium, cancer ascitic fluid, fulguration, enzymes, opotherapy, chemotherapy, serotherapy, Coley's fluid, Doyen's vaccine, antimeristem, and cultures of blastomycetes. The distinctly pathological anatomy of cancer is discussed in an article of eleven pages on carcinoma, with the aid of many excellent illustrations, by Francis Corter Wood, Director of the Crocker Cancer Research Fund. This article includes a discussion of the general etiology of carcinoma, of the mechanism of metastasis, of multiple primary carcinomata, and of the action of carcinomata on the organism as a whole. John A. Fordyce contributes an article on carcinoma of the skin. In the article of forty-four pages on diseases of the breast, by Mastin, fully twenty-four pages are devoted to tumors of these organs. This article deserves particular commendation, in view of the thorough manner in which the author presents the classification of breast tumors, their diagnosis, and their treatment. The etiology of mammary carcinoma, the technique of the various surgical operations for its eradication, the palliative measures, etc., are thoroughly discussed. A bibliography of 109 references is appended to this article. Thus it may be noted how in this volume alone there is contributed a good share of a textbook on cancer, not to mention the special aspects of this subject that have appeared in the first volume or that are reserved for future volumes. The same is true of other subjects, such as the brain. The anatomy of the brain is discussed in a profusely illustrated article of seventy pages by C. Judson Herrick. The physiology of the brain is most lucidly discussed by Shepherd Ivory Franz in an illustrated article of sixteen pages. An article on atrophy of the brain is contributed by Smith Ely Jelliffe, who also discusses the diseases of the midbrain, a subject that assumes considerable importance in the light of recent investigation, which has revealed the special syndromes of the tegmentum and of the corpora quadrigemina. This author also contributes a comprehensive and up-to-date article on the disorders of the cerebellum and one on syphilis of the brain. William Browning presents an article of nineteen pages on the circulation of the brain, which article is illustrated with three handsome full-page colored plates; Samuel T. Orton writes on the circulatory disturbances of the brain; Carl D. Camp discusses compression and concussion of the brain and brain tumors; and the diagnosis of focal lesions of the brain is lucidly dealt with in an authoritative manner by M. Allen Starr. The growth of the brain is described by Henry H. Donaldson, who has already written extensively on this subject. Orton writes the article on cerebral hemorrhage, Roswell Park and Edgar R. McGuire contribute the article on surgery of the brain, and Harry B. Ferris presents the subject of the cerebrospinal fluid. From this enumeration it may be noted that the brain and its diseases come in for a considerable share of attention in this volume—a fact of no little satisfaction to the student and advanced worker in neurology. Similarly ample space is devoted to the topics relating to the blood. Erle D. Forrest writes on its physiology; George P. Dreyer, on its circulation, and C. N. B. Camac, in a detailed and handsomely illustrated practical article of forty pages, describes its clinical examination. There is a special article on blood stains by Francis Carter Wood. There are a number of important articles on the blood-vessels, including one on their pathological anatomy by Ludwig Hektoen; one on the origin of the blood-vascular system by Robert Payne Bigelow; one on the histology of the blood-vessels by Robert Formad, and one on blood pressure by Louis Faugères Bishop.

There are a number of miscellaneous articles that deserve mention. Douglas C. McMurtrie discusses the education of the blind and the occupations open to them. James Launcelot Minor writes on blindness. An article of considerable interest from the viewpoint of eugenics and insurance medicine, entitled "The Order of Birth with Reference to the Incidence of Disease," is contributed by Alexander Spingarn, who also writes on celiac disease. The suggestion is made that this condition is identical with the intestinal infantilism described by Herter. The diseases of the cecum and appendix are discussed in two separate articles. One of these is by Heinrich Stern, who describes three hitherto unrecognized disorders of the cecum, namely, typhlatonia, or atony of the cecum; typhlospasm; and typhlomyxorrhea, or the painless or painful evacuation of mucus derived from the cecum. The other article on diseases of this organ is contributed by Benjamin T. Tilton, who discusses carcinoma of the cecum; ileocecal tuberculosis; and appendicitis, including special sections on appendicitis in the child, appendicitis and typhoid fever, appendicitis and pregnancy, and carcinoma and sarcoma of the appendix.

In summing up this review, which cannot adequately convey the real scope of this work, it may be stated that in general this impresses one not as a mere compilation but rather as a distinctively original contribution to medical literature, as an effort to furnish a vantage-ground from which the reader may survey the vast territories opened up by modern medical research and clinical observation.

Society Reports.

BRITISH MEDICAL ASSOCIATION

Eighty-first Annual Meeting Held at Brighton, July 18-25, 1913.

(Special Report to the MEDICAL RECORD.)

(Concluded from page 270.)

GENERAL SESSIONS.

Fourth Day—Friday, July 25.

The Brighton meeting of the association concluded by mid-day on Friday, before which there had been an exodus of a considerable number of members. The council had a meeting at 9 A. M., but that is not of public concern. The sections, most of them, met again. State medicine, sociology, insanity, and similar topics affecting the relations of the profession to the public and to various hygienic institutions, to hospitals and to the present difficulties brought about by legislation were considered with more or less attention. After business came more entertainments provided for the guests who remained to partake, two garden parties and a number of excursions in the Sussex resorts were all patronized and other groups of the members visited the local institutions. In the evening a crowded audience attended a popular lecture by Mr. E. J. Spitta, in the Dome, on the wonders of animal and plant life in pools and ponds. This was illustrated by a fine series of cinematographs which were greatly admired. The lecturer considered the cinema was the teacher of the future as to nature's wondrous works. He showed films of the cyclops in movement; next the cypris, the only instance, he humorously observed, in natural history where the male is inquisitive—it would get anywhere and everywhere with great rapidity. For the first time in England he showed rotifers, obtained by Mr. J. Murray of the Scott expedition by boring 13 feet into a frozen lake. A ball of red stuff was all he found, but put into warm water it seemed to come to life, and after that neither freezing nor boiling killed them. The specimen was *Philodina gregaria*.

Finally it must be reported that the President and local profession gave a brilliant reception at Hove Town Hall to the members and friends of the Association. Altogether there were upward of a thousand guests at this memorable conclusion of the Brighton-Hove meeting.

SECTION OF SURGERY.

Second Day—Thursday, July 24.

The Diagnosis and Treatment of Injuries of the Knee-Joint Other than Fractures and Dislocations.—Dr. A. M. MARTIN, Newcastle-on-Tyne, in opening the discussion on this subject referred to the anatomy of the joint and pointed out that the more fixed attachment of the internal semilunar cartilage made it more liable to injury than the external. In complete extension the joint is locked, the cervical ligaments and internal lateral ligament being taut, so that rotation of the joint is then impossible except after rupture of ligaments, whereas during flexion some twisting of the femur on the tibia is normal. Coal miners working in low seams have to keep the knees flexed, and this posture predisposes the internal semilunar cartilage to injury when the joint is suddenly rotated. In his series of 500 operations on semilunar cartilages, the external was concerned in 38 only. The common type of torn semilunar cartilage is that in which there is a split extending from before backward. In some cases the torn piece is pedunculated and may become completely detached as a loose body, or it may project forward under the skin. A rarer form of injury is lamellar splitting. When the accident occurs, the first symptom is severe pain in the joint, most intense over the site of the injured cartilage; and as a rule the patient is conscious of a click or drop in the same situation. Full extension is impossible until the joint has been manipulated; in a few hours' time effusion gives rise to swelling. With prolonged rest more or less repair may ensue; but the joint is liable to remain insecure, and a slight twist or wrench may induce a return of the original symptoms. If a patient declines operation the treatment consists in fixation in a plaster-of-Paris case for two months, followed by a well-fitting brace to prevent rotary movement. But the only satisfactory treatment for active workers or athletes is by operation, which must be done with the strictest asepsis. Through a transverse incision two inches long from the border of the patellar tendon in the line of the joint, the synovial membrane is opened and the entire cartilage removed. The wound is then closed by suturing in layers, and dressed with gauze wrung out of a solution of corrosive sublimate in methylated spirit (1 in 1000). No splint is applied, and the patient is encouraged to move his knee as soon and as freely as he can. In ten days he begins to walk. In the speaker's experience the results of this treatment are very successful. Remarks were also made on traumatic synovitis and arthritis, laceration of ligaments, hemophilia, loose bodies, and trauma in connection with osteoarthritis, and specimens and drawings were shown illustrating the varieties of torn semilunar cartilages.

Dr. A. J. WALTON of London held strongly that anatomical and clinical data proved that lesions of the semilunar cartilages occurred during hyperextension of the knee, and he submitted drawings representing the ligaments, cartilages, and bones in various aspects of the joint. He maintained that at the end of extension when the tibia is rotating outwards a sudden movement may cause the internal semilune, especially at its anterior extremity, to become crushed between the joint surfaces and fractured. When this happens the patient is unable to extend the knee, and because the joint is then found to be flexed, it is commonly supposed that the accident occurred during flexion; in his opinion this view is fallacious. Since the rotatory or screw action is most marked on the inner side of the joint, the external semilunar cartilage cannot readily be injured. He had investigated eighty-five cases in the London Hospital; in eighty-one of these the internal cartilage was broken and in seventy the lesion was at the anterior end. The line of fracture is most frequently longitudinal. In his experience careful inquiry into the history shows that at the moment of the accident the knee was in the position of hyperextension with its terminal movement of external rotation of the tibia.

Dr. R. H. A. WHITELOCK of Oxford said he was convinced that lesions of the semilunar cartilages were always caused during partial flexion of the knee combined with external rotation. In athletes the usual fracture was transverse. A very important anatomical injury to the knee is laceration of the internal lateral and cervical ligaments which results in marked looseness and weakness of the joint. He advocated the use of radiography, for it was common in so-called sprains to find lesions of bone and cartilage. Athletic youths were liable to partial avulsion of the tibial spine, together with tearing of the periosteum and hemorrhage into the infrapatellar bursa; good functional recovery was the rule, but it may take two years and permanent thickening remained. Elastic pressure is the best treatment for a simple sprain, and when effusion has subsided the patient should be urged to get about and move the joint. Torn lateral and cervical ligaments should be sutured. He mentioned a case of hemophilia in which the bleeding was arrested by the subcutaneous injection of horse serum.

Dr. E. W. HEY GROVES of Bristol thought that violent rotation was a more important cause of semilunar lesions than either flexion or extension. Obscure injuries to the knee required free exploration of the joint, if necessary by division of the patella, so that torn intrinsic ligaments or osseous lesions could be suitably treated.

Dr. T. K. DALZIEL of Glasgow cited a case in which loose bodies in the knee originated from pounding and comminution of articular cartilage between the femur and tibia.

Dr. E. FINCH of Sheffield gave his experience of sixty cases of injury to the semilunar cartilages. In thirty-four the accident occurred during full extension of the knee; in eleven during flexion, and in the majority of the remainder extension was more probable than flexion. He laid stress on the persistence of a tender spot over the anterior horn of the injured cartilage which can often be elicited months after the accident. The immediate treatment of semilunar lesions consists in reduction of the cartilage, cold affusion to the joint, and retentive apparatus. If the lesion recurs, the whole of the injured cartilage should be removed; the attempt to suture the broken part in position gave unsatisfactory results. The aseptic wound is closed without drainage, and no splint is required; movement is begun seven days after operation, and the patient leaves hospital in three weeks. The average interval between the date of operation and resumption of work in his sixty cases was seven weeks, the shortest period being sixteen days. Several insured men declined to return to work, but he could find no adequate surgical reason. He drew attention to the fact that creaking of the knee was common and unimportant, many patients with this symptom working full time without discomfort.

Dr. J. Cotterill of Edinburgh mentioned the pioneer work of the late Professor Annandale forty years ago. He did not agree that semilunar lesions occurred with the knee in full extension, but rather when the joint was flexed and in process of extension so that the rotary or grinding action on the cartilage came into play: he had himself sustained the injury in this way. He preferred a longitudinal incision to reach the cartilage, and to expose intrinsic articular lesions he divided the tibial tubercle at its base with a chisel and turned up the patella and its ligament, afterwards securing the tubercle in place with a peg. He objected to the removal of more of a broken semilune than the piece which projected into the joint. He also pointed out the value of forcible hyperextension of the knee as a means of detecting any hard substance abnormally placed between the articular surfaces.

Dr. McAdam Eccles of London, referring to the tedious convalescence after partial separation of the tibial tubercle, said this was due to ossification in the patellar ligament by a process resembling traumatic myositis ossificans; there was also chronic inflammation of the infrapatellar ligament. In three cases he had removed a bit of bone from the ligament and excised the inflamed bursa.

Dr. C. Woodward of London advised local anesthesia for the removal of loose bodies. In severe sprains of the knee, aspiration of the effusion was of value, and to prevent muscular wasting active movement should not be delayed. He did not think operation necessary in the treatment of Schlatter's disease.

Operative Treatment of Compound and Comminuted Fractures.—Dr. Hey Groves of Bristol read this paper. He said that all authorities are agreed that the compound fracture with much displacement, and the severely comminuted fracture gave bad results by all methods of treatment yet published, and Lane and Lambotte exclude from their operations any case complicated by an open wound. In the classes of case under consideration we have to overcome (1) the difficulty of fixing small fragments; (2) the difficulty of operating on a septic bone area, and (3) the difficulty of nonoperative methods. Since the nail extension method is the best means for applying extension to a fractured bone, he has tried to adapt this as a solution of the problem. His apparatus consists in two bars which transfix the bone transversely and which are held in place by longitudinal bars at the sides of the limb. He exhibited skiagrams showing this method in its application to fractures of the tibia in cats. The animals could run about within a few days of the operation with the apparatus *in situ*; union of the bone was firm and rapid, and there was a minimum of callus. The apparatus was left in place for ten weeks without causing irritation of the bone or soft parts. The method gave good results both in simple and in comminuted fractures, though in the latter there was some excess of callus. He cited two cases of the method applied to human surgery; both were examples of comminuted fracture of the tibia and fibula, and in both the results were very satisfactory. For the humerus and femur he advised transfixion of the bone from one side only. Finally he showed a cat with the apparatus in position ten days after a comminuted fracture involving about a third of the shaft of the tibia.

Chronic Interstitial Enteritis.—Dr. T. U. Dalziel of Glasgow read this paper. The symptoms of the condition, which he had observed in nine patients, were as follows: intense intermittent colic, vomiting, and mucous stools; temperature and pulse usually normal; visible peristalsis above an area of obstruction; progressive emaciation, with no improvement under expectant treatment. The abdomen was opened in each of the nine cases and more or less bowel found similarly affected; its surface was smooth and the walls rigid and thickened. In two cases the intestines were so extensively involved that no further operation was possible, and these patients died; the other seven recovered after resection of the diseased bowel which was variously situated in small and large intestine, and in one case measured over two feet in length. The pathologist reports the condition to be nontuberculous hyperplastic inflammation varying from the acute stage to that of fibrous organization and affecting all the coats. Coliform bacilli were isolated from one specimen, but the others showed only the ordinary bacterial flora of intestine. The author suggested that the disease may be identical with Johne's disease found in cattle.

Prostatism: The Pathological Basis of the Operative Treatment.—Dr. Henry Wade of Edinburgh read this paper. It was a consideration of the treatment of prostatic dysuria from the standpoint of its pathology and the pathological findings observed in the parts removed by operation, in cases terminating fatally and in cases dying naturally of the disease. Material of this nature had been examined from 134 cases. In these cases three outstanding varieties of disease were present: (1) Prostatic hypertrophy or chronic lobular prostatitis (110 cases); (2) prostatic fibrosis or chronic interstitial prostatitis (10 cases); (3) prostatic carcinoma (14 cases).

Prostatic hypertrophy was considered to be a senile hyperplasia, an aberrant undergrowth of tissue not the result of the appearance of an independent new growth but possessing a pronounced liability to develop into the same and become a carcinoma. The disease was virtually always associated with great increase in the size of the gland. It was occasionally met with in glands that are smaller than normal but had clinically produced pronounced prostatic dysuria. In the cases examined the disease was confined to the middle and lateral lobes in all the cases except one where it was confined to the anterior lobe. The posterior lobe was never involved. The glandular hypertrophy resulted in changes that rendered the operation of suprapubic enucleation possible and usually easy—a false capsule of condensed uninvolved prostatic tissue was formed, the flattened gland acini of the latter forming a ring of "postage stamp" perforation between the diseased tissue and false capsule. It herniated itself through the internal vesical sphincter, crushing it to the side, and came to lie under the mucous membrane of the bladder. The seminal vesicals and ejaculatory ducts were displaced into a region of safety. This class of case of advanced chronic lobular prostatitis was the ideal case for suprapubic prostatectomy. The cases of this disease that were not ideal were: (1) Cases without hypertrophy, (2) cases of hypertrophy without intravesical herniation, (3) cases of incomplete false capsule formation.

Prostatic fibrosis or chronic interstitial prostatitis. This disease might involve the middle lobe and produced a fibrous sclerotic bar. In this disease none of the changes that facilitated suprapubic enucleation occur.

Carcinoma of the Prostate. Of the 14 cases ten had undergone prostatectomy and six of these were associated with chronic lobular prostatitis. It was the rule for the carcinoma to commence in the center of an area of chronic lobular prostatitis, so that at first enucleation was rendered more easy.

The cause of death in untreated cases of prostatism was either a sudden renal infection (acute consecutive suppurative) nephritis, or a slow renal destruction from prolonged backward pressure. In all cases examined there were signs of chronic interstitial nephritis which was considered to be produced or aggravated by the chronic prostatic disease.

The mortality of prostatectomy, despite the brilliant results of certain surgeons, was very high. It was considered to be from 20 to 25 per cent. in most general hospitals. This was accounted for mainly by the advanced stage of the disease when operation was undertaken. The immediate cause of death after suprapubic prostatectomy in sixty-eight cases was in the great majority an acute infection arising out of the wound inflicted. The changes produced in the prostate gland by the operation of suprapubic prostatectomy were determined mainly by the nature of the disease present in it. The tissue removed was found to come away in one of four different ways: (1) total enucleation along with the prostatic urethra, (2) total enucleation with conservation of the prostatic urethra, (3) lobar enucleation, (4) nodular enucleation. Fatal cases examined showed the internal and external vesical sphincters undamaged, the thick false capsule containing prostatic tissue and the ejaculatory ducts and posterior lobe undamaged. In only one case out of eight were the ejaculatory ducts found damaged. In nodular enucleation the danger was laceration of the false capsule. Complete extracapsular enucleation was considered impossible by suprapubic finger dissection.

The operative treatment of prostatism when the disease was not ideal for suprapubic prostatectomy. In early cases of chronic lobular prostatitis to delay operation to allow the gland to ripen was not justifiable. The fibrous prostate was best treated by Young's prostatic punch. The operation of suprapubic prostatectomy was unsuitable in all cases of prostatism due to other causes than advanced chronic lobular prostatitis of a certain type, the recognition of which is clinically difficult. Perineal prostatectomy, by open dissection, was the most suitable operation for such cases. Perineal prostatectomy (Young's operation) permits of the removal of the lesion, when its presence

is diagnosed, in all cases. It is therefore at present the operation that offers the best prospect of further advance in the treatment of prostatism. For its successful performance an accurate knowledge of the anatomical structure and relationship of the prostate was necessary as well as an understanding of the pathology of the disease.

Carcinoma of the prostate might be clinically indistinguishable in an early case from chronic lobular prostatitis with which it might be associated. When recognized clinically it might be treated by excision of the gland in suitable cases.

Neuralgia of the Twelfth Dorsal Nerve.—Dr. T. K. Dalziel of Glasgow read this paper. It was based on an experience of twenty-two cases, in 21 of which cure followed resection of the nerve; in the remaining case operation failed to relieve the pain because the nerve could not be found in scar tissue resulting from a previous renal operation. He drew attention to the course and distribution of the nerve, and its exposure to pressure and blows. The special areas of pain in this affection are: (1) under the 12th rib of the outer edge of the quadratus lumborum; (2) at the inner side of the anterior superior spine; (3) above and external to the pubes; (4) where the nerve crosses the iliac crest. It may simulate disease of the kidney, appendix, or ovary; and in one case all these structures had been removed without giving relief before the patient came under the care of the writer; she was cured by division of the twelfth dorsal nerve.

Surgical Treatment of Intestinal Stasis.—Dr. H. J. Paterson of London read this paper. He said the symptoms of stasis were those produced by obstruction, and those resulting from auto-intoxication (Lane's disease). Absorbed toxins interfere with gastric secretion and thus give rise to digestive troubles; this view is supported by the cure of supposed disease of the stomach after removal of a diseased appendix. The vomiting due to toxic gastritis may be aggravated by a kink or other cause of intestinal obstruction. The diagnosis of intestinal stasis is made by skiagraphy and confirmed by the charcoal test—that is the non-appearance of charcoal in the stools for 70 hours after two teaspoonfuls have been given by the mouth. Stasis doesn't call for surgical interference unless it is accompanied by constant pain and distinct signs of toxemia. He discussed the indications in this disorder for performing appendicectomy, division of bands, ileocolostomy, or colectomy. Complete colectomy at the same time as ileocolostomy is a severe operation which is seldom justifiable; he therefore recommends a procedure employed by Dr. Mayo, namely, anastomosis of the ileum to the transverse colon in an anti-peristaltic direction, combined with resection of the ileal stump, the cecum, and the right half of the transverse colon. He described his technique of this operation, and related the history of a case in which he had employed the method with success.

Retroperitoneal Fibroma, 34¾ Pounds in Weight, Successfully Removed.—Dr. C. P. Childe of Portsmouth showed this specimen, and read a report of which the following is a synopsis: G. T., age 48, schoolmaster. Gradual enlargement of abdomen of five years' duration, with rapid enlargement during last year. No pressure symptoms latterly, though at first bilious attacks and constipation; no pain.

Condition on examination: Patient very thin. An enormous nodular solid tumor occupied the whole abdomen and pelvis, with bosses of stony hardness here and there. It was quite fixed. It was impossible to form any opinion of its site of origin. Diagnosis: Probably malignant disease supervening on a previous innocent growth. Operation March 31, 1912.

Central abdominal incision—The tumor was found to be retroperitoneal, the intestines being packed up beneath the diaphragm. The posterior layer of peritoneum was divided and a lobule of the growth was shelled out. One of the bosses of stony hardness was examined and contained bone. The nature of the tumor was still doubtful, but enucleation was proceeded with. Owing to the closeness with which the tumor fitted the pelvis, loins and region beneath the diaphragm, enucleation was extremely difficult. Great care had also to be exercised not to tear the vena cava or one of the iliac veins behind it. When partially enucleated it took two persons to hold it up and move it from side to side while the deeper lobules were attacked. The tumor was eventually removed entire and was found to grow from the capsule of the left kidney, which had to be stripped off with it. Operation lasted three hours. Result: Very little shock; normal recovery. The pathological report showed the tumor to be a fibroma with myxomatous areas and areas of ossification. Some adipose tissue present, probably of peri-renal origin. No cartilage or muscle and no sign of malignancy.

SECTION OF MEDICINE.

Second Day—Thursday, July 24.

Fibrositis.—Dr. A. P. Luff opened a discussion on fibrositis and muscular rheumatism. He said that pathologically this condition was essentially an inflammatory hyperplasia of the whole white fibrous tissue, associated with exudation and proliferation of the connective tissue elements. The structures affected were mainly the fascial and other fibrous tissues. Microbes were rarely a cause—toxins much more frequent. In this connection he referred to the work of Goadby and Ware. As to etiology, (1) there was cold, damp, and wet; (2) extremes of heat and cold; (3) various forms of local injuries; (4) absorption of irritating toxins from alimentary tract; (5) toxic or microbic infection from oral sepsis, tonsillitis, and pharyngitis; (6) influenza; (7) febricula. The liability was greatest in certain places, such as muscles, occipital and pericranial aponeuroses. Other forms were lumbago, Dupuytren's contraction, fibrositis of the plantar fascia, fibrositis of bursæ, fibrositis of joints, fibrositis of subcutaneous tissue, and chronic villous synovitis. As to treatment, confinement to bed might be necessary; in less severe cases the part should be fixed. Salicylates were of little use. Aspirin was valuable for the relief of pain. Iodide of potassium was the most valuable drug. Fibrolysin had a very limited use. Local treatment might be by external applications (hot fomentations, a mixture of equal parts of chloral, camphor, and menthol, etc.), counterirritation, heat, and electrical treatment. He emphasized the value of local heat, especially dry, radiant heat, combined with ionization. In lumbago, the static current might be substituted for ionization. Massage was useful, but should not be applied to the affected part itself, but around it. It should not be general massage. He referred to spa treatment, diet, and underclothing, preferring for the latter porous linen underwear.

Dr. F. H. Humphris spoke of the value of electrical treatment, especially light and wave treatment. The light was better applied by one filament than by many which together bore the same amount. Exposure might be necessary once, twice, or thrice daily. It acted by dilating vessels. Wave treatment was used purely for its mechanical effect.

Dr. Alexander Morison said that prognosis was largely influenced by the social position of the patient. He thought fibrositis should be separated from infective conditions, such as that due to the gonococcus. He would regard it as essentially an afebrile state, and due to nutritional and metabolic disorder. Warm baths and heat in the wraps were valuable. He thought that visceral disease was generally absent. It was desirable to avoid pain in the treatment.

Dr. G. Parker had been struck by the frequency of brachial neuritis in association with this condition. These were very definite tender nodules at various places over the arm and shoulder in cases of fibrositis in those regions, and similar nodules in other places with different types. He had found great benefit from rest and heat, and local application of simple salicylic and lanolin ointment.

Dr. Bailey emphasized the advantages of dry heat (which should be sufficiently high temperature) and ionization, using iodine as the medicament.

Dr. Crofton of Dublin regarded the condition as infective, and he always examined first for pyorrhea, alveolares, then tonsillitis, then postnasal catarrh, then chronic bronchitis, and finally looked for dyspeptic disorder. To treat the disease it was necessary to clear up the local infection. He gave a mixed vaccine of the flora of the intestine when the local inspection was found clear. In certain cases which did not improve with vaccines the patients were shown to be passing large quantities of urates, indicating acidosis. For the correction of this he combined the vaccine treatment with the citrate of sodium.

Dr. Preston King of Bath said that sometimes one got a fine crepitation and a coarse one in the joints in the same patient, indicating the presence of both fibrositis and rheumatoid arthritis. Fibrositis was not so much a disease as a condition. Fibrositis certainly improved by treatment at Bath, probably in consequence of the radioactivity of the waters. Massage should not be used if it caused pain. Wet heat caused scalding, but dry heat was safe. He had found fibrolysin of no permanent use.

Dr. Gilchrist of Glasgow said the pain of massage could be quieted by the simultaneous employment of electricity.

He had cured an obstinate case of fibrositis of the abdominal muscles by massage. He thought it wiser to arrest intestinal indigestion than to let it go on and treat it by vaccines.

Dr. W. Langdon Brown of London said that the nodules occur in association with fibrositis might also occur in the heart and cause heart-block.

Dr. A. A. Warren of Paris advocated a low diet combined with purgation to combat the intestinal intoxication.

SECTION OF MEDICINE.

Third Day—Friday, July 25

Sporotrichosis.—The president, Dr. Hobhouse, read this paper with special reference to its diagnosis from syphilis and tubercle. He stated that it was a repetition of a lecture which had been delivered by Dr. Gongerot of Paris and was illustrated by lantern slides lent by him. There were three groups of clinical forms: (1) disseminated, resembling gummata; (2) localized; (3) extracutaneous. Culture was the simplest and most rapid method of diagnosis.

Chronic Arthritis.—Dr. Preston King of Bath read a paper on the diagnosis of chronic arthritis. He suggested that the case occurring in early life should be called rheumatoral arthritis; those in later life, osteoarthritis. The two conditions were different, the forms being more acute and more accompanied by constitutional disturbance. Although distinct clinically he did not regard them as distinct diseases.

Dr. Walter Broadbent of Brighton had found vaccines of service and also polyvalent antistreptococcic serum by the month.

The Heart as Affected by the Stomach.—Dr. Walter Broadbent of Brighton read this paper. The stomach might affect the heart by reflex nervous effects, by pressure, or by poisons in digestive disorder. The most common reflex effect was palpitation. In practice treatment of the stomach and nerves was more favorable than treatment of the heart itself. Other effects were paroxysmal tachycardia, intermittency of the pulses, and pseudo-angina pectoris. True anginal attacks might also be brought on by gastric distension. In fatty heart, gastric distension was also of great importance.

The Blood-Pressure in Aneurysm.—Dr. Magmurdo Mackinnon of London read this paper. This was based on observations on forty cases of aortic aneurysm investigated at the Seamen's Hospital, Greenwich. The blood pressure on admission was invariably considerably higher than subsequently. The general average was above normal. A difference of pressure of 5 or even 10 mm. of mercury between the two arms was of little importance. A marked difference of from 15 to 20 mm. or so was strong evidence of the presence of aneurysm. There was no reason to suppose that potassium iodide reduced the blood pressure, but it was useful in the relief of pain.

SECTION OF OBSTETRICS AND GYNECOLOGY.

Second Day—Thursday, July 24

Affections of the Urinary Tract Complicating Pregnancy.—Sir. Halliday Croom of Edinburgh opened this discussion. He said he would first draw attention to the normal changes which took place during pregnancy—these were increase in the total quantity of urine, decrease in the amount of nitrogen. Lactosuria was found in 16 per cent. Ailmentary glycosuria was frequent. Peptons was present in 25 per cent. Albumin, when the finest tests were used, was found in one-third; with ordinary tests in 3 to 5 per cent. These were three things which it was important that the general practitioner should attend to: (1) Antiseptic precautions; (2) measurement of the pelvis; (3) Examination of the urine during pregnancy. If the latter were done, eclampsia could in most cases be prevented; he advised examination of the urine every three weeks during the first to seven months of pregnancy, and, afterwards, every two weeks; if there was a suspicion of toxemia he examined daily. He had only seen stone in the bladder complicating pregnancy in one case in all his practice.

Pyelitis.—He would consider only acute cases originating during pregnancy and of which pregnancy was the existing cause; these almost invariably cleared up soon after the uterus was emptied, either naturally or artificially. As regards causation, it had been clearly shown that the pregnant uterus caused dilatation of the uterus and that the right ureter was the most affected; the pelvis of the right kidney was the one most often affected. The dilatation of the ureter in his opinion was due to pressure of the gravia uterus and the fœtal head was not concerned in its production. Closure was facilitated by engorgement of the mucous membrane which was always present; the most common infecting germ was the bacillus coli, but pyogenic germs and those of gonorrhea and tuberculosis were also sometimes the cause. The symptoms were pyrexia, rigors, nausea, pain; the latter at first diffuse and later localized. It generally occurred in pregnancy but was not uncommon in the puerperium. The prognosis was good for the mother but not so good for the child, as it frequently led to premature expulsion. He next discussed pregnancy kidney and the diagnosil from nephritis complicating pregnancy, and then went on to consider:

Diabetes.—True diabetes in pregnancy was very dangerous, having a mortality of 50 per cent. and an equal fetal mortality, but the women were generally sterile. If no diminution of sugar took place under treatment he advised induction of abortion. In these cases chloroform should never be given. In conclusion he advocated prematernity beds in lying-in hospitals and a closer connection between the chemical laboratory and the hospital.

Dr. Herbert Williamson of London said that he would confine his remarks to *Bacillus coli* infection. This was generally due to infection of ureters and was favored by stasis due to pressure of the uterus, but he thought that too much stress was laid on pregnancy as a cause, because the disease was frequent in female children and in these also the right side was the one most affected.

Dilatation of the ureter in pregnant women had been found to extend right down to opening into bladder and not to be limited to the portion above the pelvic brim only, as was generally taught, and if it was due to pressure of the uterus he asked why was it not found in contracted pelvis and in pregnancy complicated with fibroidel? He drew attention to the many forms of *Bacillus coli* and said that his worst case was due to the *Baccilus paratyphosus.* Stock vaccine were therefore no good and if vaccines were used they must be autogenous. The symptoms were very variable and he mentioned six modes of onset. The treatment consisted in the following: (1) Absolute rest in bed, lying on the opposite side to the one affected, so as to allow the uterus to fall away. (2) Diet. He did not keep patient on strict milk diet, but allowed cocoa, eggs, and fish. (3) Large quantities of fluid. Barley or vichy water with citrate of potash. (4) Urinary antiseptic, urotropin and helmitol. (5) Free purgation. He was not convinced of the value of sera or vaccines, and, if there was no improvement in 10 days after treatment on the lines indicated above, he advised induction of labor. He thought that operations on the kidney as nephotomy or nephnectomy were never indicated.

Dr. Bramwell agreed with the previous speaker that too much stress was laid on pressure by the gravid uterus. He said the cecum and ascending colon were liable to contain more virulent germs than the descending or sigmoid colon, and this, together with the fact that the right kidney was usually more movable than the left, would perhaps account for the greater frequency of hyelonephritis in the right side.

Dr. Oliphant Nicholson of Edinburgh discussed pregnancy toxemia and said that when the blood pressure was raised he gave thyroid extract.

Dr. Edge of Birmingham said that, in his opinion, defective cleansing of the bulva was a common cause of *Bacillus coli* infection.

Dr. Dickinson of New York said that in the treatment of pyelitis, irrigation of the kidney had been tried, but, in his opinion, it was not warrantable. The symptoms were severe—out of proportion to the gravity of the disease; he emphasized the importance of examination of the urine during pregnancy, but he said that blood pressure was more important than uranalysis in foretelling eclampsia and should be taken regularly by the general practitioner.

Dr. Leith Murray of Manchester mentioned Hart's method for quantitative estimation of acetone bodies in the urine. Deficient action of the liver was an important agent in altering the ammonia coefficient and he advocated taking the coefficient several times in 24 hours, as it was much more important to ascertain whether it was increasing or diminishing than to know the actual percentage. Some investigations he had made had shown that the colon bacillus was present in the bladder in about one-third of women submitted to abdominal operations and in most of these cases it was producing no symptoms.

Sir Halliday Croom in reply said that they had in Edinburgh a home for single women, pregnant for the first time, where they were under medical supervision and the

urine was examined regularly and in ten years there had been no case of eclampsia among the inmates.

Third Day—Friday, July 25.

Uterine Fibromyoma.—Dr. A. E. Giles of London read a paper in which he advocated early removal of fibroid tumors of the uterus, for there was danger, he believed, in letting them wait to see what would happen at the menopause. The flooding caused by them might subside at the time of cessation of the menses, but the pain and pressure symptoms would not. As to the fear of operation, that was a survival of the past; at the present day hysterotomy for fibroids was not a dangerous operation. If operation were done early, while the tumors were small, they might be excised without the necessity of removal of the uterus. Moreover, one never could be sure that there would be no complications, for pelvic suppuration and malignant degeneration were not so very uncommon in cases of neglected fibroids. Finally one could not be sure of the diagnosis, and what was confidently regarded as a benign fibromyoma might actually be a cancer and the true condition could be absolutely determined only at operation.

The Wassermann Reaction in Gynecology.—Dr. A. L. McIlroy of Glasgow read a paper giving the results of an investigation conducted by herself and Drs. H. F. Watson and J. H. McIlroy to determine the relation of syphilis to pelvic disease in women. One hundred non-selected cases from the Gynecological Department of the Glasgow Royal Infirmary were examined by the Wassermann test. Of these, 40 gave a positive reaction, although only 6 showed gross lesions of syphilis, 48 gave a negative reaction, and 3 were doubtful. The women giving a negative reaction were all married; the children of a number of these were tested and 7 of them responded positively. The reader thought the results of this investigation made it imperative to examine for syphilis as a routine measure in all gynecological cases, and she also urged the compulsory notification of syphilis.

Dr. Hans Schlimpert thought there must be some mistake in these figures, for he could not believe that fifty per cent. of the women applying at the clinic could be syphilitic. In Freiburg only ten per cent. of 400 patients examined had shown a positive reaction.

Dr. Whitehouse also doubted the accuracy of the figures, for if they were correct the general population of Scotland must be extensively diseased.

Dr. Leitch thought that not more than five per cent. of the general population would give a positive reaction, and he asked for details as to the technique.

Dr. McIlroy replied that they had employed the lecithin-cholesterin method. The results had all been checked by Drs. Browning and Mackenzie, and she was convinced they were absolutely correct.

The Abderhalden Test for Pregnancy.—Dr. Hans Schlimpert of Freiburg read this paper, in which he summarized the work done by Dr. Hendry and himself in the study of this method. They had experimented with both human and animal sera. In 79 animals the test had failed but once; in 237 women there had been many failures at first, but these became less frequent as the technique improved, and in the last 79 cases a positive result was obtained in all. The reaction could be obtained by the end of the second or third week, and was, therefore, of great value in the early diagnosis of pregnancy.

Dr. Hendry said there were many and great difficulties in the carrying out of this test. It was difficult to obtain blood-free placenta and hemoglobin-free serum, the dialyzer sacs were also useless in about two-thirds of the cases, and ninhydrin was a very delicate indicator, so that one must exercise great care in interpreting the results.

Appendicitis Complicating Pregnancy.—Dr. Iondes of Hove reported this case.

International Clinical Travel.—Dr. R. L. Dickinson of Brooklyn, N. Y., read a paper advocating the foundation of societies of specialists for the purpose of uniting the most important clinics in the different countries in order to study the methods and the technique of the leaders in the specialties in question.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held March 13, 1913.

Dr. Henry Dwight Chapin, in the Chair.

Case of Mongolian Idiocy with a Congenital Heart Lesion.—Dr. F. L. Wachenheim presented this case, a female infant six months of age. The heart lesion consisted in a perforation of the intraventricular septum and open ductus arteriosus, forming a collateral circuit in place of the stenosed pulmonary orifice. There was a slight cyanosis when the child cried, showing that the collateral circulation was not quite adequate. Dr. Wachenheim said that in his experience the combination of these two lesions was unique, although the presence of these two developmental defects in one subject should not strike one as very remarkable. The mother stated that another child presented a similar cerebral defect.

Case of Congenital Meningoencephalitis.—Dr. Wachenheim presented this patient, a female infant, four months of age. The condition had existed since birth and the child had apparently not gained in weight. There were periodic convulsions of the extremities of athetoid type associated with an extreme opisthotonos. The examination showed no rigidity or spastic condition of the extremities, but marked rigidity of the neck. There was no enlargement of the head or bulging of the fontanelles. The pupils were markedly contrasted but reacted to light. The symptoms and their localization indicated a chronic meningitis of the base and an encephalitis of the basilar region, probably the optic thalami. The noteworthy features of the case were the predominance of the athetosis and the absence of spasticity in the extremities.

The Result of Recent Researches into the Etiology of Measles.—Dr. Jerome S. Leopold read this paper. He recalled that for many years it was generally believed that the virus of measles was present in the blood and in the discharges of the nose and mouth of infected individuals. Definite proof of this hypothesis had only recently been evolved. Home, in 1758, made an attempt to inoculate measles but his results and those of contemporaneous observers were not conclusive. Mayr, in 1852, reported that he had infected children with measles by inoculating them with the blood and with the secretions from the nose and mouth of measles patients. He also showed that the scales from a desquamating patient were not infective. In 1898 Chavigny reported a case of measles in a monkey that had been in close contact with a keeper who had the disease. Influenced by this incident, Josias, in 1898, placed monkeys in a measles ward for several months, but was doubtful if his attempts to transmit the disease were successful. Hektoen, in 1905, successfully reproduced the disease in two adults by inoculating them subcutaneously with blood taken from patients having measles during the first thirty-six hours of the eruption. This experiment demonstrated that the virus of measles was present in the blood at least during the early stages of the disease. Anderson and Goldberg succeeded in inoculating two Rhesus monkeys with blood from a patient having measles in 1910. Both animals had fever eleven days after the inoculation but no eruption. The experiment was repeated with the same result. The blood from a third patient was then inoculated into three monkeys and after ten days a rise in temperature was noted in one of the animals and a few papules were noted on the face of the animal. At the end of four days the eruption disappeared and was followed by scaling. This was considered a slight attack of measles. In these experiments the blood was taken from the measles patients from twenty-four to forty-eight hours after the eruption had appeared. A series of experiments was then undertaken with blood taken from the measles patients fourteen hours after the appearance of the eruption. Two monkeys were thus inoculated, and after an interval of ten days a rise of temperature with a typical eruption was observed. The blood taken from the hearts of these monkeys and injected into other monkeys caused a rise in temperature and a typical eruption in several instances. Anderson and Goldberg attributed their early failures to the fact that the blood was not taken from the measles subjects early enough in the course of the disease. They observed that blood taken from individuals some time before the eruption appeared, when injected into monkeys, induced a definite rise in temperature. Blood withdrawn eighteen hours after the first appearance of the eruption gave a well marked rise in temperature with a typical measles eruption, coryza, pharyngitis, and bronchitis. With blood taken from a case of measles sixty-five hours after the first appearance of the eruption no definite reaction was obtained, and with blood taken one hundred and thirteen hours after the appearance of the eruption no reaction at all was obtained. Thus it was shown that the infectivity of the blood was greatest shortly before the eruption appeared, lasted about twenty-four hours, and then rapidly diminished. Hektoen obtained positive results in man thirty hours after the eruption had appeared, but this might be due to the fact that man was more susceptible to the transmission of measles than the monkey. Anderson and Goldberg were

the first to observe typical Koplik spots in experimental measles in monkeys. Anderson and Goldberg in another series of experiments collected the discharges from the mouth and nose of measles cases twenty-four hours after the first appearance of the eruption and applied these secretions to the mouth and pharynx of monkeys. Some of the secretion was also injected into the monkeys. Positive results were obtained in both instances. Attempts to inoculate monkeys with the epidermal scale of measles were negative. Arenson and Sommerfeld found that the toxicity of the urine was very much increased in measles. If two c.c. of urine from a case of measles was injected into a guinea pig the pig died immediately with the symptoms of anaphylactic shock, or else became extremely ill. The urine of patients ill with serum disease showed the same toxicity. Urine from patients ill with scarlet fever, tuberculosis, pertussis, and typhoid fever, and healthy children showed no such toxicity. From a review of experimental work it might be stated: (1) That measles could be experimentally reproduced in monkeys. (2) That the virus of measles was present in the blood and in the buccal and nasal secretions of infected individuals. (3) That the virus had not as yet been demonstrated in the "scales."

The Treatment of Scarlet Fever with Intravenous Injections of Neosalvarsan.—Dr. Louis Fischer and Matthias Nicoll presented this paper. Dr. Fischer stated that their investigation had been suggested because of the positive Wassermann reaction obtained in some cases of scarlet fever. This made it seem possible that neosalvarsan might offer specific therapeutic results in this disease as well as in syphilis and allied affections of the spirillum group. Other observers, among whom were Lenzman, Schreiber, Klemperer and Wiota had described some of the advantages of the use of salvarsan in scarlet fever in that it exerted an antipyretic effect soon after injection, and caused a decided exfoliation of the necrotic membranes, together with a tendency toward convalescence and an absence of fatal complications. The present study had been confined to the mild and some severe cases of scarlet fever. In order to test the efficacy of arsenic Fowler's solution alone was given in scarlet fever, but without result. Arsenobenzol was found to be the active agent. Neosalvarsan being readily soluble in water and its preparation being simple in contrast to that of salvarsan made it preferable for the purpose. An intravenous injection of 20 c.c. of freshly distilled water was used to every 0.1 gram of neosalvarsan, or 0.9 of a gram was dissolved in 180 c.c. of distilled water. As to the relative strength of the two preparations 0.6 of a gram of salvarsan was equivalant to 0.9 of a gram of neosalvarsan. In a series of cases reported by Schreiber he administered 0.15 of a gram in infants and in nurslings 0.05 of a gram. Luksch found that in animals infected with the streptococcus or the *Staphylococcus pyogenes* an intravenous injection of salvarsan either arrested or greatly retarded the progress of the infection. Clinical observations seemed to verify these experiments, but positive deductions could not be made until a further number of cases had been studied. Marked improvement had followed the injection. In three other cases of suppurative phlegmonous processes the fever subsided and the functions of the affected joints were restored in a very satisfactory manner. It therefore looked as though salvarsan might be employed in the future against infections other than those produced by the spirillum group. The five cases which he had to report were all septic and were chosen because the prognosis was fatal. The Wassermann test was negative in three of these, probably positive in one, and the result of the test was unreported in one instance. All of the injections were given intravenously. Because of the small size of the basilic vein in infants it was necessary to cut down and expose the vein at the elbow in order to make the injection. The jugular vein used in the fourth case offered the best means of introducing the remedy. The dose employed was 0.2 of a gram dissolved in 40 c.c. of sterile water. The five cases were all in a desperate condition; two were complicated by extensive noma. Three died subsequently; in two instances, however, there was some improvement after the injection which was indicated by a fall in the temperature. Two of the patients were still living; in one the prognosis was good and in the other very grave. The cases were too few to warrant drawing any conclusions, but it was worthy of note that no reaction such as an acute febrile attack had been noted, neither had there been any shock nor rash following the injections. It was too soon to be prejudiced either for or against neosalvarsan as a remedy in scarlet fever, but it merited a trial. Whether or not antitoxin inhibited the action of neosalvarsan could not at present be stated.

Present-Day Opinions of the Value of the So-Called Inclusion Bodies in Scarlet Fever.—Dr. Matthias Nicoll, Jr., presented this paper. He said that Döhle believed that these bodies were pathognomonic of scarlet fever and Hertschmer of Berlin had concurred in this opinion. Dr. Anna Williams and the writer had undertaken a study of this subject in the Research Laboratory of the Department of Health. They had concluded that while Döhle's claim of specificity for these inclusion bodies was not yet justified, nevertheless the determination of the presence of these bodies was of decided value to the clinician in assisting him to make a differential diagnosis between scarlet fever and the conditions which frequently simulated it. This position they still maintained, in spite of the adverse opinions of many observers, and the fact that a more extensive study of the mild cases of scarlet fever and of control cases of other conditions had led them to a somewhat lessened regard for the value of the inclusion bodies as a diagnostic factor. Professor Kolmer of Philadelphia and other writers including himself had little to say for Döhle's work. Bongartz of Nuremburg, in a study of eighty cases, including twenty-one normal bloods, and the remainder scarlet fever, diphtheria, measles, pertussis and even diarrhea, found inclusion bodies in 81 per cent. of the normal bloods and in 91.5 per cent. of the others. He stated that inclusion bodies were found in the blood of the majority of children and that they were greatly increased in febrile conditions and therefore were not pathognomonic of scarlet fever. Glomset went still further and stated that by shaking up normal blood the bodies might be found to increase in number. Contrary to all other observers he made no distinction between the so-called inclusion bodies and detached or pediculated portions of nucleus. He believed that the bodies reached their maximum on the fifth day which he regarded as the height of the disease. His photograph of measles blood, said to have been from a hemorrhagic case, differed in no respect from the blood seen in an early case of pronounced scarlet fever. Belak of Budapest believed that when there were non-inclusion bodies in the blood scarlet fever could be excluded. Granger and Dole of London recently examined a large number of scarlet fever cases and controls and found that a carbol methyl blue stain gave better results than the generally used Manson stains and they stated that Döhle's inclusion bodies would probably be found in every true case of scarlet fever during the first four days, and that the absence of these bodies practically excluded this disease. They found them, however, in a large proportion of the cases of diphtheria, measles, and tonsillitis, and believed that they were of no value in making a differential diagnosis between these diseases and scarlet fever. They found no inclusion bodies in toxic rashes. In contrast to these opinions Kolmer and Kretschmer were in agreement and their own work was in harmony with these investigators. In diphtheria, during the first four or five days, typical inclusions could be found in quite a large percentage of cases, and after that but seldom. This fact had escaped them in their first studies, but they had since been able to confirm it. Kretschmer in a second communication had reiterated his belief in the value of these bodies, and stated that with the exception of septic conditions, those in which they were found were not likely to be confounded clinically with scarlet fever. Dr. Nicoll said that in his opinion this diversity of opinion was due to the fact that the majority of workers had chosen to regard a given case as positive if, after prolonged research, one or two polymorphonuclears showed a single body no matter what the size or shape, thus using the term in an absolute rather than a relative sense. It was true that by examining a great many cells even in normal blood an occasional inclusion might be met with. Many of the observers had drawn their conclusions solely from the blood sent to the laboratory without clinical data of the illness from which the patient suffered. From a study of this kind no really definite conclusions could be reached. In their work they had been strictly controlled by a personal study of the patients. During the past year they had continued their studies of the inclusion bodies and had now examined from three to four hundred cases of scarlet fever blood, usually taken in the active stage of the disease. Until a short time ago he had felt convinced that every case of scarlet fever up to and including the fourth day would show in the blood a sufficient number of inclusion bodies to justify a differential diagnosis between scarlet fever and such conditions as in his opinion showed no such findings. In a recent study of thirty-three mild cases, five showed too few inclusions to justify calling the blood smear positive, two of these cases were doubtful and were probably cases of German measles,

but the others were undoubtedly cases of scarlet fever. In some of these cases the inclusions were more pronounced on the third or fourth day than on the first. In a small percentage of true scarlet fever practically negative results might be expected. As there were pathological conditions which might justifiably be confused with scarlet fever, so unfortunately were the blood pictures of these conditions identical with that of scarlet fever. Serum rashes showed no inclusions in the blood, that was, none that would serve to confuse the condition with scarlet fever. If such inclusions were present in the blood of a diphtheria patient they might be due to diphtheria, to the antitoxin which had been given, or to the streptococcus infection associated with it. Therefore positive findings at this period were of no value. Negative findings practically excluded scarlet fever. Toxic rashes due to other cause than serum showed no inclusions. Measles blood was peculiar; in an examination of some forty cases of uncomplicated measles from the pre-eruptive stage through the first week, not one had shown a blood picture similar to that of scarlet fever, although there were present tiny granules which were quite unlike the relatively large masses found in scarlet fever. On this account he thought the picture of measles blood accompanying the article of Dr. Glomset was misleading as typical of uncomplicated measles. The blood examination in tonsillitis had not been sufficiently numerous to justify a conclusion, yet in the fifteen or twenty cases studied, no typical inclusions were found. In the condition known as streptococcus angina typical inclusion bodies were regularly found. These cases were usually suspected of being diphtheria, but the cultures showed a preponderance of streptococcus; then scarlet fever was anticipated, and a rash was searched for without result. It was safer to regard these cases as atypical cases of scarlet fever and to protect others from exposure. That these bodies could be found in certain pneumonias, erysipelas, pulmonary tuberculosis of an active type, typhus fever, and other conditions was not pertinent to the inquiry regarding their value as a means of differential diagnosis between scarlet fever and a disease resembling it, provided that neither was complicated by one of the diseases mentioned. This method had been put to a practical and exhaustive test and had given decided satisfaction. There was at present no short cut to the diagnosis of scarlet fever. All the clinical symptoms must be taken into consideration and among them a determination of the presence or absence of inclusion bodies in the blood had not an unimportant place.

Return Cases of Scarlet Fever.—Dr. Lewis A. Sexton presented this communication. He stated that his remarks would not meet with the approval of many present but they were the result of his personal observations covering a period of six years during which time he had had under his care 10,093 cases of scarlet fever. In no condition was it so difficult to affirm when the period of infection had passed as in scarlet fever. Realizing this they had continued to isolate patients until they were free from nasal, pharyngeal, and aural discharges. This necessitated isolating the patients far longer than would otherwise seem practical. It sometimes meant a period of eight to twelve weeks and sometimes longer. They were probably as far from a specific for the disease today as in the time of Ingrassias of Palermo (1560), who first described the disease. It was known that individual attention to toxic cases markedly reduced their mortality. Their hope for the present lay in preventive measures and constant individual attention to the septic types which were overwhelmed by the toxins which were liberated along the respiratory and alimentary tracts. As they became better acquainted with the morbic conditions which accompanied scarlet fever they found that the quarantine period in these cases lengthened year after year. While the sanitary code required an isolation period of thirty-five days, their period of extension extended on the average of over forty-two days. Even with this prolonged isolation they got a small percentage of return cases. Nasal discharges appeared late in the course of the disease and seemed in the majority of their infecting cases to have been the source of infection. A peculiar feature was that a majority of these cases passed through the regular course of the disease without complications and this led them to believe that the infection might be carried and remain in a quiescent state for weeks and then become active, the activity being excited by a cold and subsequent rhinorrhea. This condition was undoubtedly influenced by the season as most of the cases occurred in the winter and it might also be explained by the fact that all cases exposed themselves more or less after being released from their long detention in the hospital. During the past three years they had had sixteen return cases traceable to some member of the family who had been discharged from the scarlet fever hospital. In each of these cases Dr. Sexton said he had personally visited the homes and carefully examined the discharged patient, and in every instance he had found the discharged patient suffering from a rhinorrhea. In only two cases was there any desquamation and then on the soles of the feet. Dr. Sexton cited several cases in which a virulent type of the disease resulted from infection by mild and uncomplicated cases. There was no authenticated proof that the old and popular theory that desquamation was infectious. The infectious stage of the disease began before and frequently continued far beyond the desquamative period of the disease. Patients covered with the desquamation had mixed freely with others without infecting them and this led to the conclusion that true desquamation played no part in the transmission of the disease. Dr. Sexton believed that their observations justified the conclusion that as long as the nasal and aural discharges existed, just so long would cases be infective.

Dr. William P. Northrup said he took exception to the statement that German measles was never a severe disease in young adults. He recalled several cases in which the patients were delirious and had temperatures of 104° F. There were instances in which those afflicted with German measles were as sick as when they had ordinary measles. As a rule there was a lower temperature with German measles and they ran a shorter course. For this reason they were called bobtail measles in the hospital. Dr. Northrup said that he also took exception to the statement that German measles was not contagious in the usual sense. The House Physician at the Foundling Hospital went to his home in Maine and after he had been home for fourteen days the whole family came down with the German measles. It was gratifying to hear that desquamation was no longer considered the infecting agent. He also believed that the communicability of scarlet fever was less feared in the wards today than it was a few years ago. It was possible to technically isolate these patients in the middle of a ward and it would be perfectly safe for the other patients.

He believed that he could safely place a case of diphtheria in one bed and a case of scarlet fever in the next and could thus alternate the diseases down the ward and that the patients could run the whole course of the disease without danger. The beds should be separated by a space and possibly a screen. The old bugbear of carrying scales on or in a letter had been exploded. In a word these diseases were communicated more or less readily by near approach or by contact and by the handling of the communicating agencies.

Dr. Henry W. Berg said that this year German measles seemed to be quite prevalent. In regard to the symptomatology of the eruptive stage of this disease one symptom which was almost pathognomonic of the disease was the enlargement of the chain of glands in the posterior triangle of the neck, along the anterior border of the trapezius muscle on each side. This chain of glands was not enlarged in scarlet fever but was enlarged in both the morbilliform and scarlatiniform types of German measles. In regard to the treatment of scarlet fever with neosalvarsan, the most important quality of such remedies as diphtheria antitoxin and salvarsan was their specificity for the respective diseases. Some years ago a physician in New Haven advised the treatment of epidemic cerebrospinal meningitis by diphtheria antitoxin. He stated that he had found this treatment valuable empirically. His claims were not substantiated, but the serious aspect of such a recommendation was that it encouraged the empirical use of such specific remedies for diseases for which they had no specificity. It was equally illogical to use empirically chemico-biological remedies like salvarsan for diseases for which they were not specifically remedial. The use of salvarsan or neosalvarsan in scarlet fever was based on the fact that in a small proportion of cases of scarlet fever the blood reacted positively to the Wassermann test. This was no logical reason for believing that salvarsan should be a remedy for scarlet fever. Dr. Fischer was to be congratulated for showing that practically neosalvarsan was not of value in the treatment of scarlet fever if his results might be interpreted in that way.

Dr. H. B. Sheffield called attention to a clinical sign observed by him in the great majority of cases of German measles which he believed might be helpful in the differential diagnosis between rubella, rubeola and scarlatina. This symptom consisted of free perspiration during the entire course of the disease. That was, whereas

in measles and scarlet fever the skin was hot and dry, in German measles the skin was warm and quite moist and often even bathed in perspiration. This symptom could be explained by the fact that in German measles not only were the lymphatic gland involved but the sweat glands as well. Dr. Sheffield noted this symptom about eighteen years ago during a large epidemic of rubella, rubeola and scarlatina simultaneously at the Hebrew Sheltering Orphan Asylum, and he had been able to confirm the observation then made on numerous occasions since that time. His observations had been recorded several times but apparently they had been overlooked and he trusted that the members of the Section would take this symptom under observation when confronted by a doubtful case of German measles. In some cases the spleen was distinctly palpable though the general course of the disease was mild.

Dr. L. E. La Fetra called attention to one sign found in German measles of the morbilliform type, namely, the punctate type of the rash. The differential diagnosis between German measles and scarlet fever was sometimes very difficult.

Dr. Minor said he remembered Dr. Noguchi examining from three hundred to five hundred cases of scarlet fever and all gave a negative reaction to the Wassermann except one case. This patient developed a bullous eruption and was treated as a case of syphilis. This point was worthy of note in connection with what had been said regarding the use of salvarsan and neosalvarsan.

Dr. Matthias Nicoll, Jr., said that one should not be misled by enlarged posterior cervical glands; these glands might be enlarged because of a scratch and consequent infection.

Dr. Louis Fischer emphasized the point made by Dr. Sexton regarding the conveyance of the disease by a rhinorrhea or otorrhea; these conditions should be removed as soon as possible.

Dr. Lewis A. Sexton said that attention had not been called to the color of the lesions. In German measles there was a violaceous color which was not present in scarlet fever.

Recent Investigations into the Antitoxin Content of the Blood in Cases of Diphtheria at Different Times.—Dr. William H. Park said that about three years ago a study of antitoxin from the subcutaneous tissues led him to the conviction that the proper way to give antitoxin in diphtheria was to inject at the earliest possible moment in a single dose the required amount. Since that time he had, with the cooperation of Drs. Sexton and Wood of the Willard Parker Hospital, made a study of the antitoxin content of the blood in persons sick with diphtheria after injections of antitoxin. Dr. George P. Biggs carried out the animal tests. During the last few weeks results had been obtained from four healthty laborers who were each injected with 10,000 units of antitoxin. Hour by hour, and day by day, the increase of the antitoxin content of the blood of these men had been watched. A curious fact about these four men was that three had some antitoxin in the blood before the injection. One had as much as 0.3 of a unit per c.c. of blood before the injection. Just why this was present it was hard to understand. The results in two men were given. They were chosen because they were the two extremes, one weighing 125 pounds, the other 260 pounds. By the end of three hours after the subcutaneous injection of 10,000 units the small man shows 0.1 of a unit, the larger man 0.4 of a unit per c.c. The excess in the larger man was partly due to the fact that the latter's blood was slightly antitoxin at the start. By the end of the sixth hour the small man showed 0.2 of a unit, the larger 0.25 of a unit. By the end of the ninth hour the smaller man showed 0.25 of a unit, the larger 0.6. By the end of twenty-four hours, the smaller man showed 0.75 and the larger 1.50 unit. B the end of forty-eight hours the smaller man showed 1.6 and the larger 1.75 units. Until the end of the second day, therefore, there was a continuous increase in the antitoxic content of the blood. At first this was a rapid and then later a slower accumulation; for two days more the amount remained stationary and then the amount gradually dropped until the end of two weeks when it disappeared. These two cases illustrated the fact that the antitoxic content of the blood was not always proportional to the quantity injected and the size of the individual. In this case the smaller man's blood was less in antitoxin content than the larger.

Dr. Park presented some charts illustrating the accumulation of the antitoxin in the blood of treated patients. In all, during the first forty-eight hours, there was a rapid rise and in the majority the antitoxin content increased during the first three or four days. In two cases there was a rapid production of the antitoxin by the patients' tissues. One case was very remarkable in that 60 units per c.c. developed. Most of the cases developed very little, one-third, one-fourth and one-eighth of a unit per c.c. being the usual amount. What was produced in the patients lasted for months thns differing from that injected which came from the horse. Another chart showed that the intravenous injection gave an immediate accumulation in the blood. In the first honr this was 100 fold as much as for the subcutaneous way. An intravenous injection probably at least gave 10 fold the effect on the diphtheria as the same number of units given subcutaneously.

A recent report stated that the concentrated form of antitoxin was less rapidly absorbed than the non-concentrated, but Dr. Park found there was no appreciable difference. In the use of the concentrated form there resnlted sometimes slight local irritation, and where this irritation happened there was a much slower absorption. They had been interested in testing the amount of toxin in the blood of the cases as they entered the hospital and they had found there was but little in any case of diphtheria. Most of the cases that entered the hospital had blood already feebly antitoxic. These results clearly demonstrated that large amounts of antitoxin were not given because of the large amount of toxin in the body, but because it was necessary to get antitoxin quickly to the various tissues. The antitoxin passed slowly from the blood to the issue cells. Twelve hours after a sufficient dose there was probably no toxin left in the body except possibly in the diseased local tissues. Dr. Park emphasized the importance of giving enough antitoxin in the first dose, especially in the malignant cases; in these a large dose might save where a small dose either single or repeated might not. In these cases an intravenous injection was indicated. Time was very important and it was better for the patient to give a small dose early than to wait and give a larger dose six hours later. In moderate cases small doses would save life as well as large doses, but the recovery would not be so prompt. At the Willard Parker Hospital they had gradnally come to use a single large dose; this was decided upon after much experimental work. Last year only 10 per cent. of the patients received more than one dose.

Dr. William P. Northrup asked Dr. Park about anaphylaxis. He was also asked about the size of the initial dose of antitoxin.

Dr. William H. Park, in answer to the second question, said that at present in the milder cases they gave a single dose of from three to five thousand units; in the moderately severe cases a single dose of ten thousand, while in the very bad cases they gave from twenty to thirty thousand units and this usually intravenously. In the intubation cases both subcntaneous and intravenous injections had been employed, but no marked differences in the results were apparent. The death in these cases usually depended upon whether or not the children had pneumonia at the time treatment was begun. In all severe septic cases the intravenous method was employed when possible and the average dose was twenty thousand units. So far as anaphylaxis was concerned Dr. Park could give no statistical information. Urticarias occurred about as frequently with the refined as with the whole serum. Severe rashes were very rare. Personally he felt the danger of anaphylaxis had been exaggerated and did not let a fear of it prevent the giving of immnnizing doses in infected families. Some opposed this becanse it might become necessary to inject such persons with serum at some later period. He felt that this was a mistake. No death had occurred in New York City so far as he knew because of the injection of the refined serum. This covered a period of five years. Two deaths occnrred at an earlier period when the whole serum had been used.

Lectures on Balneotherapy.—A course of lectures on balneology and balneotherapeutics, arranged under the auspices of the International Committee for Post-Graduate Medical Teaching, will be given at Carlsbad from September 28th to October 4th, 1913. The list of lecturers includes, among others: Professors Albu, Von Jaksch, Kionka, R. Kutner, Luthje, Plehn, Riehl Schautau, and Strauss. Admission to the lectures is open to members of the medical profession on payment of a fee of 10 kr. for the course. For the programme of lectures and the cards of admission application should be made to the Knramt of Carlsbad.

Books Received.

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ZUR PATHOGENESE, KLINIK UND THERAPIE DER ERWORBENEN MASTDARMSTRIKTUREN. By Dr. ERNST RUGE. Volume IV, Part 8. Paper; price 1.50 mark; 56 pages. Carl Marhold, Halle a. S.

FERDINAND AUGUST MARIA FRANZ VON RITGEN. By Dr. EDUARD WOLF. Paper; price 1.50 mark; 48 pages. Carl Marhold, Halle a. S.

HANDBOOK OF THE HISTORICAL MEDICAL MUSEUM. Organized by HENRY S. WELLCOME. Paper; illustrated. London, 1913.

TREATMENT OF SEXUAL IMPOTENCE. By WILLIAM J. ROBINSON, M.D. Cloth; price $3.00; 422 pages. Critic & Guide Company, New York.

HANDBOOK OF INFORMATION REGARDING THE ROUTINE PROCEDURE OF THE DIVISION OF COMMUNICABLE DISEASES, 1913. J. S. BILLINGS, Jr., M.D., Chief of Division. Paper; 200 pages. Department of Health of the City of New York.

HEART DISEASE BLOOD-PRESSURE AND THE NAUHEIM TREATMENT. By LOUIS FAUGERES BISHOP, A.M., M.D. Fourth Revised Edition. Illustrated; cloth; 204 pages; price $3.00 net. Funk & Wagnalls Company, New York and London.

DIE GICHT. By Dr. S. COHN. Paper; 68 pages; price 2.50 mk. Dr. Basch & Company, Berlin.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES, Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. Third Edition, completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D. Vol. II; illustrated; cloth; 832 pages. William Wood & Company, New York.

DIE GESCHLECHTSKRANKHEITEN UND DIE ÄRZTLICHE VERANTWORTLICHKEIT. By Dr. GERHARD HAHN. Paper; price 1 mk.; 27 pages. Carl Marhold, Halle a. S.

DIE ALLGEMEIN-PATHOLOGISCHE BEDEUTUNG DER DERMATOMYKOSEN. By Prof. BRUNO BLOCH. Paper; price 3 mks.; 112 pages. Carl Marhold, Halle a. S.

TREATMENT OF TUBERCULOSIS. By ALBERT ROBIN. Cloth; price $7.00 net; 616 pages. J. & A. Churchill, London.

STAMMERING AND COGNATE DEFECTS OF SPEECH. By C. S. BLUEMEL. Vols. I and II. Cloth; price $5.00 net. G. E. Stechert & Company, New York.

IONIC MEDICATION. By H. LEWIS JONES, M.D. Price $1.50 net; cloth; 151 pages. P. Blakiston's Son & Company, Philadelphia.

AN ELEMENTARY STUDY OF THE BRAIN. By EBEN W. FISKE, A.M., M.D. Cloth; price $1.25 net; illustrated; 132 pages. The MacMillan Company, New York.

ÜBER DIE BEHANDLUNG DER KINDERKRANKHEITEN. By Prof. Dr. H. NEUMANN and Dr. E. OBERWARTH. Paper; price 12M. 666 pages. Oscar Coblentz, Berlin.

THE BRADSHAW LECTURE ON THE DIAGNOSIS AND TREATMENT OF INCIPIENT PULMONARY TUBERCULOSIS. By DAVID BRIDGE LEES, M.D., F.R.C.P. Cloth; price 5/ net. 116 pages. H. K. Lewis, London.

TWELFTH ANNUAL REPORT OF THE METROPOLITAN WATER AND SEWERAGE BOARD. For the Year 1912. Cloth; illustrated; 248 pages. Wright & Potter Printing Co., Boston. Boston.

GENITOURINARY DIAGNOSIS AND THERAPY. By Dr. ERNST PORTNER. Translated and edited by BRANSFORD LEWIS, M.D., B.Sc. Cloth; illustrated. Price $2.50. 2221 pages. C. V. Mosby Company, St. Louis

EUGENICS RECORD OFFICE. Bulletin No. 9. STATE LAWS LIMITING MARRIAGE SELECTION. Examined in the Light of Eugenics. By CHARLES B. DAVENPORT. Paper; illustrated 66 pages. Price 40 cents. Cold Spring Harbor, June, 1913.

FORTY-NINTH ANNUAL REPORT OF THE TRUSTEES OF THE BOSTON CITY HOSPITAL, FOR THE FORTY-NINTH YEAR, February 1, 1912, to January 31, 1913, inclusive. Paper; 214 pages. Illustrated. City of Boston Printing Department, 1913.

PRACTICAL BACTERIOLOGY, MICROBIOLOGY AND SERUM THERAPY. By Dr. A. BESSON. Translated and adapted from the fifth French Edition by H. J. HUTCHENS, D.S.O., M.A., M.R.C.S., L.R.C.P., D.P.H. Cloth; illustrated; 802 pages. Price $10.50 net. Longmans, Green & Company, London.

Therapeutic Hints.

The Treatment of Acute Morphine Poisoning.—R. Oppenheim details the following procedure

1. Lavage of the stomach with a 1 to 2000 solution of permanganate of potassium. This lavage is necessary even if the drug has been taken hypodermically, for a certain amount of this is eliminated by the gastric mucosa. If a stomach tube is not available one should excite vomiting, if the drug has been taken by the mouth. For this purpose one should use sulphate of copper or sulphate of zinc, but not ipecac or apomorphine, for these tend to increase the asthenia.

2. The use of a purgative enema.

3. Try to prevent the patient from going to sleep, by walking him about, etc.

4. Administer strong coffee with or without the addition of brandy, either by mouth or by rectum. Give inhalations of oxygen. Administer hypodermically every hour 2 c.c. of the following:

℞ Camphor, 4 grams.
Sulphuric ether, 12 grams.
Sterilized oil, ad 20 c.c.

4. Administer antagonists to opium. Atropine should not be used. Even in small doses it increases the cerebral hyperemia. Caffeine should be given hypodermically in large doses, the following solution being employed:

℞ Caffeine, 2.50 grams.
Benzoate of sodium, 3.50 grams.
Distilled and sterilized water, ad 10 c.c.

Inject 2 or 3 c.c. several times a day. The best antidote for opium is permanganate of potassium. It transforms morphine into an inoffensive oxide The following solution should be prescribed:

℞ Permanganate of potassium, 1 gram.
Distilled water, 500 c.c.

One-half of this solution should be given immediately; the rest, in half an hour. The potassium salt may, with advantage, be replaced by the sodium salt.

5. The treatment should be completed by the administration of diuretic drinks. Close watch should be kept of the patient who, after being apparently sufficiently aroused, may relapse into somnolence.—*Le Progrès Medical*, July 12, 1913.

Ox Bile in the Treatment of Hyperacidity and Gastric and Duodenal Ulcer.—F. W. Palfrey believes that in these conditions the symptoms are at least in part due to delay in the neutralization of the acid contents discharged into the duodenum He has found that the administration of ox-bile pills corrects this fault. The pills contain 0.25 gram of dried and pulverized ox bile, salol coated to conceal the taste and to prevent dissolution in the stomach. Two or three pills are given three times a day for a week, after which, as a rule, the number is diminished.—*American Journal of the Medical Sciences*, June, 1913.

Treatment of Mucous Colitis in Children.—T. R. C. Whipham states that in the management of this condition it is necessary to exclude sugars from the diet and to administer alkalies to dissolve the mucus. The following may be given regularly before meals:

℞ Potass. bicarb.,
Potass. citrat., āā grs. v.
Tinct. nuc. vom., ♏ ii.
Inf. gentiane co. (B. P.), ad ʒii.

A rhubarb and soda powder, together with 2 grains of gray powder, should be given every night or every other night.—"Medical Diseases of Children"

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Original Articles.

THE INHERITANCE OF EPILEPSY.

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*Concerning Human Inheritance**.—The general acceptance of the full and practical significance of heredity in man no doubt has been long delayed. This is but natural and in part due to the reserve, not to say stolid indifference and apathy, with which so many truths in science are first received. I suspect, too, that the greater intricacy and finer detail inherent in any study of the genetic processes of man have contributed not a little to the disinclination of the biologist and physiologist to broadly extend the principles of Mendelism to the absorbing problems of human inheritance. The fact that Mendelian law operates with such unerring precision exactitude in the subhuman world and that in man the transmission of eye color is definitely and abundantly proven by the same strict system indicates that factorial analysis of the individual is at least possible. To what extent it will in the end aid in the satisfactory solution of the critical and complex problems of human genetics cannot be so readily determined. I, for one, seriously doubt that the conclusions drawn from plant and animal life will ever be found to fit snugly into a scheme proposed for the descent of diverse human traits and faculties. One quite decided obstacle to the applicability of the theory to man lies in the fact that matings between persons, unlike the crossings between plants and animals, occur at random, and in this sense, are beyond control. One may, however, feel reasonably sure that biological guidance and, of course, that implies an observance of the results adduced by Mendelian analysis, will, as Bateson so hopefully has put it, "bring about a profound change in man's conception of his own nature and in his outlook on the world." Time was, when under the sway of idealism, fostered by philosophy and the newer psychology, many intelligent persons lost their sense of proportion and forgot that after all man is an animal governed by physical laws in much the same way as other animals. So far had the pendulum swung in the direction of ascertaining the qualities in man that are mental and normal. Now, however, it has returned with becoming grace to a point in its arc where the properties of the individual to confront us and demand our immediate and fullest consideration are *physical* and *vital*. In short, our present and unceasing concern, regardless of incursions made by other systems and sciences, is again with the biological aspects of human society.

In no sense do I wish to convey the idea that all the complexities of social life are susceptible of interpretation by the biologist, and yet we observe that to him has been assigned the difficult though grateful task of studying the individual alone, or as the member of a social group, or the group as a whole, always, however, with due regard for the influence of natural selection. Obviously, such study has taken into account conditions external to the individual or the group, some of which, whether for good or ill, are man-made and operate in the

*In terms of chronologic sequence there is little doubt that as a science biology preceded psychology, and so long as we realize that the teachings of the naturalist and philosopher in their broadest sense enable men to see themselves as they really are, it is for our immediate purpose of little consequence to ascribe to one or the other branch of study the greater sphere of influence in the history of our civilization. Each in its turn has given us its real achievements, although it is not always perfectly clear where the realism contributed by the biologist leaves off and the idealism contributed by the philosopher and psychologist begins—or, for that matter, where the two fields, conveniently or otherwise, overlap.

The modern psychologist is not, cannot be, insensible of his debt to the naturalist for a knowledge of the things that are physical in the universe; nor to the physicist and chemist for their share in the recognition of natural facts; nor to the physiologist, to whom he owes much for those fruitful points of view that have resulted in a closer grouping of mental factors and brain processes, in a "psychophysical parallelism;" nor to the anatomist and pathologist, to whom he has turned for ideas concerning the normal and abnormal structure of the brain and nervous system. Small wonder, then, with these abundant sources to draw from and a thoroughly equipped laboratory in which to perfect his own most searching inquiry into the subtle and refined problems of the mind, that he points with pardonable pride to a *new* kind of psychology supplementing, if not supplanting, the old. As an inevitable consequence of psychology in its ascendence, the interest in problems biological suffered some degree of attenuation. For a time we seemed intent upon accepting new ideals and might with propriety have pondered the extent to which philosophy and its cognate branches had seriously interfered without allegiance to the doctrines enunciated with so much earnestness by Herbert Spencer.

We are prone to think that the question of Origin and Descent began with Darwin's treatise, published in 1859, whereas investigation and experiment applied to the evolutionary theory were rife for a half century prior to this, when Lamarck promulgated his ideas concerning the transmission of acquired characters in terms of the influence of use and disuse and the effect of habit. During the entire period following the appearance of the Origin, the theme of evolution became, as Bateson so aptly puts it, "the exercising ground of essayists." This interval brought to light several distinguished papers by Weismann and Galton. Theirs are probably among the very best of the pre-Mendelian writings and display a tendency to question the Darwinian postulates and ask for further proof of their validity. Weismann's theories were especially reactionary. They were diametrically opposed to the hypotheses of Lamarck (in a sense, seconded by Darwin), and proclaimed utter disbelief in the transmission of an acquired character. To-day there is every reason to believe that neither Lamarck nor Weismann, representing these extremes of view, is correct, and that the truth lies nearer an intermediate position, from which its adherents urge the generalization that at least some qualities are transmitted, but they do not profess to know in which

interest of some particular economic law or prevailing political system. Indeed, by reason of the very existence of certain rules of commerce, laws of supply and demand, and class distinction fostered by opportunity and legislation, society has silently acquiesced to a few of the impositions which, however mild, are sure in the long run to leave their indelible imprint on the race. Some may contend that these factors have only historic importance, but it is not too much to assert that every historic fact is essentially a biological one whenever it relates to the physical weal or woe of the nation or race.

Admitting that these agencies have exerted a certain definite influence on the species, their effect on society will be shown to have been trivial as compared with the truly telling force of *heredity* in the evolutionary process. It is to this potential factor of inheritance and its vast practical importance to mankind and the future of the race that the minds of observant persons have turned. The physician has been arraigned for his indifference to all but the academic side of these problems, and one distinguished eugenist has recently gone so far as to assert in the preface of his book that "modern medicine is responsible for the loss of appreciation of the power of heredity." He adds: "It has neglected the personal element that helps determine the course of every disease. . . . It has begun a wholly impersonal hygiene, whose teachings are false in so far as they are laid down as universally applicable." There is, I fear, a scintilla of truth in this criticism, for it is undeniably a fact that the profession of medicine has for some decades past labored assiduously, if not exclusively, in the field of germ and cellular pathology. But the commentator of that period in which wound fever and infection eclipsed all other problems can ill afford to belittle the advent of asepsis and antisepsis which grew out of it. To the physician there should perhaps have been granted powers wherewith to encompass all the half-neglected fields of contemporaneous science, but lacking in such omniscience he set out to interest himself in problems not less congenial, quite as important and urgently in need of solution. In so doing he betrayed to my mind

one of the decendants these will reappear, nor in what degree. Although Weismann's views resulted in no dogmatization, the practical side of genetics was much reenforced by the questions he had raised. Also the essay of de Vries, by reason of its prediction of the role of unit factors, added not a little to the significance of Mendel's law of inheritance, which in its turn was to mark a new era in the study of heredity and variation in animal and plant life, and ultimately find its successful application *within certain limits* in the world of man.

To the pre-Mendelian era also belongs the service of Galton, who, in 1897, formulated his law of heredity, deservedly famous for elucidating some facts of heredity by statistical exactness rather than analytic methods. This more purely statistical kind of inquiry, having its inception with Galton, has found a staunch and scientific protagonist in the person of Professor Karl Pearson, who to the descriptive side of genetics has added—the metrical.

The biometric method aims to measure inheritance somewhat in consonance with the idea expressed by Quetelet, in 1845, who said "that the mathematical theory of probability was applicable to many biological problems." The method to be effective must deal with large numbers of cases, and if these be not too greatly complicated by factors other than those submitted for investigation, then the results will be expressed in averages that are in accordance with mathematical theory. In this way the degree of inheritance of many physical characters has been determined.

It is difficult to do justice to the discovery of the monk, Gregor Mendel, who in 1866, published his law of inheritance, by giving an account of it in barest outline. Suffice it to say that Mendel's deductions were based upon ex-

greater wisdom than had he browsed with naturalists in the then more arid pasturelands of evolutionary doctrine.

Of late the debate begun in the pre-Mendelian period to determine the environment in shaping man's conduct and destiny is assuming an entirely different aspect, and we now find interested students of the question striving earnestly to ascertain and formulate the genetic factors at work in the metamorphosis of society. Only under the stress of convincing and scientific proofs will certain persons, untrained in thinking and overburdened with impressions, relinquish their immature views and feelings concerning the preponderant effect of environment and what, for lack of a more specific term, they call opportunity. But so long as there is evidential ground for thinking that the conditions of our birth are paramount to those under which we live, one may derive comfort from the trend of investigation toward man's physical composition and his genetic behavior. And whether the problem of inheritance is approached by estimating the presence of absence of certain qualities in terms of dominant or recessive factors, as is the case in breeding experiment and experience—or by erecting without bias a large and accurate statistic of ancestry from which to compute averages, showing direct correlations of somatic characters between antecedents and offspring—both lines of inquiry will certainly result in a clearer insight into the relative values of seed and soil. Already many of the old prejudices have been overcome and enough solid facts put in their place to warrant the rather dogmatic assertion that racial efficiency in the future must depend upon our over-emphasis of parentage and under-emphasis of environment. Environmental influences may, it is true, reveal certain hidden submerged attributes of an individual, but it is quite improbable that they should supply him with qualities in addition to or other than those that are inborn—in short, they do not "increase his original endowment." On this point, though differing widely in methodology, I think the Mendelians and biometricians fully agree. They would have us believe, and justly so, that whenever biologic law is

periments, long since become famous, with the garden pea. He was concerned with the question of the transmission of the qualities of tallness and dwarfness of peas. On crossing the tall and dwarf varieties of the common garden pea, leaving each to fertilize itself in the usual way, Mendel found that each bred true to its type. In, for instance, the first generation of such crossings there resulted nothing but tall peas, and if these again were allowed to grow and fertilize themselves the next generation appeared in a ratio of three tall to one dwarf pea. The dwarf peas in this instance bred true and when planted alone and self-fertilized they yielded nothing but dwarf peas, irrespective of the number of generations tested. Mendel referred to the character which was absent in the first generation, namely, dwarfness, as "recessive," and he called the character manifest in the form of tallness "dominant." We might for convenience choose the terminology of absence-presence factors with just as much propriety as Mendel made use of the words "recessive-dominant." In other words, the recessive factor is to be regarded as due to the absence of something which, if manifest, would give the dominant factor. Throughout all the studies of inheritance these two terms, dominant and recessive, as first applied to the garden pea are utilized to characterize the difference between two sets of qualities as found in Nature. I think that Whetham puts it well when he says, "qualities which, if present at all, show outwardly but may mask the existence of other opposing characters in the germ cells, are known as dominant—the master qualities; qualities which may exist in a concealed form and be transferred unnoticed from parent to child until a favorable opportunity occurs for their manifestation are called recessive—hidden or backward searching."

overlooked in the formulation of a plan to improve individual, communal or racial fitness, the plan is ultimately sure to fail. That such fitness, however, attain to its fullest expression, its highest development in an *ethical* sense, they emphasize the desirability of an environment which shall be sympathetic and altogether favorable. This, it will be seen, is practically the point at which the eugenist who studies the agencies under social control which either make or mar the inborn factors of future generations is expected to carry forward the knowledge of the biologist. Here I would call attention to the fact, as has been better done before, that in neither the modern biologic nor eugenic conception of human fitness is there room for the doctrine of "the survival of the fittest," made classic by Spencer. As Mr. Balfour has emphasized—if, for instance, it can be shown that mental defectives tend to increase in number and life expectancy, then in terms of the bare biologic survival standard of fitness the defectives prove themselves the more fit. This view may have its place in the world of lower organisms from which it was derived, but we can find neither approval nor application for it in human life.

Nor is this the only utterance that is misleading and confusing in our contemplation of human genetics as applied to social justice. If we habituate ourselves to the thought of fitness or unfitness, and its grave consequences, in a biologic or even eugenic sense, then it becomes at once apparent that the absurd platitude "all men are born free and equal," so tenderly fostered by many of our political and social sponsors for the edification of the unsuspecting less intelligent masses, is in need of radical revision or even complete negation. As a thought put forth perhaps in all sincerity by certain philosophers it has ever met with vigorous denunciation at the hands of biologists. As a phrase, it has served well the selfish purpose of the statesman and legislator, and as an invention in the hands of the designing politician, it has seldom failed to attract and appease the disgruntled, the dissatisfied, and the discouraged of earth. There is no exaggeration in this when we recall that the ends of criminal justice have been served in all courts of law the world over on the theory that all men are equal. Now, there are as yet no definite criteria to prove the existence of a so-called criminal class, nor are we disposed to accept without qualification Lombroso's contention of a criminal heredity. We do know, however, that a large—indeed, an overwhelming—majority of criminals are recruited from all strata of society, and that in all these strata we come upon subnormal and abnormal types in great variety and abundance. What better refutation of the equality theory could we ask than this, and how better could it be expressed than in the words of Davenport, when he tells us "that all men are created *bound* by their protoplasmic makeup, and unequal in their powers and responsibilities?" Or, in the language of Bateson, who says, "Of abstract rights biology knows little; of equal rights, nothing. Philosophers have conceived men born with rights as they are with livers and spleens. Perhaps they are, but since all those birthrights which can be expressed in terms of health or powers of mind or body are unequal, we find it difficult to suppose that there is some other kind of rights which we possess equally. Some would reply that equal opportunity is the right of all. But what use is equal opportunity to those who cannot use the opportunity equally?"

And so, nothing dismayed by these fallacies, we may conclude that, despite the value and excellence of any and every extraneous factor and influence in our civilization, the essential thing in human life is fitness. And if we continue to follow in the direction pointed out by biologic guide-posts, we must assume that the essential thing in human fitness is inheritance. Indeed, I should like to dwell at length upon the differentiated elements in man, and they are numerous and diverse, which in combination render him either fit or unfit. But I must adhere to distinctions which are, in the main, medical, or at least physical. It should be borne in mind that the transition from fitness to unfitness is neither always marked nor abrupt, and our course of action in maintaining a stable society, one in which both useful and useless persons can find contentment, must be governed largely by our appreciation and understanding of all the genetic distinctions that make for temperamental variation, on the one hand, or profound degeneracy on the other.

We proceed, for instance, to recognize individuals with more or less mild manifestations of an unstable nervous system as neurotics. Just what should be the attitude of society towards these—its weaker members—it is difficult to define. When, however, the grosser signs of physical degeneracy make their appearance, and we are in the presence of such defects as feeblemindedness, insanity, and epilepsy, then our line of conduct is clear. To touch upon all three of these phases of unsound human inheritance would take me far afield. I shall, therefore, endeavor to picture but one, namely, epilepsy, and indicate the steps that society *must* take to interfere with the continuance of this type of unsound stock, *or at least such part of it as may rightfully be called hopelessly unsound.*

Concerning the Inheritance of Epilepsy and the Plan of Segregation.—The reader of any and every recent review of the work done in the field of epilepsy will with difficulty conceal the disappointment and dissatisfaction felt over the fact that so many aspects of the disease completely resist our understanding. It is true that our studies of the physiology of the cerebral cortex and its function afford a more precise notion of the mechanism of the fit itself; that is to say, the convulsive component by no means always present in epilepsy. The newer staining methods of Alzheimer and Bielchowsky have thrown some light on the finer histopathology of the brain cell and its processes. Chemical pathology, studies in metabolism, and special research as to the possible dependence of seizures on endotoxic substances of polyglandular origin have, on the contrary, all met with quite negative results. We find that authorities continue to quibble over definitions as they have for decades past, and when all is said and done the designations genuine, essential, and idiopathic convey the very meaning intended by each individual writer, and no more. There are those who have merged etiologic with anatomic factors in order to meet the demands for some sort of classification. Others, again, adhere to the idea that epilepsy is always an organic disease, even though the anatomic substratum is absent.

It is their contention that an absence of demonstrable change is not a premise for the assumption that definite finer changes may not be present. Still others find it convenient to speak of early and late forms, a distinction based solely on the time of onset of the disease. And so one might go on quoting from many excellent investigators, all bent

on distinguishing the diverse factors underlying the production of convulsions in an effort to clarify a perplexing chapter in the clinic of nervous diseases. With all these issues the clinician is more or less familiar. But there is still another side to the epilepsy problem. It is the biologic side, which, in the light of recent studies, acquires new meaning and very great importance. Under stress of medical, eugenic and sociological interests in the problem of human inheritance, in its relation to health and disease, the destiny of epilepsy assumes an altogether broader and deeper aspect, and we ask ourselves if it is not indicated at this time to subject our clinical material to fresh scrutiny and by our analysis of accumulated evidence throw further light on the rôle of the inborn factors at play in its transmission. If, in our study of this question, we have progressed at all, and I think it will be shown that we have, it is not so much due to any better kind or greater abundance of material submitted for analysis as it is to the more intrinsic value of the methods employed, and the broader standards by which it is estimated and adjudged.

Admitting this departure from well-trodden paths, it may prove profitable to inquire again into the facts and proofs concerning the heritable element as the dominant predisposing cause of epilepsy. It may also be worth our while to contrast the Mendelian and biometric methods and their respective utility in an analysis of the material. We may question the value of the field worker's function in assembling the date for analysis, and express ourselves with reserve as to the expediency of drawing such close analogies between epilepsy and feeblemindedness in the matter of their hereditary behavior.

As concerns the first assumption, not even in the earliest descriptions of epilepsy have references to the probability of inheritance been entirely lacking, and from time to time they have been augmented, until now we find it possible to acquiesce in the belief of an hereditary taint and subscribe to the view that the disease reappears with very considerable constancy in successive generations.

Let us glance for a moment at the percentages arrived at by contemporary epileptologists to show the incidence of heredity: Turner, 51 per cent.; Siebold, 55; Spratling, 56; Birk, 60; Griffith, 64; Dejerine, 66.8; Finkn, 75; Kraepelin, 87; Gowers, 40; Binswanger, 36 per cent. It is at once apparent that the considerable disparity in the figures is more likely due to the degree of flexibility in each individual observer's definition of hereditary predisposition than to any more fundamental error in the analysis of cases.

There can be no doubt that Charcot's emphasis of the neuropathic constitution tends to extend the boundaries of inherited predisposition, and that the inclusion of innumerable minor defects of body and mind has complicated the whole conception of heritable traits and characteristics and for the time-being robbed it of much of its real worth. Nevertheless, if we appropriate the Mendelian doctrine as it holds in plant and animal life to human affairs at all, every analysis of the descent of attributes, physical or mental, must be put upon the broadest possible plane. Only with such a comprehensive scheme is the eugenic interest best subserved. I mean that the determination of the fitness of the individual or the group will depend upon the biologic interpretation of all qualities, of all strains, of all imperfections, like, or unlike, springing from sources direct, indirect, or collateral. I realize that this approach to the problem of heredity is in sharp contrast to the kind of inquiry that narrows itself down to the consideration of severe neuro- and psychopathic states occurring in the immediate ascendants or the very nearest of kin. Particularly in epilepsy we find ample evidence of the direct transmission to successive generations of similar defects, and if these alone are considered, then of necessity the incidence of inheritance is kept within narrow margins. As Redlich indicates, it fluctuates from 37 to 30, and as low as 10 per cent., and even then the collateral sources are not included, so that, *sensu strictori*, direct heredity is traceable in a still smaller percentage. Just why epileptologists turn away from the fundamental biologic law and disregard the "inheritance of variations and the correlation of unlike perfections" is difficult to understand. To erect tables of statistics or draw conclusions based on the existence of certifiable feeblemindedness, epilepsy, or insanity alone and wholly disregard the inborn factors, obvious or latent, in the parental or collateral stocks is contributing little or nothing to the opus maximum or optimum of heredity and disease. We are told by some skeptics in medicine that on investigation of pedigrees of presumably normal individuals, indirect and remote ancestral hereditary taints have appeared oftener than in those individuals known to be insane. This contention should strengthen rather than invalidate the Mendelian or biometric method of analysis, because both assume, as I have already pointed out elsewhere in this paper, that the general inheritance is germinal, that it has its origin in strains, and is not necessarily implanted in the immediate antecedents. How else could we explain the random presence and absence of characteristics either in health or disease? As a matter of fact, dominance is no more essential to the integrity of the Mendelian doctrine than is recession. Not all human diseases can show such exquisite direct heritable transmission as Huntington's chorea, hereditary ataxia and cataract, nor do we find many such striking illustrations of sex-limited transmission as occur in color blindness, hemophilia, or Leber's type of optic atrophy. The chromosome theory, as Mott states, assumes that there is a particulate inheritance derived from the nuclear substance of the male and female germ cell in the fertilized ovum, and that the nuclear substance derived from each parent is equal in amount. "And," he adds, "assuming the intensity of inheritance to be constant for each chromasome or other unit of germ plasm, but to vary with the number of germinal units tainted, we have, as a result of the mating of these two tainted stocks all degrees of manifestation of ancestral characters from perfect normality to the most profound disease. In clinical neurology this hypothesis receives support from the appearance of related strains of feeblemindedness, insanity, migraine, dipsomania, epilepsy. That these diseases are interchangeable in their succession in families is amply borne out in ever so many case histories taken at random in private, to say nothing of the institutional practice." He concludes: "The chromasome scheme shows why the offspring of parents derived from two tainted ancestral stocks are more likely to suffer with an intense form of disease; it shows why a certain proportion of offspring may escape entirely; but, according to the hypothesis thus advanced, it does not explain why only relatively few of the offspring are tainted as compared with the numbers born, even though there

be convergent neuropathic inheritance; that is, the germinal determinants of both parents may be largely tainted, and as yet fewer offspring are affected by the disease than would be expected."

It is regrettable that experimentation along Mendelian lines cannot be conclusively carried out in problems of human inheritance as it is in the case of plants and animals. A single miscarriage, for instance, of which the individual may or may not have knowledge, is likely to upset any Mendelian calculation, and whether we are dealing with the inheritance of epilepsy or feeblemindedness, or what not, this accident is likely to occur, and must always be reckoned with. Moreover, Mendelism applied to the normal characters of man stumbles upon serious obstacles, due to the great difficulties of separating out complex and diverse factors. It is in the study of abnormal states that the Mendelian law has been put to the best tests. I have already mentioned that the transmission of eye color in man fully meets the expectation of the Mendelian doctrine, and in that connection I should perhaps have added that night blindness, color blindness, physical malformations, such as brachydactyly, certain forms of cataract and skin diseases, all show some degree of adherence to the law. There is also some evidence, statistical and analytic, gathered by Heron and Rosanoff, to prejudice one strongly in favor of the inheritance of insanity, at least the inheritance of a predisposition, summed up in the phrase "insane diathesis." In our present state of knowledge concerning insanity, it would, of course, be presumptious to offer any generalization as to the inheritance of classifiable types, but not a few of my own case histories show manic-depressive types recurring in successive generations, with marked regularity.

Goddard, in his recently published book on the Kallikak family, which must serve as a model for the study of feeblemindedness, is of the opinion that the Mendelian law finds its application here, but he admits that "we do not know that feeblemindedness is a unit character," and goes on to say that there are many reasons for thinking that it cannot be, but proceeds with his analysis of feebleminded matings as if the unit character was an accepted fact. Holding to his findings and those of others who have worked out the pedigrees of feebleminded persons, one is forced to the conclusion that the Mendelian expectation is again realized and that for practical purposes it is fair to assume and predict that where two parents are feebleminded, all the children will likewise be feebleminded. Excellent and illuminating as is the Goddard study, one, nevertheless, wonders how differently the conclusions and percentages of the hereditary taint would read if this defective stock had not been altogether recruited from one narrow section of the country. It occurs to me that if a hardy pioneer strain from some other section of the country, geographically and climatically different had been introduced from time to time into the unsound stock, it might have considerably affected the record of defectiveness. The probability is that the hereditary results would have been less in accordance with Mendelian expectation.

And what of Mendelian inheritance in epilepsy? To me it seems highly improbable that the heterogeneous material, grouped under the designation of epilepsy, will ever be susceptible of a complete factorial analysis. It is difficult to see how syphilis, arteriosclerosis, and alcohol, to say nothing of other acquired factors in the etiology of epilepsy, are to be eliminated in estimating the rôle of inborn factors. Davenport and Weeks, in their inheritance study, assume "that various common types of epilepsy behave as though they were alike in lacking some element necessary for complete mental development." Although the charts in evidence of a great variety of matings are open to serious criticism and objection, they are none the less instructive and in view of an endeavor to explain them on Mendelian principles they are, to say the least, suggestive. For example: If we know that both parents are epileptic or feebleminded, then we have a right to expect that all the children will be so. This expectation is realized in the chart of one mating with parents both epileptic, and although the tables otherwise show exceptions to the rule, allowing for the difficulties that are encountered in classifying cases, the analyses show fair agreement. If we look closely at the charts of Davenport and Weeks, we will note that although epilepsy and feeblemindedness are markedly interchangeable, there is a distinct tendency towards the specific descent of one or other of these characteristics. That is to say, epilepsy multiplied by epilepsy equals epileptic children; epilepsy multiplied by feeblemindedness equals not quite so many epileptic children; and feeblemindedness multiplied by feeblemindedness equals still fewer epileptic children. We may inspect charts upon charts of pedigrees and wherever we find the central matings between markedly tainted individuals, we are sure also to find a preponderance of defectives among the offspring in whom the absence of the protoplasmic factors expresses itself in terms of chorea, migraine, dipsomania, the psychoses, and the neuroses. At this point one might raise the question whether epilepsy is ever non-inheritable, or is ever transmitted in a stock known to be free from neural instability or minus the neuropathic constitution. This query, if based upon clinical experience in private practice, is likely to remain unanswered for the reason that our data are either unreliable or insufficient. But the conclusion which Davenport and Weeks come to on this point is, I think, rather significant, when they state that "there is no epileptic parent who transmits like normal."

Now, with reference to the manner of obtaining data: It is probably the experience of every physician that a family history socalled, even though elicited with great care, is apt to be misleading by reason of ignorance or wilful concealments of facts by the patients themselves, their relatives, or friends. This applies with especial force in many types of nervous and mental disease, when those most interested in the inquiry affect to deny or not to know anything concerning the presence of insanity, mental defect, or fits in the ancestral stock. Many times distortion of facts is prompted by economic considerations, and quite often do I find that efforts to penetrate family pride and reserve are met with feelings of resentment and unrighteous indignation. Aside from these drawbacks in history-taking in private practice, we encounter other difficulties in institutional experience, where, for instance, owing to a patient's low grade of mentality little or nothing of pre-existing conditions in family or self can be determined. And so we observe that for accurate statistical purposes both sources of information always leave much to be desired. Davenport and Weeks, in their "First Study of the Inheritance of Epilepsy," quick to recognize the flaw, adopted an entirely new plan in respect to the kind of mate-

rial and the method of collecting and analyzing it. The residents of the New Jersey State Village for Epileptics at Skillman, N. J., formed the nucleus of the study. The pedigrees of these residents were collected by field workers, whose function it was to acquire all possible information from the parents and relatives in the homes of patients as well as from the friends and physicians in the communities from which they came. The inquiries sought to include the course of descent, all the conditions of birth and environment incidental thereto in all the ramifications of the patient's family.

Now, the field-worker plan in the abstract is a good one; in the concrete it is open to serious objection. No doubt it was employed in emulation of the method adopted by Goddard in his investigation of the feeble-minded Kallikak family. Here it is conceivable that field workers are qualified to recognize the obvious matter and manner of the defective, his low mentality, his moral and physical depravity. Even a moron, the mildest type of defective, and, for that reason, too frequently the most elusive of detection, might be apprehended by the carefully trained social worker. But in the case of epilepsy I doubt the ability of anyone not a physician to properly estimate the clinical picture of a disease which, by reason of its aberrant and irregular forms, has tested the diagnostic skill of the keenest clinicians. To reach out for the pedigrees and life histories of whole communities indeed widens the scope of investigation, and tables constructed in the course of such inquiry no doubt tend to throw much light on the widespread prevalence of certain types of epilepsy, chiefly those characterized by definite physical, mental, and moral degeneracy. These same tables, however, will fail to include a large percentage of subtle forms in which physical and moral values remain at or near par, and the mentality, far from being defective, errs on the side of genius. With diagnostic ability a pre-requisite to the understanding and tabulation of *all* forms of epilepsy, it is obvious that a non-medical worker can only be partially effective in solving the vexed question of inheritance in this disease.

Conceding the biologic aspect of epilepsy, that the heritable factor looms large in the clinical conception of the disease and that environment accomplishes next to nothing in altering what is a germinal defect, it remains for me to say a word concerning the remedy, such as it is, at our disposal. From what has gone before, the physician needs not to be reminded that he is face to face with a grave problem. The biologic and medical side may for the moment be dismissed and the eugenic and social side brought to our attention. We may start from the most depressing extreme and assert that the epileptic in terms of physical fitness or unfitness, is hopelessly unfit. If that be the case, then the practical and proper interference with the epileptic as a member of human society must be drastic and unconditionally enforced. I refer to a remedy in no sense new, namely: complete segregation and all that the term implies. That the policy of absolute restraint is right and humane, where the profoundly defective epileptic is concerned requires, I think, no argument. The plan of segregation or colonization makes this policy effective.

Segregation is no longer an experiment, no longer new; therefore, it seems to me not indicated to cite its value in any statistical statement. Suffice it to say that to remove the hopelessly unfit epileptic from the world which he tries to enjoy as others do and utterly fails, to relieve him from the necessity of entering into the competitive stress and strain of a livelihood, to safeguard him against the grievous burden he puts upon himself, the commonwealth and society at large, as the result of unrestricted marriage and unrestrained procreation, is a responsibility which rests with those of us who desire a more stable, more efficient society and a better type of humanity. And what may the epileptic, aside from this isolation, expect from this course of treatment? Primarily, I think, contentment, if we may call it that, which must inevitably follow in the wake of his adjustment to a new and less exacting environment. It is often interposed that epileptics confined to colonies must of necessity find their associations depressing. The truth of the matter is that here they are better adjusted than in the outside normal world. They do less conscious brooding over their misfortunes. If we take the philosophic view that most, if not all our joys and sorrows, our normal and abnormal reactions in life, are dependent on a state of adjustment or maladjustment, it must follow that the epileptic, too, will find his greater happiness among those of his own level in thought, action, and behavior. Then, too, life in a colony, with agreeable outdoor occupation, brings with it the most favorable opportunity for physical, mental, and moral development.

Before taking up the economic consideration involved in the colonization plan of treatment I should like to add a word concerning an additional measure that has been invoked in the eugenic scheme for the protection of society against the epileptic. I refer to sterilization. Although this measure has been introduced in several states in the case of criminals of special classes and has been suggested as a legitimate form of interference in advanced types of feeblemindedness, I cannot refrain from the comment that this extreme form of legislative interference is not justified in the present state of our knowledge of social physiology and genetics. I feel that it is wrong to urge that a measure of sterilization is justified on the ground that it is innocuous in its physical, mental, and moral effects upon the individual. It occurs to me that an operation so radical in its effects must be tried out in thousands of cases before the real facts become known as to whether it is, in its physical results, a harmful or harmless procedure. The most serious objection lies in the fact that after all we do not know what members of society should be eligible for such an operation. We know so little of the exact operation of the laws of inheritance with reference to physical characteristics and still less of those that are acquired, that we have no moral right, it seems to me, to cut down the prospect of the generations that are to come. In an epileptic colony, sufficiently endowed, well organized, efficiently administered, and scientifically conducted, the social exchange between the sexes and the implied danger of sexual relations could be controlled to a degree that would render entirely superfluous the recommendation of sterilization for any individuals, epileptic or otherwise, that belong within the ranks of the unfit. Bateson, in a paragraph on science and the elimination of sinners, appropriately remarks, "It is not the tyrannical and capricious interference of a half-informed majority which can safely mould or purify a population, but rather the simplification of instinct for which we ever hope, which fuller knowledge alone can make possible."

A question of first importance involved in the economic side of the problem and of immediate interest to the taxpayer is the one already raised by Weeks as to the increase in proportion of epilepsy to the population at large. He states that all the fraternities in his New Jersey material with epileptic mothers yield an average of six children born. Moreover, "if no change in mating and fecundity occur, the number of epileptics and feebleminded in the state of New Jersey will be relatively double what it is now in 1940 and relatively four times as common in 1970. Thus, if the present proportion is 1 to 500, it would be 1 to 125 in 1970." I should add that the incidence of epileptics to total population in the United States has been variously computed at from 1 to 300, or 1 to 500. In order to impress the physician with the reduction that can befall such an increasing ratio as this by the formation of state colonies and the segregation during the entire reproductive period (15-45 years) of epileptics of both sexes, I will quote directly from Weeks: "Inside of ten years the stream of defective children would be almost dry. By twenty years half of the temporary detention-sanatoria for defectives could be closed, and by thirty years the expense of maintenance would probably be less than it is now. By forty years an institution like that at Skillman would probably provide ample accommodation for all the remaining defectives (now grown quite gray) and in fifty years there would remain only an old man's and old woman's home for such as did not care to leave its shelter to return to their relatives. By this time the State could pay off its bonds from the sale of most of the land reserved for these unfortunates. Of course, through immigration, through trauma, and through the chance union of defective germ cells of normal persons a thin stream would be maintained, but the State would have control of the situation and the expense would be ever diminishing instead, as now, ever increasing." I repeat, segregation is for the hopelessly unfit.

Clinicians are agreed that perhaps 5 per cent. of epilepsy is curable in the sense that the seizures remain arrested for an apparently indefinite period, or at least for long enough to warrant the belief in a cure. Now, what to do with the relatively competent, yet relatively unfit epileptic, the one who proves himself just equal to the joy of living and working, who, in spite of his civic worthiness, nevertheless, always represents a constitutional inferior type? He occupies in the problem of the epileptic the identical position that the moron occupies in the problem of the mental defective. The mild epileptic, like the moron, goes about unrecognized; therefore, unrestrained and uncontrolled. Investigators and students will in the future, no doubt, be much occupied with this type before they emerge from their eugenic laboratories with a recommendation as effective as the one now in force for the protection of society against his still more unfortunate brother.

In summarizing the facts which to me seem worthy of emphasis in a discussion of the inheritance of epilepsy, I should urge that:

(1) Human society must concern itself more and more with the qualities in man that are physical and vital, as opposed to those that are mental and moral.

(2) In heredity we find the most potential factor in the evolutionary process of man.

(3) Environmental influences may modify but do not increase our original endowment.

(4) The essential thing in the preservation of the race is physical fitness, and inheritance, in its turn, is the essential and most to be desired thing in the development of such fitness.

(5) The methods with which we are to-day better able to explain the qualities and attributes inherited by man are perhaps those referred to as Mendelian and biometric. It should, however, be thoroughly understood that no biologic phenomena, either in full or even in large part, meet the theoretic expectations of either method.

(6) The inheritance of epilepsy, however, is very worthy of being subjected to an analysis, Mendelian or biometric, in the hope that valuable data may be secured and in the end enable us to invoke the proper measures against the spread of the disease.

(7) The studies already made are highly instructive and suggestive, although there are many sources of error which to me it seems are almost impossible to overcome.

(8) Society has the moral right to interfere with the continuance of any human stock definitely known to be unalterably unsound and on the assumption that an overwhelming proportion of epileptics are of this type, the plan of segregation, efficiently and scientifically carried out, is a just one.

(9) The act of sterilization in the light of our present knowledge is still open to criticism and objection and may, therefore, be considered premature and as a measure of legislative interference should not be endorsed.

(10) The mildly inferior epileptic constitutes a very great menace and one concerning which scientists are not prepared to make recommendation.

(11) It has been the intention to discuss the subject in a manner more critical than expository on the theory that there is greater need to point out the difficulties and discrepancies encountered in the eugenic research than to proclaim its triumphs. Eugenics is vastly more in need of students who will investigate and diagnose the agencies that contribute to the illnesses of the race than amateurs who announce the remedies and shout the cures.

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FEEBLE-MINDEDNESS AND SCHOOL CHILDREN.

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Tredgold, a celebrated English authority, defines amentia or feeble-mindedness as "a state of mental defect from birth or from an early age, due to incomplete cerebral development, in consequence of which the person affected is unable to perform his duties as a member of society in the position of life to which he was born."

It may be well to explain that feeble-mindedness and insanity are two separate and distinct conditions. Insanity occurs in a brain previously healthy, or at least exhibiting little evidence of marked deviation from the normal, while in feeble-mindedness there is actual deficiency in function and structure. As has been aptly said, "The insane person has overdrawn his bank account, the feeble-minded person never had a bank account."

In this country the classification of the feeble-minded most generally used is that of:

1. Moron: (*a*) High grade; (*b*) medium grade; (*c*) low grade.

2. Imbecile: (*a*) High grade; (*b*) medium grade; (*c*) low grade.

3. Idiot: (*a*) High grade; (*b*) medium grade; (*c*) low grade.

This classification is based upon intellectual capacity and is more or less arbitrary, as the various grades merge into each other without distinct dividing lines. The high-grade moron approaches so closely the individual we are wont to consider as normal that it is often a matter of much difficulty to definitely decide where normality ends and feeble-mindedness begins. From the high-grade moron there is an ever-increasing degree of mental defect down until we reach the low-grade idiot who leads a merely vegetative existence, being practically without power of locomotion or communication. The feeble-minded individual at large in a community threatens its stability in a number of ways. Every feeble-minded person is potentially a criminal and at any moment may commit a crime. Hardly a day passes but the newspapers blazon forth in lurid headlines accounts of murders, robberies, incendiarisms and sexual crimes committed by individuals whom expert examination would show to be feeble-minded. I do not wish to be understood to mean that the feeble-minded are responsible for all crime, but it is an undoubted fact that a large proportion of offenses against person and property may be laid at their doors. Because of the feeble-minded our almshouses, reformatories, and prisons are crowded to overflowing, the white slave traffic flourishes, and the ever-shifting army of the unemployed and inefficient assumes alarming proportions. The problem presented by the feeble-minded would be greatly simplified if it happened that the influence of each feeble-minded individual ended with the close of his own account with Nature. But such is not the case. Feeble-mindedness often begets feeble-mindedness and so transmits its blight to succeeding generations, intermingling frequently with previously healthy strains. While there are those who would have us believe that the human race is gradually and insidiously undergoing a process of physical and mental degeneration, there are others more optimistic in their outlook who believe that the evolutionary process is regenerative rather than degenerative and that a return to normal is eventually inevitable. However this may be, and even if the latter view be the correct one, the fact remains that during the period elapsing before a strain of feeble-mindedness becomes extinct, through conditions favorable to the complete extermination of the individuals affected, or through regeneration through favorable environmental conditions allied with dilution with healthy stock, it still has almost unlimited opportunity to exert its baleful influence upon the social body.

Society has for a long time been oblivious both to the danger with which it is threatened by the feeble-minded and to the injustice to which it has subjected the feeble-minded themselves. But an awakening has lately taken place, and a more complete understanding of the problems confronting us will facilitate their solution.

Among the measures for the elimination of feeble-mindedness suggested, and even put into operation in some localities, is the restriction of marriage of the unfit. While such a measure would undoubtedly act as a deterring factor in a few cases, yet there is a possibility that such legislation might defeat its own ends. As Groszmann says: "It is a well-known fact that the more restrictions are cast around the contracting of marriage the stronger will be the tendency to illegitimate intercourse and the production of illegitimate children." Another argument against the over-regulation of marriage by legal enactment is the fact that many of the individuals to whom we are indebted for what is best in art, music, literature, and science have sprung from unions which by present-day standards would be judged unfit.

Quoting again from Groszmann's article, "Sane Eugenics": "Our knowledge of facts in the matter of heredity and the transmission of characteristics is very incomplete as yet and may perhaps always remain incomplete. The example taken from the breeding of animals and plants is not conclusive. Even if we were able at the present time to determine definitely what new kinds of animal or vegetable forms we wish to produce by cross breeding, we must not forget that the purpose of such productions is purely utilitarian from the point of view of man who needs food and service. We are mainly concerned in certain physical qualities which we wish to produce in these animals and plants so that they may serve this utilitarian purpose. Intelligence, emotional and ethical causes are not considered. It is true, efforts have been made to establish the family trees of a number of inmates of public institutions, and to show that there is a very vicious heredity in some of these families. Even taking the charts thus prepared at their face value, we may have to admit that they are rarely complete and therefore not absolutely conclusive, and in the worst of these families there has been a sprinkling of perfectly normal individuals."

Dr. Squire Spriggs, the well-known editor of the *Lancet*, is another who is far from being convinced of the value of the medical certificate before marriage, until the Mendelians have supplied the medical profession with more accurate knowledge of the workings of heredity upon which to base their decisions: "It is the desire and object of medical and scientific man to improve the breed of human beings, but, on the other hand, it is not the intention of these men to lead the ignorant astray as to the claims of so doing. A little learning is a dangerous thing, and it is those who know little who are generally most certain concerning partially known scientific truths. This is the case with respect to eugenics and Mendelism. The learned biologist may hope and imagine that the most sanguine expectations of the Mendelists may be realized, but the dabbler in science is positive they will be and talks as if they were already realized."

If we proceed upon the assumption that every marriage which results in feeble-minded offspring is an unfit one our laws must be made so stringent that nothing short of a revolutionization of society would result. In attempting to prove the case against heredity the fact is often lost sight of that conditions affecting the developing child after inception are not hereditary influences at all. Dana states that in his own experience in the study of the idiot class, in which the idocy was apparently begun at birth, it has been rare to find anything in the ancestors which would explain it, and among the idiot class that come to a private physician's office he should say that the determining influence, in most cases, could be traced to something which occurred when the child was in the embryonic state. He believes, however, that this is not altogether the case in the great mass of idiots found in institutions. Characteristics determined by conditions occurring

after inception are, of course, acquired ones and are not hereditary as such.

We will all agree, however, that it is not wise for the feeble-minded to marry, both because there is a danger that feeble-minded offspring may result, and for economic reasons, but legislation directed toward that end is but a compromise at the best, and our energies were better used in meeting the problem from other standpoints.

Sterilization is another radical and unjustifiable measure which has many advocates and has even been put in operation by statute in a number of States. Now sterilization is accomplished by a simple operation which prevents reproduction. It interferes in no wise with function or desire. Thus one of the potent inhibitory influences to sexual immorality, the fear of consequences, is removed. I can conceive of no procedure which would more encourage vice and assist in the spread of venereal disease than this.

It seems, moreover, that even as concerns reproduction the advocates of this measure have been lulled to a false sense of security. It has been found that there is no "simple" operation which in the female will effectually prevent conception, and there is strong probability that the reproductive functions in the male will be found equally as persistent.

Although neither of the measures mentioned above, restriction of marriage or sterilization, presents any real promise of assistance in the solution of the problem of adequate care and prevention of feeble-mindedness, there still remains a remedy which if rigidly applied will not only eliminate the danger to society of feeble-minded persons moving about as free agents, but will effectually prevent their multiplication. The only means by which the desired ends can be accomplished is by segregation in institutions of all feeble-minded persons, with the possible exception of those who can be properly cared for at home under the supervision of the proper authorities. It may be argued that our institutions are totally inadequate to provide for more than a small proportion of those requiring their care, and that to erect a sufficient number would be a severe tax upon the public purse. While this to some extent may be true, yet a careful examination of the facts will show that this contention does not have as secure a basis as appears upon first thought. Recent investigations have shown that in this state there are at present a larger number of feeble-minded individuals confined in institutions such as almshouses, orphan asylums, reformatories, etc., than are cared for in the institutions for the feeble-minded. These individuals are just as much public charges as they would be were they under proper custodial care in institutions for the feeble-minded. Further than this, of the 9,000 known feeble-minded at large, the majority are partially or wholly supported by charity, so the public is paying for their maintenance, if not in one way, in another. Child-welfare workers have come to realize that the normal dependent child stands a much better chance of becoming a useful citizen when he is brought up among suitable home influences—is placed out for adoption or otherwise in a family—than when his upbringing is entrusted to an institution, no matter how excellently conducted. When child-placing to any considerable extent comes to be an accomplished fact, the period of usefulness of many institutions, as far as their present functions are concerned, will be ended. To what better use could they be put than to care for those for whom institutional care is imperative—the feeble-minded?

Since the pioneer labors of Perèire, Itard, and Seguin, the question of the education of the feeble-minded has assumed a very great importance, which has increased with the growth of our public school systems and the adoption of compulsory education laws. The feeble-minded child is as much entitled to the education suited to his needs as is the normal child. Though his limited faculties will never, under any system of education or training, enable him to exercise the amount of judgment and discrimination necessary in even the ordinary affairs of life, yet it is surprising the high degree of efficiency which some will attain in certain directions under proper supervision. It is only through congenial occupation, whatever that occupation may be, usually along manual rather than scholastic lines, that the feeble-minded child may be led to his fullest development and at the same time be given his maximum of happiness. There is in the minds of many of the public an unreasoning horror of anything connected with institution life. This can be easily understood when we consider what institutions were some years ago and what some, patterned on the plans of the past, still are. But familiarity with the methods of the modern institution for the feeble-minded will do much to dispel the doubts resident in the minds of so many. It is difficult for the parent to understand that as a rule the feeble-minded individual, after he has become accustomed to his new surroundings, is happier and more contented than at home. Facilities, unattainable elsewhere, are open to him to assist in bringing up his limited powers to their highest development. Here he feels that he has a place, is a personage in his own little world, is contributing his share of fruitful effort to his community, and, better than all, that he is understood.

The period between the ages of six and fourteen is the most important in the life of the feeble-minded child. It is during this period that he is able to make the best use of the special training which he requires. For this reason early recognition of his condition is necessary. Feeble-mindedness is often not suspected until the child by his inability to advance in school gives evidence of his condition. Parents very often either cannot or will not see that their child is any different from other children. Sometimes they fail to bring to the attention of the family physician the apparent abnormalities of the child, but the family physician himself is very often at fault in this matter as he is very likely to lightly dismiss the subject with the remark that the child will outgrow his difficulty or that there will be a change at three years or at seven or at fourteen. In this way valuable time is lost which might be put to good advantage. The fact that the child has arrived at any certain chronological period in his existence has no more bearing than does the condition of national politics. This superstition has not only been responsible for a vast amount of neglect of the feeble-minded, but has been the cause of early neglect of remediable defects, which had they been corrected at the proper time would have saved, in many cases, lives of suffering and inefficiency. It therefore devolves upon those who come into contact with the child in his early school days to recognize the importance of the situation and to take steps to remedy it.

The question of the responsibility of the public school to the feeble-minded child should be con-

sidered in relation: (1) To the child himself; (2) to his fellow pupils; (3) to society in general.

In the ordinary class-room the feeble-minded child gains but little of value. It is true that some, in whom memory is well developed, will advance, but they gain practically nothing except the ability to repeat, parrot-fashion, dates, rules, and formulæ, understanding but little of their real meaning. Lacking primarily in the power of attention and unable to concentrate but for a short length of time, the long school periods become irksome, and they soon become fatigued and restless. The feeble-minded child is suggestible to a marked degree. He consequently learns easily evil habits which in his more normally poised schoolmate are little more than incidental phases of development without permanent damage, but in him tend to aggravation of his condition. He also is liable to become the scapegoat for the escapades of his companions and to be led even into lawbreaking without any realization of the gravity of his offense. I have at the request of probation officers of the Juvenile Court examined a large number of boys who have been arrested on charges of theft and other crimes who were entirely incapable not only of understanding the gravity of their offense but of originating the plans by which the crime was carried out. In the majority of cases the real culprits escaped. The feeble-minded girl is doubly in danger. How great her danger is the records of any Juvenile Court or maternity hospital will show. It is unfortunate that these girls are very often attractive in appearance and manner, and, while their tendencies may not necessarily be immoral, their power of resistance is very slight indeed. It has been shown that a large proportion of girls leading lives of prostitution are feeble-minded.

Malnutrition and a lack of bodily tone, with lessened resistance to disease, is practically the rule in the mentally deficient. It has been noticed that whenever there is an outbreak of any of the acute infectious diseases in a school that the feeble-minded are always the first to succumb. On account of limited opportunities for contact with other children and unusual solicitude on the part of the parents the feeble-minded child is often remarkably free from diseases until he begins to attend school, when he contracts one illness after another. The tendency to the development of tuberculosis is marked. In fact, this disease is the greatest cause of mortality.

In the special or ungraded classes which are now a part of the school system in nearly all of our large cities the feeble-minded child may, and usually does, progress up to a certain point. I am firmly of the opinion, however, that the feeble-minded child should be allowed to remain in the special class only a sufficient length of time for his condition to be accurately diagnosed, or until a place can be found for him in a suitable institution. G. Stanley Hall points out that educational advantages often increase crime among young people, introducing new and complex kinds of which they were incapable when more ignorant. Youthful crime is an expression of educational failure, for the ultimate verdict concerning the utility of school will be determined by its moral efficiency in saving children from vice and crime. He condemns the idea that any merely educational training can moralize. The partially educated moron or imbecile at large is a far greater source of danger to the community than the uneducated. To the casual observer he may present every appearance of normality, consequently the same responsibility is expected of him as of the normal individual. If given a position when he leaves school, he soon shows his incapacity and is discharged, only to repeat the process until, either having gone the round of available employment or given up the battle, he joins the army of the unemployed and becomes either dependent or delinquent.

In New York City it has been found that "of fifty children formerly in the ungraded classes chosen at random from many cases which have been followed up, there are two who are doing work more or less steadily. The others have been in constant difficulty in one way or another since leaving school; are known to be immoral, have been arrested, have been in institutions and withdrawn; are known to be the means of corruption of other children with whom they come in contact, or are known to have incendiary tendencies."

Of what advantage, except to the normal children and the teachers of the normal children, has it been to attempt to educate these in the special classes of the public school? They are no more fitted to participate in the world's work than they were before; they are more dangerous to their fellows, less happy, their evil tendencies are greater, their powers of resistance less. They have lost valuable years during which they have added their quota of misery and debt, to increase as each year goes on, and to no purpose.

The influence of the feeble-minded child upon the other children in the class is bad. One such case can upset the discipline and impede the progress of an entire class. All children are highly imitative, and from amusement at grimaces and grotesque actions they soon come to imitate them. The moral obliquities of the feeble-minded are also a source of contamination to the other children. To include the feeble-minded in special classes with those who are only backward is an injustice to the latter. The backward child is capable of more or less rapid advancement to normal under suitable conditions and when given the advantage of proper individual attention. It is impossible for the teacher to give this attention when her time is taken up with the feeble-minded.

I have already alluded to the increased susceptibility to the acute infectious diseases and to tuberculosis. For this reason the feeble-minded child may become at any time a dangerous source of infection.

At a meeting of the American Academy of Medicine, held at Lehigh University, I offered the following suggestions:

1. That the public school is not the proper place for the education of the feeble-minded.

2. Careful examination should be made by competent investigators of all children when they first apply for admission to the public school.

3. Those found to be feeble-minded should be excluded and segregated in institutions (or when practicable kept at home under supervisory control of the proper authorities).

4. Doubtful cases and those backward in their development should, after the correction of physical defects, faulty environmental conditions, etc., be admitted to special classes where they will receive the training suited to their individual needs, and be under the observation of physicians especially trained in this sort of work.

This plan by some was considered to look like the millennium though very desirable if it could be brought about. While recognizing the impossibility

under the present condition of affairs of its being put into immediate execution, yet I do not see, when the general public, the school authorities, and the legislators have been brought to realize the importance of the problem of the feeble-minded, why some such plan would not be entirely feasible. In the meantime there is nothing, except the inertia of the authorities, which need prevent an expert examination of each child when he enters school, with proper differentiation of the various types, and certainly, if it be necessary at the present time to continue the feeble-minded in the public school, nothing to prevent their separation from the backward and from those with slight defects of hearing, vision or speech. With the feeble-minded in classes by themselves we will at least know the number with which we have to deal, and other measures would follow.

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THE UTERINE SYNDROME.

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Every physician who is industrious and systematic in his studies is certain of attaining a fair degree of success no matter what his mentality may be. Of fundamental importance to him in the study of disease is a thorough knowledge of symptomatology. The grandest writings in medicine are the older books where methods of precision were not exploited, but where symptoms were precisely studied and carefully described. With all our knowledge of medicine a truthful knowledge of symptomatology, which is the basis of clinical history, is most desirable.

The medical profession may be divided into three grades: The first includes the one who practises medicine as a trade, who has few books, fewer medical journals, rarely attends the society meetings, and depends more on personality than on increasing knowledge for his community standing. Another is he who has a little more conscience and interest. He buys some books, but forgets to replace old editions with new; he takes but one or two medical journals, quotes Osler and Mayo, and is stultified by his seeming wisdom. The third is the progressive physician, who is doing the most for his patients and who stands best in the minds of his confreres. He not only reads many books, but subscribes to a number of the periodicals, recognizing the fact that at best book literature is often ten years out of date, and that only in the medical journals may be found the newest in thought and the cleverest discussions.

It behooves us, as honest workers, to thoroughly comprehend the physiology of the body, normal and morbid, in order that symptoms given us by our patients may be properly explained, for not until we have a proper explanation of morbid conditions are we able to build up a rational therapy. The symptomatology of uterine disorders is but a repetition of much the same complaints for several distinct diseases, showing the great necessity for comprehending the regional and sympathetic phenomena induced by uterine conditions. Let it never be forgotten that the anatomy according to Gray is a dissection and the anatomy our minds should keep before us should ever be a composition.

The uterus is a bundle of muscular tissue with extensions. From the fundus, running over and towards the inguinal rings are the round ligaments, which are truly a part of the uterus. From the cervix, running posteriorly, are the utero-sacrals. Laterally, in the parametrium, is a considerable amount of muscle tissue. All these are essentially a part of the uterus and in thinking of *it* we must think of *them*. All the tissues of the body, to be kept in good functional tone, must needs have their functions stimulated from time to time. It is not reasonable to think that the uterine muscles, body and adnexa, would retain their vitality and vigor if they were not being activated oftener than only at the times of parturition. On opening the abdomen, if he observes carefully, the surgeon will frequently see wrinkling begin at the portion of the uterus where the tubes are inserted, gradually extend across and down the uterus, and then as gradually relax. This is more obvious about the time of menstruation, and without doubt it is this contraction which is responsible for some of the pains of the menstrual period.

From the uterus run out the tubes. These also are an essential part of the uterus itself. The correlation of their functions and activities is as logical as that of the appendix and cecum. Salpingitis and metritis coexist. Very seldom is one found without the other. The pathological processes of one coincide with the same processes existing in the other. The uterus can drain; the tube may not. A pain low down in the left side of the abdomen is probably due to a mild salpingitis associated with an endometritis and has a cause similar to that which allows of left varicocele, namely, impeded return circulation. In all minor pathologies of the uterus we have a marked sympathy in the physiology of the ovaries. There is a wonderful correlation of conditions here. As we live but to perpetuate germ-plasm, that part of the body where the germ-plasm is placed is naturally endowed with more than one method for protection and perpetuation.

The ovary has seven functions. The one that has been longest known and best comprehended is ovulation. For some unexplainable reason this occurs with remarkable periodicity. Menstruation in the female reaches its height and is about to effervesce at the time the ovum is extruded. This is the period of greatest uteroovarian congestion. The cause of menstruation and the reason for the uterus taking on this functional activity reside in the stroma of the ovary, the internal secretion from which being the stimulus for uterine nutrition. It also has control of the œstrus cycle. Circulation through the uterus and ordinary tonus are constantly maintained by this internal secretion, which is to it what the adrenals are to the general circulation. Another property is to establish and maintain the secondary sex characteristic of the female. An absence of ovaries, their failure to develop, or their removal in early life, thus depriving the body of the effect of their internal secretion, lead to a complete change in female psychology and a reversion to the male type. These females have small wombs and small breasts, in addition to the other characteristics of the male. Anteversion is a book condition. Rarely do we meet it in our examinations, and when we do it is a fairly good indication of an antenatal defect of this kind. The uterus will be small, the ovaries not abundantly supplying their stimulating fluid, and the breasts are atrophic.

After the ovum is extruded the granular layer grows profusely and becomes yellow. It is known as the corpus luteum. From these granular cells there is produced another internal secretion. If

the ovum be not fertilized, this body will last two or three weeks. Should the ovum become fertilized, however, through some hormonic condition, it will remain in existence six or seven months. The effect of this internal secretion is threefold. First, it prepares the endrometrium for the reception of the ovum; keeps it in a condition to hold it so that it may become implanted and nourished. Second, it initiates mammary growth, which will later be maintained through the internal secretion of the uterus itself. Third, it balances the pituitary body and averts the similitude of acromegaly.

The blood supply of the uterus is generous, most wonderfully perfect, and extremely difficult to interfere with. It is impossible to determine where the uterine and the ovarian arteries begin or end. The circle of Robinson, running up alongside the uterus in that remarkable spiral, carries the same lumen from one artery to another. Most gynecologists look upon the distresses and changes associated with retroflexion as due to an impediment in the circulation of the uterus. There are a few gynecologists, however, who cannot comprehend this. A complete, perfect blood-supply from four channels, perfect anastomosis, the fact that no one has seen a change in color of the uterus with a change of position, and that engorgement if it did exist would naturally increase the length of the uterus (which does not occur materially), lead to the feeling that in the circulation there is not to be found an explanation of uterine distresses.

Just as truly as the head is as much a part of the body as the abdomen, so is the nervous system of the uterus truly a part of it. If the nervous system of the uterus and neighborhood were as tangible to the eye as the adnexa and so-called ligaments, there is little doubt but that the nerve specialists would appropriate its diseases. Scattered numerously through the muscular structure of the uterus are found minute ganglia. From these processes extend to rather extensive plexuses of the sympathetic system in the broad ligament close to the cervical portion of the uterus. These overhang the uterine artery. Passing from these ganglia are numerous cords to the plexus on the lower vertebra, and so up on in the chain. Several sacral nerves pass into these plexuses and are associated in the physiological expressions of the nervous system of the uterus.

The sympathetic nervous system proper is a law unto itself. The activities of the viscera of the abdomen, as well as the viscera in the cavities higher up, are correlated and controlled largely through it without any cerebral subjection. Irritations originating in one part are swiftly carried in different directions to other organs, following the natural paths of least resistance. This is one of nature's endeavors at self-protection. One portion of the anatomy being disturbed, there is a sympathetic reaction towards a condition which makes for recuperation. The spinal nerves joining the sympathetic, passing through them to the uterus are the paths of reflexes of the sensory and motor types. Pains emanating from the pelvis originate through the spinal connections, and the visceral disturbances through the symathetic proper. Irritation at the uterine end of the nervous system is carried to the nearest plexus or nerve center. These regions have a functional control over the local condition in large part. If the irritation continues and if relief is not obtained, these centers become exhausted. The threshold of resistance is lowered and the effect of the irritation is passed on to the next highest center. If the irritation still persist, or be excessive, they in turn lose their resisting power and the impression prevails further up, until, ultimately, even the psychic portion of the brain may feel the brunt of the long continued minor pelvic derangements.

In early biological life, as well as in embryological life, the hormones or internal secretions activate metabolism and reactions without the existence of nerve tissue. This is a later development. So, in pelvic derangements of women we have the economy disturbed by the irregular secretion of the different uteroovarian substances, as well as by the irritation and exhaustion of its nerves. The normal vascular cycle of the uterus, brought about by the ovarian internal secretion, is often accentuated and perverted by that which affects the peripheral circulation of the rest of the body. The low tone of debility, the irregular congestions due to defect in the vasomotor system, the failure of the chromaffin substances of the body, the regional effects of absorbed ptomaines, are all pathogenic to local venous stasis and its accompanying congestions.

The uterine reflexes are interwoven in this condition of morbid physiology. A part of the several syndromes is leucorrhea. The ordinary exhaustion from overexercise, shopping, walking, or working will bring on a temporary leucorrheal discharge. Anemia and the absorption of intestinal toxins are common causative factors of this symptom.

The uterine syndrome is a statement of the basic symptoms of the functional disturbances of the uterus. Tumors and massive inflammations do not ordinarily induce them. They are mainly discovered in conditions of tension with exhaustion, both physical and mental. As there are three channels by which the economy is made cognizant of local conditions, so there are three classes of syndromes: symptoms expressed through the branches of the spinal nerves; disturbances brought about by irradiation of the sympathetic proper; and either loss of or lack of balance of the internal secretions of the ovary. Through the pubic and sacral nerves passing to the sympathetic we have an appreciation of pain, the reflex phenomena induced being referred peripherally through either branch of these same nerves. Backache at the sacrum, pain in the left iliac fossa, tenderness at the cocyx, are the symptoms usually noted in the early stages of uterine or adnexa disease. As the lumbar center becomes exhausted, there is added tenderness along the spine at the point of exit of the posterior nerves. A tender spot may also develop under the left breast on a line with the fifth intercostal nerve. The last nerve to break down and the longest to hold is the trigeminus. There is a strong steady correlation between it and the pelvic disorders. As the fifth nerve abundantly supplies the face, scalp, and dura, so we have pains and aches in various portions of the face and cranium as a last torment to an already exhausted nervous woman.

Through the sympathetic we have another type of syndrome—the visceral. Steady inhibition through this symptom leads to a stasis in the intestinal tract and constipation. This symptom is further aggravated by the pain often felt in defecation, which leads to a postponement of the evacuation act, vesical tenesmus, and frequent and painful micturition, also aggravated by traction on the trigone in certain reflexes. Stasis of the small intestine allows of the ascent of the germs of putridity from the large into

the small. Their absorption induces toxemias and red blood-cell destruction or anemia, an important side-link in the chain of ill health. The stomach loses its motility in part; becomes slightly dilated; stomach digestion is delayed and the food often rejected. In some cases, the heart doubles its beat and a condition of tachycardia results, which may persist for years, only to be relieved quickly by removal of the pelvic irritation. The kidney and thyroid gland enlarge at each menstrual epoch. If the path of least resistance be in that direction, continued enlargement may occur, terminating, under the strain of side conditions, in nephritis or a hyperthyroidism.

The third syndrome, due to loss of ovarian tissue or its gradual absorption, popularly known as "change of life," is brought about by an incomplete balance of the internal secretions. The pituitary body when very active, as is the thyroid in Graves's disease, induces a condition known as acromegaly. The ovarian secretions tend to balance this in a measure. Where it is lost or fails to reach its full activity, the female puts on flesh and becomes overdeveloped.

As said before, the busy practitioner must be systematic in his study in order to be successful. He must know his physiology and keep well posted in all the discoveries in this branch of medicine. He should know the organs affected compositely and not as a dissection. He should have in his mind's eye, in this instance, a complete picture of the true anatomy. He should be able to balance up the many symptoms and signs coexisting, weigh out their importance and rationally deduce a helping therapy, remembering that tension is generally the original causative factor in the various lesions inducing these syndromes. In the inflammatory states there is exudate, splinting, serous effusion with softening and consequently little tension. This complexity of symptoms is not found. In metritis; in metrosalpingitis, with the ganglia of the uterus pinched; in primary retroflexion, with a drag on the uterosacral and other ligaments, and a drag on the nerves alongside the uterus, and in chronic oophoritis, we have conditions of tension. The early signs of carcinoma of the uterus are the same as those of the lesions just mentioned. It is only when the malignancy has considerably advanced that we get special symptoms.

280 Montgomery Street.

LANDRY'S PARALYSIS WITH REPORT OF A CASE.*

By HYZER W. JONES,

UTICA, N. Y.

The following translation from Roger's "Infectious Diseases" has been kindly furnished me by Dr. W. S. Magill, Director of Laboratories of the State Department of Health at Albany:

"Acute ascending paralysis of Landry's disease often begins during or at the convalescence from typhoid fever (Landry, Leudet, Pitres and Vaillard); or from pneumonia (Gubler and Landry, Macario); or from measles (Barlow, Négue); or from smallpox (Gubler, Bernhardt, Gros, Chalvet, Oettinger and Marinesco); or as a consequence of puerperal septicemia (Landry); or urinary infection (Orcel and Stourme, Prince); or as the result of suppurating wound following a blister (Landry, Gubler). In certain cases the invasion of the disease is marked by symptomatic disturbances often associated with grippe or the common type of simple gastritis; in other cases the invasion is characterized by general reactive disturbances such as general prostration, loss of appetite, chills, and particularly fever. As occurs in all microbic invasions, the symptoms are often associated at the commencement of their manifestations with some exciting cause, as indigestion, catching cold, exhaustion, some excess, or such things as favor the development and localization of the microbes. Among the symptoms of the established case, some indicate the infectious nature of the disease. First is the fever, which indeed is not constant; then comes general depression, loss of appetite and often an hypertrophy of the spleen. That which augments the conviction one feels of the existence of an infection is that there exists an infection of the nervous centers which in its symptoms and evolution closely resembles Landry's disease, namely, rabies in its paralytic form. Reading of some of the observations attributed to Landry's disease raises the question whether certain cases regarded as examples of acute ascending paralysis are not really due to the virus of rabies. The similarity of evolution of both diseases suggests that there is an analogous pathogenesis and that there is an organism causative of Landry's paralysis. Research along this line has been made and has already given some results. Baumgarten has found in the blood and organs a bacillus analogous to that of anthrax; Marie and Marinesco have obtained a similar result. But in the absence of cultures and inoculations, it is impossible to make any definite statement as to the nature of this microbe which some authors would liken to the anerobic bacillus found by Achalme in the blood of those affected with rheumatism. The same uncertainties are manifest in the observation of Centanni; no cultures were obtained but merely numerous microbes arranged in half-moons about the fibers of the peripheral nerves; but there were none in the spinal cord. In a case reported by Curschmann the paralytic phenomena appeared in the course of typhoid fever, and were attributed to the bacillus typhosus, which was in fact found in the spinal cord, having there invaded the white substance; the nature of the microbe was determined by culture and animal inoculations. In other cases more or less common bacteria, or at least not specific ones, have been found. The *Staphylococcus aureus* was found twice by Eisenlohr; the streptococcus has been detected in the sections of the case of Oettinger and Marinesco, and has been cultivated in the case of Remlinger; finally Thomas has obtained by culture in a case in which the microscopic examination was negative, a micrococcus which liquefied gelatine. Thus of nine observations, more or less well studied bacteriologically, there have been found twice a bacillus resembling that of anthrax, twice undetermined microbes, once the *Bacillus typhosus,* twice the *Staphylococcus aureus,* and twice streptococci; in two other cases, one of Eisenlohr and one of Albu, search for bacteria remained negative. From all of these somewhat varied facts a clear conclusion is not deducible. One can only say that the most of the modern observations would lead one to think that Landry's disease is a "subacute" poliomyelitis

*Read before the Fifth District Branch of the Medical Society of the State of New York, at Oswego, October 3, 1912.

determinable by most varied types of microbic agents."*

Roger then reports a case with classical symptoms in which the pneumococcus was demonstrated in the blood obtained post mortem.

The case of Marie and Marinesco was first reported in *La Semaine Medicale* in 1895. The report is as follows:

CASE.—"Patient, young man 19 years old, employed as a stable boy. Entered the hospital September 22, 1895. For two weeks he suffered with a marked feeling of illness and depression, accompanied by backache and symptoms indicating a severe infection. The day following his entrance to the hospital an attack of paraplegia occurred during the night that was almost complete, with muscular relaxation and some disturbance of sensibility. The latter rapidly disappeared but the paraplegia persisted. Once or twice there occurred incontinence of intestinal matter but this seemed accidental. The patient could not maintain a sitting posture. The following day a diminution of strength was manifest in the right hand muscles. September 25 the paralysis was evident in the superior extremities, particularly on the right side, and the next day it was very marked about the shoulders. The next day the patient suffered from impeded respiration; there were forty respirations per minute almost exclusively of the costosuperior type. The pulse, at the beginning 120, had fallen to 65. The temperature, which up to that time had varied from 38.9 to 39° C., had fallen to 37.2. These phenomena increased in severity from day to day. During the nights of the 28th and of the 29th of September, 1895, he was delirious and towards evening of September 29 the patient suddenly expired in syncope, having shown the classic type of Landy's acute ascending paralysis. At the post-mortem there was found hemorrhagic softening, at a maximum affecting the gray matter of the anterior cornua of the lumbar cord. Histological examinations by Nissl's method showed a massive infiltration of the vascular walls of the anterior cornua and of the septa of the pia. Most of the vessels were extremely congested. Inflammatory nodulæ were also found, some connected with the circulatory vessels, others in the intestinal tissues. The parenchymatous alterations of anterior gray cells of the lumbar region consisted of these necroses and the dissolution of the nerve elements. In the dorsal and cervical region the nerve cells showed four degrees of degeneration: by dissolution of the chromatic elements, by rarefication of these elements, and by dissolution of the paraplasm, with fragmentation of the cellular body and its prolongations; and transformation of the body of the nerve cell into one homogeneous refringent mass. The nuclei of the nerve cells were swollen, with a contour less defined, the nucleolus not so well colored, and in some cases the entire mass of the nucleus pushed out toward the periphery. In the dorsal and cervical portions of the spinal cord, in the bulbs and brain, there were found in great abundance microbes offering considerable morphological resemblance to the *Bacillus anthracis*. These microbes, disposed parallel to each other in the vessels, were so crowded as to completely obliterate the lumen, and to cause veritable bacterial thrombi. The interest of the case related by us in our opinion rests on the two points following, viz: (1) It shows that in certain forms of Landry's paralysis there are really involved relatively large central lesions, contrary to the views of some authors who have considered this a syndrome uniquely dependent upon peripheral lesions. (2) We have been able to observe the active pathological process, and determine the existence of microbes which seem to have played the principal rôle in the production of these lesions. But what is this causative microbe? Here our observation is incomplete; for having made neither cultures nor inoculations we are not in a position to present the indispensable documentary evidence for such determination. As far as morphology can be relied upon to determine the microbe found by us in the dorsal and cervical regions, we can say that it offers the greatest possible similarity to the *Bacillus anthracis*, the lesions found by us being in accordance with what is already known of the effects of a process of infection in such tissues. We will call attention particularly to the hemorrhages, the perivascular and interstitial nodules, and the degeneration of the nerve cells."

*Rogers, G. H.: "Les Maladies Infectieuses." Vol. II, page 819. Translation by W. S. Magill, A.M., M.D., Director of Laboratories, New York State Department of Health.

The following case perhaps confirms the observation made by Marie in 1895. The patient was referred to me by Dr. W. W. Jones.

AUTHOR'S CASE.—The patient was a male, aged 21, American, single, farmer. Father died two years ago; cause not positively known. It was learned from an uncle that the patient's father had lues. Mother, one brother, and one sister alive and well. Previous history: Measles and mumps in childhood; otherwise negative. No venereal diseases. Habits: Hard worker; temperate; no alcohol, very little tobacco. Present illness: On September 9, 1909, patient arose early in the morning, but did not feel as well as usual; had a headache. He had planned to attend the County Fair, and did so, in spite of his indisposition. At the fair he indulged in weight lifting contests and "did the stunts." That night he felt no better. The next day he did not feel well but kept at work. On the following day patient felt feverish, had a slight headache, and felt fatigued. I was not called to see him, however, until September 14, four days after his first symptoms. The patient was in bed, complaining of headache in the occipital region, and pains in the back of the neck and sacral region. He seemed to think his leading symptom was "fever." His temperature was 102° F.; pulse, 120; respiration, 20. The physical examination at this time was negative. The patient lived at some distance in the country, so it was arranged that the family should telephone me if my services were needed before the next visit. September 16. This morning temperature was normal; pulse 80; no headache; no backache; pains all gone, but left arm and right leg were paralyzed. At no time after this was the temperature higher than 99°; it was usually 98°, and patient had no pain afterward. My first diagnosis was hemorrhage into the spinal cord. But the early febrile symptoms seemed to warrant the conclusion that we were dealing with an acute anterior poliomyelitis. One consultant suggested that it might be cerebrospinal meningitis. Two days later, September 18, the left leg was paralyzed, and the right arm as far as the hand. The fingers and thumb of the right hand were capable of some flexion and extension, but the patient had no grip. Aside from this, all four limbs were paralyzed. Patellar reflexes were lost. There was a slight hyperesthesia. At this time I began to consider the possibility of a Landry's paralysis. In the only two cases of Landry's that I had seen the paralysis was a paraplegia, rapidly progressing. In this case, however, the paralysis affected first one arm and the opposite leg, then the other limbs. There was no loss of sphincter control, and bowels were emptied by means of high enemata. The patient voided urine voluntarily, but had a residue of 24 ounces, which was obtained by catheterization. The next day the patient said he felt no better. He raised his head from the pillow without assistance, could flex and extend his toes, and had an appreciable grip in his right hand. There was a suggestive Kernig, but aside from that there were no symptoms of meningitis. Inasmuch as the question of cerebrospinal meningitis had been raised, however, it seemed to me best to determine the presence or absence of the specific organism of that disease. Accordingly I did a lumbar puncture on September 22, removing about 30 c.c. of clear, colorless fluid, which flowed drop by drop. The patient was moribund on the day the puncture was done. Except for a slight delirium on the morning of that day, he was clear mentally until his death. There was no evidence of asphyxia. Bulbar involvement had begun, however, for the patient experienced some difficulty in swallowing and could not speak as distinctly as on the day before. A short time before the end he spoke to the members of the family, and then simply faded out. His brother told me that the death was most peaceful. Patient died at 5:00 P. M., September 22. The total length of illness was about twelve days, including the prodromal stage; death occurred eight days after the onset of paralysis. The bacteriological examination was made by Dr. W. S. Magill, director of the State Laboratory at Albany. In a preliminary report he stated that the fluid contained no cocci, but that numerous bacilli were present. In a letter dated December 7, 1909, Dr. Magill states that the spinal fluid was found to contain a pure culture of the anthrax bacillus.

This case, it seems to me, confirms the observation of Marie, that the anthrax bacillus may be the caus-

ative organism in Landry's paralysis. In my own case the organism was found in the spinal fluid during the life of the patient, while in Marie's case the bacteriological findings were made post mortem.

I realize that this case would be more complete had a post-mortem been performed, but permission was not obtained. The literature of the subject is so meagre, however, that I feel justified in reporting any information which might be considered a contribution to the etiology of this rare disease.

221 Genesee Street.

PROLONGED-PRECIPITATE PARTURITION DUE TO DISENGAGEMENT OF THE DISPROPORTIONATE HEAD.*

By A. ERNEST GALLANT, M.D.,

NEW YORK.

At 2 A.M. December, 1899, a very cold, stormy night, I was startled from sleep and found the house surgeon of the Mothers' and Babies' Hospital at the other end of the wire, excitedly detailing the following history: Mrs. X., primipara, having been in labor over 30 hours, and at a standstill since the membranes ruptured the afternoon before, is now tired, worn and weary, and piteously crying for relief. The os externum is of silver-dollar size, soft, and dilatable; the head does not engage, the pains are infrequent and inefficient, and labor does not seem likely to progress without the aid of the forceps.

After examination, at the earnest solicitation of the house surgeon, I gave permission to use the forceps, cautioning him to pull easily, steadily, and slowly; but he, misunderstanding or failing to realize the value of my suggestion, gave a rather vigorous pull, and to his chagrin, and the astonishment of the onlooking students, fell backward to the floor, holding the forceps firmly with both hands; while the baby was only saved from the same fate by being caught in my hands. The perineum, lacerated to the anal margin, was sutured half an hour later.

Quite naturally one is led to ask: 1. Why was the labor primarily prolonged? 2. Why was the child born so precipitously when the forceps were applied? 3. Why was the house surgeon permitted to apply the forceps?

1. The powers had been efficient, though the pains had ceased from exhaustion and the woman was very tired and weary. The passage was not above medium size, and when the woman was in active pain the head did not enter deeply enough into the brim to engage and stay engaged. Failure to flex sufficiently to properly engage and become fixed was due to the relatively small size of the head as compared with the normal-sized inlet, so that failing to firmly engage during each pain the head receded above the brim as soon as the pain ceased and no advance could be made.

2. The precipitate forceps delivery can readily be explained when we realize that as soon as the forceps were applied the head would completely flex and its passage through so roomy a pelvis, when too strong a pull was made, would be a foregone conclusion.

3. The house surgeon was permitted to apply the forceps because of my desire to impress on the students present and the house surgeon in a most forceful and practical way a lesson in the diagnosis of this condition, the reasons for avoiding or applying the forceps, and the action of the forceps when used in an injudicious way or in an inappropriate case. Had the house surgeon been less insistent and cocksure of the necessity for the forceps, and less anxious to demonstrate to the class his expert knowledge of how and when to use the forceps, or had he listened to and carried out my suggestion to "go slow" with the traction on the forceps, the lesson would have been less striking to those looking on, the house surgeon's fall—moral and physical—would have been less painful to himself and less damaging to the patient's perineum.

Obstetric practice, involving always two, sometimes three or more lives, consumes more time, causes more loss of sleep, more anxiety, and in 95 per cent. of all cases is more poorly paid than any work which the family physician is called upon to do; and yet the practice of his later years will depend very largely on the grown-up babies whom he has brought into the world.

In view of these unfair conditions it seems pertinent to consider why so many women, multiparæ as well as primiparæ, linger in labor for one, two, and even three days. The pelvis seems normal in shape and size; the pains of good quality; yet the membranes do not rupture, the head does not engage, the woman grows weaker and weaker, and there is no advance. As the doctor, who has been running in two, three, four times a day, or sitting through the night watching and waiting for something to happen, has just left the house some change of position or an unusually strong pain occurs, a terrible scream is heard, and the head lies on the perineum, or is precipitated into the bed, during the doctor's absence, and when the doctor does return, in addition to the complaints of the patient and her family at his absence, he finds the perineum badly lacerated, and that by a child which weighs not more than six and a half to seven pounds, and he in his impotence is ready to swear, orally or mentally, that he will "cut out all confinement work hereafter." Does he? Can he afford to do so? I fear that the demands of his practice and the needs of his own family will make such a renunciation impossible. Obstetric practice does not pay *per se*, but as the best practice builder it must be taken care of, and that right well.

Is there no way in the large majority of delayed cases that we can facilitate the mechanism of labor and thereby make it a much less onerous ordeal for the mother, the child, and the physician?

This combination—a normal pelvic inlet, with a relatively small head which, failing to flex properly, fails to engage and stay in the grip of the inlet; fails to make any advance, fails to glide down the pelvic planes, and thus causes delay for many, many hours or days—has been met with in about 65 per cent. of my consultation cases.

Thus are we frequently brought face to face with the important necessity of estimating the relative size of the head to the inlet, the passage to the passenger, in order to determine the best means for assisting the delivery of the child.

In this connection we must not overlook the fact that a relatively large head will flex more completely, will mould and fit the inlet more accurately, will follow the planes more surely, and be delivered more quickly.

In the early recognition of the unflexed disproportionate head as a source of delay in labor and its early correction ofttimes lies the key for ac-

*Read at the Fourteenth Annual Meeting of the American Therapeutic Society, May 6, 1913, Washington, D. C.

celeratmg delivery, and for the obstetrician has a threefold interest: (1) For the mother, to minimize the number of pains and minimize the wear and tear on the birth canal; (2) for the child, to reduce the danger of prolonged compression, which has been demonstrated as the cause of so many stillbirths, asphyxias, birth paralyses, feeble-minded and idiotic children, etc., and (3) for the obstetrician thereby to avoid long hours of needless watching and loss of sleep, the application of forceps, the repair of the perineum, and all the incidental unpleasant effects on the patient and her family.

According to Engleman ("Labor Among Primitive Peoples") in delayed labor among the uncivilized tribes the husband seeks to stimulate the pains by treading on the abdomen of the parturiant; or, standing behind the woman, clasps his hands over the fundus, drops to his knees and drags downward and backward in the hope of forcing the recalcitrant baby into the world. Another plan is that of placing the woman in a blanket and shaking her up and down until the pains become strong and active, and this is said, at times, to be successful. That the squatting posture is the most natural and has its advantages in accelerating the passage of the head through the pelvis there can be no doubt, and it is to be regretted that the old-fashioned obstetric chair, which was carried from house to house, has so entirely gone out of fashion among Anglo-Saxon accoucheurs.

The great value of compressing the lower abdomen on the thighs while in the sitting or squatting posture was clearly demonstrated in the following cases:

Case I.—Mrs. G., 35, who, when seen October 15, 1902, at the request of Dr. Moss, had been in labor more than 30 hours. She complained of a sense of choking, fearing "something dreadful was going to happen," and we sincerely hoped something would. Much water had run away; the pains had ceased; the cervix was dilatable and only a sharp "erosion ring" of the external os remained. At 9 P. M. the chorion was artificially ruptured: the head was freely movable above the brim. At 10 P. M. the pains had ceased and there was backache. At 11 P. M. quinine sulphate was given, ten grains per os, and 1/30 grain strychnine was given hypodermically. At 11:30 P. M. the pains were frequent and of good force, but there was no advance. At midnight the patient insisted that she must arise, that her bowels must move. A pail, covered with a wooden seat, was brought; she sat down, strained vigorously, and a seven-and-a-half-pound boy was barely saved from drowning in the pail. The change in posture to that of sitting low, leaning forward with the elbows on her knees, accomplished the necessary flexion of the head, and the medium-sized child was precipitated through the comparatively roomy pelvis. Shortly afterward this woman developed a well-marked melancholia and had to be sent to a sanatorium.

Case II.—The advantages to be gained by early diagnosis of this condition and appropriate measures for promptly "aiding nature" were clearly shown in a case (Mrs. G., 47) referred to me by Dr. A. E. M. Purdy. The woman was frail and slender, weighing 110 pounds, height 5 feet 2 inches. External conjugate 20 cm., right oblique 22.5 cm., left oblique 22 cm. Her previous labor had been very slow and prolonged. The first stage lasted five hours; the head was found in R. O. A., the os externum was dilated and dilatable; the protruding membranes were punctured by a steel knitting needle. The head, wabbling above the brim, was tilted into more acute flexion by internal pressure on the forehead and readily entered the inlet during the pain. The edematous anterior lip was pushed upward behind the symphysis; the pains were forceful and at the end of the fourth contraction (20 minutes after rupture of the membranes) the child was born, the head restituting to the opposite side. Time of third stage, 10 minutes; of the whole labor, 5 hours 50 minutes. In this case we feel sure that by puncturing the membrane and tilting the head we saved the mother a whole night of inefficient pain and suffering; the child possible injury, and myself an all-night seance.

Case III.—Sixteen months later I again delivered Mrs. G., 47. First pain 2:30 A. M. Occiput to the left.. At 5:15 A. M. the external os was dilatable; membranes punctured. *While I stood behind the woman with my hands clasped over the fundus, she was directed during the pains to throw her body forward, her weight being borne by my hands which thus compressed the fundus.* The second time this maneuver was repeated the head rapidly came down into the pelvis and was guided through the vulva, the cord was uncoiled from the neck, and the labor was completed within fifty-five minutes after perforation of the membranes. The whole labor occupied but 3 hours and 40 minutes.

Case IV.—Fifteen months later I for the third time delivered the same woman on August 16, 1907, at 9.15 P. M., she having been in labor since 1 P. M. The os externum being dilatable, I ruptured the membranes. The occiput lay high above the brim and to the right, R. O. T. During the pain the right index finger was held against the forehead, causing the occiput to tilt down into the brim. After this had been accomplished, standing behind the patient I clasped my hands over the fundus and repeated the movement described as successful in the previous labor, and after the second attempt the head came down on to the pelvic floor. The head, assisted through the vulva, rotated to the left; the cord was uncoiled once around the neck, and the child, cyanotic, was born at 10.18 P. M., one hour and three minutes after rupture of the membranes. The cord was secured by Kellog's bands, enclosed in dry sterile gauze and secured in place by a three-inch strip of rubber plaster—a method devised by me in 1892, as a means of preventing infection and jaundice in the newly born.

External pressure on the fundus uteri and breech was always combined with internal manipulation, to accentuate the flexion of the head and trunk and thereby help the occiput to engage during the pain and to prevent it from being disengaged when the pain ceased.

These three deliveries illustrate in a vivid way the present-day idea in obstetrics, viz., that by *judicious interference* at the *right stage* of labor we can reduce the hours of labor to the workingman's legal limit of six to eight hours, or less, and that frequently without the use of the forceps, though we do not hesitate to apply it for this purpose and for this purpose alone. In other instances the forceps may be brought into use to avoid more serious difficulties, as in

Case V.—Mrs. P., 22, whose uterus I had curetted and drained, with ventrofixation, for sterility, August 14, 1898, became pregnant five years later. Labor began at 1.30 A. M., March 12, 1904. At 12.45 P. M. the external os was dilatable. At 2 P. M. the amnion was punctured. The head lay occiput left, transverse, *forehead* lowest, but in response to upward pressure on the forehead, through the cervix, the occiput tilted downward into the left inlet. Advance being very slow, the pains ineffectual, and the woman extremely excited, chloroform was administered by Dr. H. B. Brown, to the obstetric degree and by moderate, intermittent traction, in ten minutes the head was delivered and rotated to the left; the shoulder was drawn from under the symphysis and a girl weighing seven and a half pounds was born.

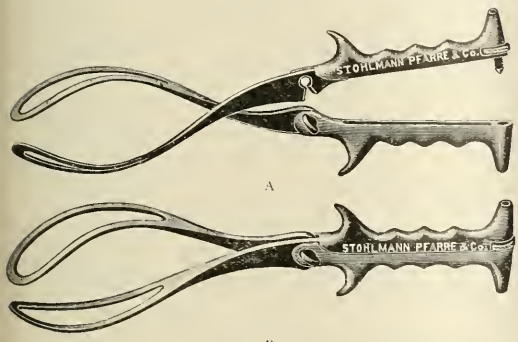
Here we had been dealing with a medium-sized head, wabbling above the brim, face inclined toward the inlet; corrected by combined internal and external manipulatlion to L. O. A. and a safe delivery in fifty minutes from the perforation of the membranes; thus saving the mother from several hours of unnecessary pain and anxiety, and the child from the dangers of a face delivery.

Case VI.—An undersized head lying *on the pelvic floor*, which failed to flex and rotate and caused delay. Mrs. C., patient of Dr. L. First stage began at 7 A. M. Membranes punctured at 9 P. M. At 12.45 A. M. I found the head lying loosely on the floor *within* the true pelvis, left occiput, transverse. No advance. Dr. L. applied the forceps and easily rotated the occiput into the left oblique, and on making traction the head and body were born so precipitously that the doctor and child almost fell to the floor. The perineum, lacerated to the anal margin, bled

profusely, was sutured by Dr. L. and a hot douche was given. At 5 A. M. I was again called on account of hemorrhage, and had to cut out the perineal sutures which had been tied too loosely and resutured with silkworm gut. Dystocia in this case was due, primarily, to the misfit of the small head which failed to adjust itself to the pelvic planes and reached the pelvic floor in the transverse diameter; in spite of very strong pains it failed to move either anteriorly or posteriorly until rotated forward by the forceps.

Dr. L., failing to realize the small size of the head, and in spite of my warning to that effect, threw his 220-pound weight on the forceps and laceration of the perineum resulted. Though the patient suffered no lasting damage, she felt that the necessity for resuture was the result of unskilful handling and declined to pay either Dr. L. or myself. Can you blame her?

From the foregoing we learn that the maneuvers to which we may resort in order to facilitate flexion and engagement of the head within the inlet and keep it there between the pains, that it may not recede and wabble above the brim, thus prolonging the hours of labor unreasonably are: (1) External pressure on the buttocks at the fundus exaggerates the flexion of the trunk on itself and the chin on the sternum; (2) external pressure on the occiput just above the symphysis, with the palm of



Gallant's satety obstetric lock. *A* Shows countersunk notch in right blade, and set-screw passing through flange into shank of left blade. *B* sbows forceps locked, set-screw set, fixing blades so that they cannot be forced together hy external pressure of the genital tract, thus avoiding undue compression of the fetal head.

the hand pressing the occiput down into the brim; (3) internal pressure on the forehead, with the fingers in the cervix, *tilting* the forehead *upward* during each pain; (4) the introduction of a single blade of the forceps to the occiput and gentle traction during a pain to facilitate flexion and engagement, best accomplished by a solid blade forcep, as the head will move more readily and the bulk of the forcep will help to fill up the relatively roomy inlet, the head to engage more firmly and advance more surely; (5) guidance traction: High forceps —with *loosely fitting blades, chiefly as guides* and to prevent recession, being careful not to drag too vigorously or suddenly—or pay the penalty of a too-precipitate delivery and the mother suffer a torn perineum which could have been avoided; (6) the judicious combination of two or more of these manipulations as the case may demand.

Accumulated experience has strengthened our conviction that the chief danger to the child in the use of the forceps lies in the *unrecognized and uncontrollable compression of the head* caused by the pressure of the cervix, vagina, and pelvic walls on the blades and which has been very largely overcome by the "safety lock" devised and described by me as "a combination of the English and French obstetric locks, for the prevention of dangerous compression of the fetal head by forceps" (*American Journal of Surgery*, March, 1907).

With this forceps many labors can be safely shortened many hours and deprived of the many terrors which the twentieth century woman so justly dreads.

AN APPENDIX FREE IN THE ABDOMINAL CAVITY WITHOUT SUPPURATIVE PERITONITIS.

By JEROME WAGNER, M.D.,

NEW YORK.

How often an appendix is found free in the peritoneal cavity, without a complicating purulent peritonitis, I do not know, as the condition is encountered only by accident, and when operating for some other affection. Of course, I refer to an appendix which has been free of its cecal attachment for some time, long enough, at least, to have caused a peritonitis such as we usually meet. In the case I am about to report there was a peritonitis present, subsequently proven to be carcinomatous, but no evidences of another infection. The history of the case is as follows:

CASE.—Fanny C., aged 35, widowed for four years, English East Indian, ladies' maid, New York City. Family History. Father died of pneumonia. Mother alive and well at 76. One brother dead of unknown cause, five brothers and five sisters alive and well. Uncles and aunts alive and well. No history of tuberculosis or malignancy in family. Past History. Patient has always been in good health. Menstrual History. Menstruation began at thirteen; regular twenty-eight day type lasting five days, with no dysmenorrhœa; amount moderate. Married eight years ago. Delivered of one child dead, seven years ago. No abortions or subsequent pregnancies. No vaginal discharge. Venereal history denied. Personal history. Appetite good, sleep normal, bowels always regular, no periods of constipation or diarrhoea. Uses coffee and tea moderately, beer sparingly, no appreciable loss in weight, no night sweats. Present History: Dates back to about July 1, 1912, up to which time patient says she had been in perfect health. On July 1 she left her position as ladies' maid and remembers that on that day, for the first time, whatever food she took caused her a little distress; this condition persisting for about two weeks. She then noticed that her abdomen seemed to be slightly larger than usual. Two days after first observing this she was seized with a sharp cutting pain in the epigastric region. A physician who was called in prescribed some medicine, which, she says, relieved the pain, although the swelling persisted. On July 26 she consulted another physician, being alarmed by the persistent abdominal distension, but suffering no pain. This physician, Dr. C., called me in to see the patient on the following day, July 27, and on examination I found an apparently well-nourished woman, with no evidence of suffering from any acute pain, though she complained of a feeling of discomfort in the abdomen, and a sensation of something pressing upon the rectum. She was up and about, with a temperature of 98.4, pulse 72, respirations 20. For three days previous had been having three or four daily bowel movements, but accounted for this by the fact that she had been taking salts each morning, thinking thus to rid herself of the distension, which she thought was gas. Stools were free from blood. Abdominal Examination: The abdomen showed a uniformly slight distension. Palpation revealed no areas of pain or tenderness, but all over the abdomen there was a feeling of resistance. Percussion showed the presence of free fluids in the flanks. Vaginal Examination: There was a perineal laceration of the first degree and a unilateral laceration of the cervix. The uterus did not seem to be enlarged and was slightly movable. In the left vaginal fornix, a sausage shaped mass could be palpated, which was tender to the touch. In the right fornix an enlarged ovary could be felt. Digital examination of the rectum showed nothing further, no proctoscopic examination being made. I made a diagnosis

of salpingitis, with the possibility of its being tuberculous on account of the free fluid present, for which I could in no other way account. This was explained to the patient, and I operated on her the following day.

Operation: Through a vertical median line incision, the peritoneum was exposed, and before opening, showed the usual evidence of intraperitoneal free fluid. Upon opening, a quart or two of clear straw colored fluid escaped, slightly blood-tinged toward the end, but not from wound bleeding. The peritoneum was very much thickened and studded with small nodules, miliary in character, very hard and apparently solid. The pelvic organs being brought into view, the uterus was found to be small and thickly studded with nodules similar to those found on the parietal peritoneum, as were the bladder and rectum to both of which the uterus was partly adherent. The left tube and ovary were apparently merged into one cystic mass, which contained fluid, similar to that found free in the abdominal cavity. The right adnexa were buried in a mass of inflammatory tissue. The appendages were removed and as much of the uterus as could be freed from the bladder. There was much oozing but no free bleeding. The cecum was then brought into the field and was found to be thickened with a few miliary nodules on its peritoneal covering. The appendix was sought, but only a stump of tissue was found about a quarter of an inch in length and as thick as a match. A mass however was palpated in the subcecal fossa, which was bound down by a few slight adhesions, but readily delivered, and which proved to be the appendix. It was still attached to an apparently normal mesentery, though both ends of the appendix were free with the lumen occluded. The appendix was as thick as a good sized thumb, completely covered with nodules, such as were found on the pelvic organs, the appearance being very gangrenous. After ligating the mesentery the appendix was removed. The omentum was then brought down and was as solid as liver and greatly thickened. A wedge was removed for pathological examination, and in tying the ligature a white caseous material was expressed. A Mikulicz drain was inserted in the pouch of Douglas on account of the rather free oozing, which could not otherwise be controlled. The wound was closed in layers.

Postoperative course: The drain was removed 48 hours after operation, with comparatively little pain. At no time did the temperature rise above 100° F., though during the first 48 hours the pulse was rapid and weak, but finally responding to stimulation. After a number of medicated enemas, the bowels moved at the end of 72 hours. The stitches were removed on the twelfth day, patient sitting up in bed at this time, out of bed on the fourteenth day. No pain, appetite good (a tonic having been given), and patient seemed to be gaining strength.

The specimens obtained at operation I sent to the pathological laboratory at Cornell University Medical College, where they were examined by Professor Ewing. He reported the findings as, a primary carcinoma of the ovary, with a secondary carcinoma of the appendix.

Subsequent History: The patient continued in good health for about two months, when she again complained of a swelling of the abdomen. In about one week this had grown to a size sufficient to make tapping necessary. She started losing flesh very rapidly, and died in another month of a general carcinomatosis.

Carcinoma of the appendix is not a rare condition, McCarthy of Rochester, Minn., reporting that of the cases of chronic appendicitis operated upon at St. Mary's Hospital, one-half of one per cent. proved to be carcinoma when examined microscopically. J. M. Graham reports six cases of his own of primary carcinoma of the appendix, and has found 172 previously reported in the literature. These of course were all cases of a tumor, primarily in the appendix. There is no doubt that were all appendices removed, examined microscopically, many more cases of carcinoma would be found.

There are, however, several points of interest in this case, infrequent and noteworthy:

(1) The appendix was free of its cecal attachment, without any evidence of a purulent peritonitis, the exudative condition present being due to the carcinosis. (2) The extent of involvement, without evidence of any subjective symptom to within three weeks previous to operation, the condition found being out of all proportion to whatever symptoms were present. (3) The rapidity of recurrence of symptoms following operation, notwithstanding nature of operative procedure. (4) The short time between operation and fatal termination. The separation can be readily explained by the pathological condition in the appendix. The lumen was entirely occluded, probably involving the blood-vessels at the base to such an extent that sloughing was the natural sequence, the occluded lumen preventing infection of the peritoneal cavity. The extensive involvement without symptoms is more difficult to explain. I inquired into the history most carefully, but failed to elicit the evidence of any symptom prior to the time as stated above. It is quite reasonable to assume that the condition must have existed for some time as the process was so extensive. Omentum, bladder, rectum, intestines, and parietal peritoneum, all showed evidence of involvement. Though the early fatal termination, notwithstanding the recovery from operation, tends to show the condition to have been one of most extreme malignancy. This case teaches at least one lesson. The symptoms of intraabdominal conditions, irrespective of their location, are no criteria of the extent or severity of the lesion present.

In conclusion, I wish to state my reason for operating upon the patient so soon after my first examination. The tumor in the left fornix, the swelling of the abdomen and the free fluid present, led me to believe the condition to be one of tuberculous origin. Delay could have been of no avail. And though tuberculosis was not the condition found, events proved that immediate interference was equally indicative.

226 West Ninety-seventh Street.

TRAUMATIC BILATERAL EXTERNAL RECTUS PARALYSIS, WITH TRANSIENT PARESIS OF THE LEFT FACIAL NERVE

By EDWARD A. SHUMWAY, M.D.,

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Injuries to the head by falls or blows frequently cause lesions of the optic nerve, and occasionally also involvement of the motor nerves of the eyeball. Of these the abducens is most frequently affected, less frequently the oculomotor, and comparatively rarely the trochlear. With them there may be also injury to the facial and trifacial nerves; the involvement may be unilateral or bilateral, and various combinations have been reported. Usually there are symptoms of severe fracture of the base of the skull, at other times these symptoms are slight. In recent years the literature of the subject has grown rapidly, but the following case may be of interest, as the injuries are, after all, comparatively rare:

The patient is a man, 53 years old, American, a driver by occupation. While on his wagon, on a rutty road near Chester, he was thrown from the seat by a sudden jolt and fell to the ground, striking on the left side of his head. He got up at once, and proceeded to Chester, where he went to a hospital, because he found blood coming from the right ear. The ear was washed out at the hospital, and he left by trolley for Philadelphia, and went to his home. When nearly home he felt sick to his stomach, and vomited a little blood. He had no headache, and was at no time unconscious. On getting up the next morning he found that everything appeared double, and that the left side of his face felt stiff. The left eye could be closed with difficulty, and there was some weakness in chewing. He consulted his family physician, who prescribed for him, but, as the diplopia persisted, he came to the eye

dispensary of the German Hospital on February 5, 1913, one week after the accident.

At this time there was convergent strabismus, and a complete failure of either eye to move outward beyond the median line. Otherwise the extraocular movements were well performed, and the pupillary reactions were normal. The left eyelid showed some weakness of the orbicularis muscle, the mouth was drawn slightly to the right side, and he was unable to pucker his lips so as to whistle. Vision of the right eye was 6/5; that of the left eye was 6/15. The defective vision of the left eye was due to a central macula of the cornea, from previous ulceration, the eyegrounds showing no changes. The fields of vision were normal. He complained of some defect of hearing, with discharge from the canal and ringing in the right ear, so he was sent to the ear dispensary, where an examination was made by Dr. Elwood Matlack, who reported an otitis media of the right ear. There was inflammation of the tympanic membrane, and rupture of the membrane, probably the result of the blow on the head. Hearing was somewhat impaired, but the nerve function was normal, the noises and discharge being due to the otitis media. The patient denied any syphilitic infection. He was a widower, and had had two children, both healthy, the first of whom died of "meningitis" at nine months and the second of "asthma" when eight weeks old. Subsequent urine examination, made at the laboratory of the hospital, showed a specific gravity of 1016 and an absence of albumin and sugar. The Wassermann reaction, made by Dr. Lyon, was found to be negative. A diagnosis of bilateral traumatic external rectus palsy and left-sided facial paresis was made, and although he complained very little of discomfort from the diplopia, an opaque glass was ordered for the left eye, ten grains of potassium iodide were prescribed three times daily, and he was told to keep his bowels freely moved. On February 14 the facial paresis had disappeared, except for a slight feeling of stiffness of the face. At present the eyes are commencing to move outward rather better, but the convergent strabismus persists, and the opaque glass is still worn for safety's sake, although the diplopia does not bother him.

The history and symptoms in the case point to a fracture of the base of the skull, of moderate severity, as shown by the rupture of the tympanic membrane, bleeding from the ear, and vomiting of swallowed blood. According to Wagenmann in the second edition of Graefe-Saemisch, from whom I shall freely quote, basal paralyses of the ocular nerves are caused most frequently by fracture or fissure at the base of the skull, which causes laceration, stretching, or crushing of the nerves, or compression by hemorrhage. The injury may occur at any part of the course of the nerves, from the time they leave the brain until they pierce the dura, and leave the skull together through the sphenoidal fissure. Fractures extending into the sphenoidal fissure may injure several or all three nerves. The anatomical position of, and the course of, the nerves at the base, on the one hand, and the direction and position of the lines of fissure, on the other, make it possible that frequently several nerves are simultaneously involved, and in various combinations. The involvements may be also unilateral or bilateral.

In less severe injuries only fine fissures may be produced, without displacement of the fragments, and with only circumscribed hemorrhages, in which the characteristic accompanying clinical symptoms of severe fracture, such as unconsciousness, hemorrhage from ear, nose or mouth, vomiting, etc., may be partially or entirely absent. These circumscribed fissures may cause an isolated nerve injury, by stretching or by compression in consequence of a hemorrhage. Finally basal paralyses may arise without fracture, either through intracranial hemorrhage, or by stretching of the nerve by alteration of the shape of the head at the time of injury, as Leber pointed out in 1887. By the displacement of the soft parts against the bones, the nerves may be torn, stretched, or crushed at the unyielding dural openings. These various conditions have been demonstrated at autopsies. Secondary paralyses of the nerves may be caused by secondary hemorrhage, sinking of blood to the base of the skull, by pulsating exophthalmus, by meningitis, cerebral abscess, and finally by callous formation, whereby other nerves may be gradually involved by extension of the process.

Nuclear paralyses may be produced by localized hemorrhages or small lacerations of the cerebral substance in the region of the nuclei, or secondarily by inflammatory changes, softening and degenerative processes, and abscess formation, the paralyses then showing at times a progressive character. They should be thought of, also, if diabetes mellitus or insipidus appears, which at times result from lesion of the floor of the fourth ventricle, and the urine should be carefully tested in all cases.

The abducens nerve is the ocular nerve most frequently involved in basal injuries. As Panas showed in 1881, it is especially exposed to laceration at the position where it changes its ascending course to a horizontal one, in passing over the petrous portion of the temporal bone. Both abducentes may be involved, either alone, or in combination with other cerebral nerves, especially with the facial. Postmortem examinations showed in a much quoted case of Roberts, of right external rectus palsy, a splitting off of both clinoid processes, fracture through the upper third of the petrous portion of the right temporal bone, and laceration of the abducens nerve in this position. In another case reported by L. Müller, in 1908, with bilateral external rectus palsy, there was laceration of both abducens nerves, at their exit from the brain, without fracture of the skull. Both the extradural and central portions of the nerves were completely degenerated as far as the nuclei. Grand-Clément (1905) mentions a postmortem finding of Riche who discovered the abducens in a blood clot, torn in two pieces. The nerves can become atrophic, apparently, in fracture by stretching alone, as was shown by a case reported by Krauss. Genouville, in 1893, found as cause of an abducens paralysis the splintering off of a small piece of bone from the petrous portion of the temporal bone, and a small hemorrhage at the same position.

As to the frequency of abducens paralysis, Van Nes, in 1897, found it 3 times in 82 fractures of the skull; Brun, in 1903, 10 times in 470 cases; Graf (1903), 4 times in 90 cases, and Liebrecht, 5 in 100. In 1888 Purtscher collected 46 cases of intracranial traumatic abducens paralysis, of which 36 cases were most probably direct, and 8 secondary results of the traumatism. In 30 cases the paralysis was unilateral, 13 times bilateral, and 3 times undetermined. Of the other cerebral nerves the optic was injured 8 times, the oculomotor 3 times, the trochlear once, the trigeminus 5, the facial 11, the acoustic 12 times. The facial nerve is the most frequently injured of all the cranial nerves, and the combination of involvement of the abducens and facial, or of the abducens, facial and acoustic, is most common in basal injuries, and points to fracture in the neighborhood of the petrous portion of the temporal bone. Cases have been reported by Billroth and Leared, Wagner, Köhler, Koerster (2 cases), Van Ness (3 cases), Koenig, and Krauss (5 cases). In the present case the lesion involved the external rectus on both sides and the facial on the left side. The occurrence of hemorrhage from the right ear, and from the stomach points definitely to a fracture of the

base of the skull of minor severity, as there was no unconsciousness. As the diplopia did not appear until more than 12 hours after the accident, it was probably due to pressure of a blood-clot upon the nerves at their exit from the dura, where their proximity to the facial nerve would explain also the involvement of this nerve. The rapid clearing up of the facial nerve paralysis would be best accounted for also in this way.

The prognosis in these cases depends upon the severity of the injury. Complete severing of the nerves will of course produce permanent paralysis. If the nerves are only stretched, or compressed by hemorrhage, the paralysis may entirely disappear. Serious injuries with severe general symptoms may call for trephining. In later stages the use of an absorbent remedy, such as potassium iodide, is indicated, and to relieve the diplopia an opaque glass should be placed before one eye.

2007 Chestnut Street.

A SPHYGMOMANOMETER OF NEW PRINCIPLE.

By GEORGE VAN N. DEARBORN, M.D.,

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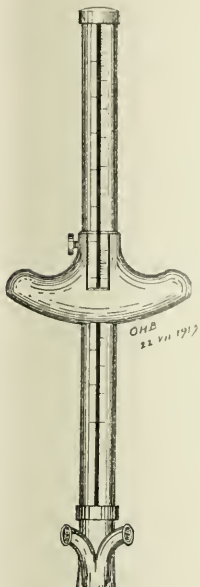
In the course of blood-pressure research made in the Harvard Summer School in the Hemenway Gymnasium, the needless clumsiness and general indeterminateness of the cuff-sphygmomanometers in general use is again impressed upon the writer. The simple and inexpensive but efficient form shown in the illustration (the latter the clever work of O. H. Breidenbach, one of my students) is the more or less tentative result of the obvious need for a more physiologic instrument—one especially which will represent more constantly than any on the market the actual pressure inside the brachial artery regardless of the tonus of muscle around it and regardless, especially, of the very variable pressure of the observer's fingers on the pulse at the wrist. As the illustration suggests, the new sphygmomanometer consists merely of a properly adapted distal endpiece of an ordinary stethocope firmly attached by a screw-thread to a spring-dynamometer with a transparent handle by means of which it may be readily grasped and pressed against the artery by the observer. The flat vulcanite ring at the bottom which is pressed against the artery has a thickness or breadth of one centimeter. The illustration is one-half the actual size of the apparatus, minus the stethoscope. The dynamometer has two scales, that on the right side giving the reading of the brachial blood-pressure in the conventional millimeters of mercury, and that on the left side in absolute grams. If found to be desirable, the long cylindrical spring may be replaced with one of spiral form, thus greatly shortening the instrument. It can be sold at a price considerably lower than the prices now charged for blood-pressure gauges. It is a more hygienic instrument than those having the easily soiled and infected rubber cuffs.

Obviously such an instrument is readily applicable to various arteries in different parts of the body (to the posterior tibial under and behind the internal malleolus; to the temporal in front of the ear, etc., or even to the carotid) as well as to the brachial, most convenient to use for routine medical practice. The method of using is simply to insert the ear-knobs of the stethoscope and to hold and press the vulcanite circle of the sphygmomanometer proper with one of the two (free) hands, or with both, over the artery, increasing the pressure slowly until the rhythmic pulsation in the artery is no longer heard. The pressure as indicated on the scales of the instrument, in millimeters of mercury and in grams, respectively, represents the pressure within the collapsed artery when it was at its maximum—that is, the systolic pressure for that particular artery at that moment.

Perhaps the most convenient spot for the use of this instrument is the triangle below and inside of the biceps brachii, where the anastomotica magna branch of the brachial artery runs over the brachialis anticus muscle and dips under the triceps. By a moderate outward rotation of the arm this triangular area, 5 or 6 cm. long and about 3 cm. wide at its base, is brought directly uppermost, convenient and stable for the pressure test. It is important, of course, that some uniform degree of extension of the arm be adopted, since the tonus of the tissues over the artery is determined largely by this postural factor; it is recommended therefore that the arm be just straight when the test is made—as is readily secured by having it lie on a table or along the arm of a chair. So very quickly is this instrument used that it is furthermore advised that three tests at least be invariably taken and their average employed as the reading used for the result; even this will be found to take less time than one measurement with the bothersome cuff-apparatus now commonly in use.



If one cares for the diastolic arterial pressure, it may be found by pressing the bell hard over the artery enough to completely occlude it, then gradually releasing it until the sharp rhythmic beat of the now pulsating artery begins to be confused by a rumbling murmur. This is the diastolic pressure.

The difference, in millimeters of mercury or in grams, between the systolic pressure and the diastolic, represents in a way the effective efficiency or force of the heart at that distance and at that time.

Under certain common conditions (for instance, very strong exertion and emotion) the blood pressure in various arteries seems to vary and even oscillate with great quickness: this new instrument affords a means of measuring these variations and therethrough of obtaining more and truer information about the basal process of vasomotion. For example, no one other thing seems to represent the general bodily condition of a person so well as the time required after exertion, bodily or mental, for the blood-pressure and the heart-rate to return to their previous states. This new instrument will help to make this important test easier to execute.

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HERPETIC FEVER AND THE COLON BACILLUS.

THE conception of herpetic fever as a clinical entity received considerable attention from early medical writers, although a number of diverse conditions were erroneously included under this name. This confusion was increased by the use of synonyms such as ephemeral fever, febricula, and catarrhal fever to connote the same morbid condition. Murchison designates as febricula a disease lasting from six to eight days with pronounced constitutional symptoms and commonly accompanied by herpes. Griesinger describes herpetic fever as a severe fever with no special localization and terminating with an eruption of herpes. It is generally recognized that herpes may be associated with a number of other conditions, such as pneumonia, epidemic meningitis, and arsenic poisoning. But there are cases of acute illness in which in addition to the fever and other constitutional symptoms herpes is the sole manifestation. These are the cases which are characterized as herpetic fever. This is to be sharply distinguished from herpes zoster, which takes its origin from certain morbid changes in the posterior spinal ganglia, and in which the herpetic eruption is preceded by the symptoms of neuralgia or neuritis. These have never been noted in the case of herpetic fever.

These observations form the introduction to a valuable article on this subject by H. Schottmüller in the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung,* Vol. I, No. 1. This observer, who is in charge of the medical division of the Hamburg-Eppendorf Hospital, has made original investigations as to the origin of herpetic fever. His opportunity was the presence in his service during the past year of a large number of cases of this condition, in the majority of which there occurred an extensive herpetic eruption, chiefly upon the face and particularly about the mouth and nose. Less frequently the eruption appeared about the eyes and ears and upon the neck. The simultaneous outbreak of many of these cases in the hospital suggested strongly an infectious origin and Schottmüller determined to ferret out not only the primary seat of the disease but also its possible bacterial cause.

In the majority of cases the cutaneous lesions occupy an extensive area about the mouth, upon both the upper and lower lips, to a much greater extent than is observed in pneumonia. In the beginning of the disease there are noted discrete patches of erythema and swelling, in the center of which the characteristic vesicles appear at the end of twelve hours. These increase in size and in number and in the course of the next few days their contents becomes cloudy and they burst spontaneously or as the result of mechanical irritation. The desiccation of the discharge results in an extensive scab formation. In severe cases there is a hemorrhagic crust. The patients complain of little or no pain, only a little burning being experienced in the beginning. The lesions heal in from eight days to two or three weeks and, unlike in herpes zoster, scars are never left behind. In some cases the herpetic eruption appears upon the inside of the lips and upon the gums and even upon the tongue. Of noteworthy interest is the fact that the cutaneous lesions are not confined to any particular zone of innervation, although in many instances the eruption corresponds to the various branches of the trigeminus on both sides.

Remarkable is the fact that all of Schottmüller's fifty cases occurred in women and that the condition was attributed to affections of the genital or urinary organs. In the majority of cases the patients were admitted to the hospital on account of fever following an abortion and in a small percentage there was a cystopyelitis. Bacteriological investigation of all these cases showed without exception the presence of the colon bacillus, mostly in pure culture. This was a surprising discovery. Schottmüller admits that he has seen herpes accompany postabortal sepsis, caused by other microorganisms such as the pneumococcus and streptococcus, but in none of these instances have there been such extensive eruptions as in the case of colon bacillus infection of the genitourinary tract. In some of the cases the variety of microorganism was the *Bacterium coli commune,* in others the variety was the *Bacterium coli hæmolyticum,* and in still others there was present the lactic acid bacillus. Schottmüller believes the colon bacillus infection is the cause of the herpes. In some of the cases there was a local infection of the endometrium, in others the blood stream was invaded by the germs, the endotoxins of which are regarded as the immediate cause of the herpetic eruption.

Another interesting fact is pointed out, namely, that herpetic fever occurs in epidemics, chiefly in the spring and fall. At other times colon bacillus infections may occur without giving rise to the eruption. No case of direct contagion has been observed. There are no special constitutional symptoms that distinguish colon bacillus infection accompanied by herpes from the infection not so accompanied. In both instances headaches, malaise, and arthritic pains are present. As a rule the illness started in suddenly with a chill which was followed by a high fever. The question as to why the eruption appears upon the face rather than elsewhere (a herpes progenitalis is never observed in these cases) is answered by the supposition that the face has a special affinity for the coli toxin.

The appearance in a woman suffering from a postabortal infection of an extensive herpes about the face is of considerable diagnostic value, inasmuch as it points to the colon bacillus as the probable underlying cause. From the viewpoint of prognosis this microorganism is a benign one, provided, however, that no subsequent mixed infection occurs.

Schottmüller's researches on this subject are extremely valuable inasmuch as they show another one of the multiple rôles which the colon bacillus plays in the human economy.

THE LIMITATIONS OF TYPHOID VACCINATION.

The British Army Committee on Antityphoid Vaccinations was appointed in 1904 and its preliminary report, made last October, but only recently published, compels us to modify somewhat the opinions formed from the partial reports which have appeared from time to time. A severe reaction is said to indicate unusual susceptibility to infection, and from the number of such cases which subsequently contracted typhoid, one officer having two severe attacks in four years, they conclude "that there would be little probability of such an one benefiting to any great extent from inoculation." The immunity fades much sooner also than the first reports implied. The committee says, "It has been concluded that the protection given by effective vaccination does not last more than two years in the vast majority of cases," and the medical officers in India are now recommending a yearly revaccination. The early reports made within a few months or a year or two of inoculation showed that there was much less typhoid among the vaccinated than the unprotected, but the incident rates of the two classes later approached equality.

The great reduction of the typhoid rate in the British and American armies began before vaccines were introduced and the same reduction has occurred in all the cities of the world where sanitary preventive measures are taken, so it seems but fair to credit military sanitation with some of the recent improvement in the army. It is difficult now for a soldier to get typhoid here, whereas in India the infection is present everywhere, and this accounts perhaps, for the better record of the American army.

Vincent of the French army (*Monde Médical*, December 5, 1912) finds that his vaccine behaves like tuberculin and sometimes activates a latent tuberculosis which might otherwise have never been recognized. Although only a small part of the British army is vaccinated, there was a large increase of tuberculosis in the army, as a whole, in 1909, following the rapid extension of inoculations in 1907-8, and the tuberculosis rate which had been falling with the typhoid rate since 1903, as is the general rule, has since declined only slightly in spite of a further great reduction of typhoid. In the American army tuberculosis, which has been rising and falling with typhoid fever since 1890, has declined only slightly since inoculations became numerous, though typhoid fever has greatly diminished. In 1911 the surgeon-general reported a case of tuberculosis due to the vaccine, and an increase has since then been reported from the Philippines. The rate for the whole army is much greater than in the British and German armies, so there must be more cases in our army than there should be. The cause could easily be overlooked if a considerable interval elapsed before the symptoms appeared, and not more than one in a thousand soldiers might have the disease in such a stage that the vaccine brings it out. In the case of an emergency, therefore, the military authorities would doubtless deem it wise to ignore this danger.

Sir Wm. B. Leishman, a member of the British Army Committee, strongly deprecated the use of vaccine where sanitation was controlling typhoid (Harben Lectures, 1910), as among soldiers at home stations. This would also apply to those places in the United States where there is little or no chance of infection. The field of usefulness is therefore confined to places where sanitation is not yet perfected or where infection may be unavoidable, as with laboratory workers. Nurses were in urgent need of protection some years ago when typhoid was very common, but at present few of them have charge of such cases. Some female nurses complain of the malaise, weakness, dyspnea, and lack of energy which occasionally persist for some time after vaccination, but which are not noticed by strong young men, and this is raising a prejudice against its use in the nursing staffs here and there. This might be due to tuberculosis, which subsequently subsides. Long exposure to infection produces an immunity which Sir Almroth E. Wright explains as due to repeated vaccinations from small numbers of living attenuated germs swallowed frequently if not daily. This keeps down the number of cases in India after vaccinal immunity fades, and it might obviate the necessity for revaccination among the nurses who have charge of typhoid cases.

EDUCATIONAL HYGIENE.

The congress on school hygiene assembled at Buffalo should awaken the interest of physicians as well as laymen. Physicians, moreover, should call the attention of their patients to it, in this way to awaken public interest. When it is considered that in our modern educational system all persons at one time or another must pass through the gateway of the school, it will be seen what vast possibilities there are for the individual in the training, mental, physical, and moral, during an age that allows of molding almost at will. At this time, too, the study of disease-causing and health-producing conditions can best be undertaken. Not only is it true that a child, properly started on a career of education, has little trouble in grasping the more difficult matters later in life, but it is equally true that if the child is tided over its school years and launched into adolescence, and having during that time been kept free from disease and defect, it need later on have little fear of contracting disease—especially if during that time the precepts of hygienic living in all its phases have been inculcated.

In early life the body is soft and pliable and it

can be molded in any direction just as orthodontia can mold the jaws and teeth into any shape necessary. What the orthodontist can do for the teeth the physician can do for the developing body. But just as the bony structures of a young child yield to any abnormal pressure or inherent weakness, producing the deformities so well known, so the child as a whole responds to deleterious influences in the way of uncorrected defects, unhygienic surroundings, disease, and improper feeding. And it is the duty of the school hygienist to ferret out these points of pressure and remove them.

It is now conceded that it is necessary to have a sound body in order to have a sound mind, or to get the best out of a sound mind. There is little economic gain either to the individual or to the community in the aggregate in training an all-mind and little body, if, indeed, that can be done at all. The longest life in the strongest body is the most economical, and not the greatest amount of learning that can be cramped into the mind in the shortest period of time. There is still a tendency to start a child at school at too early an age, and rush him through as soon as possible without regard to his mental or physical capacity—but always with bad results. The few instances in history in which mental geniuses were housed in diseased or crippled bodies does not yet prove the possibility of a sound mind in an unsound body. With the new light thrown on mental defects it is highly probable that these instances of precocity were really manifestations of mental feebleness in every other faculty except in the one in which they excelled. They undoubtedly correspond to the modern prototype, the "exceptional" child. This is a manifestation of moronity in which all the mental energies are restrained from following all the various paths Nature intended them to follow, and therefore massing in force they work their way along one mental path to a greater degree than if the force were divided.

The school holds under its control the whole of the future generation and while it so holds it it can instill into it all the tenets of health and moderate living—first sifting therefrom those irrevocably defective and properly segregating them for reenforced education. The supervision of the health and welfare of these children is real eugenics, that form at least that will bring practical results soonest.

"Bergonisation."

It is claimed by many that electricity is underrated as a therapeutic resource. This well appears from the following episode. A rather modest Frenchman, Professor Bergonie of Bordeaux, has devised a method of strengthening the muscles and reducing the fat in which electricity plays the chief rôle. In the work on electrotherapy published by Boruttau and Mann this method is barely mentioned and this mention has been, until a short time ago, the only one in German literature. Recently, however, Nagelschmidt has quietly introduced "Bergonisation," with modifications into German practice, along with diathermy, etc. These facts we obtain from Veith's summary in the *Deutscher medizinische Wochenschrift* of July 17. Space does not serve to describe Bergonie's apparatus and its application in practice. The method consists essentially of a general faradisation of the body. But since such a measure could never be carried out at once, a wealth of technical minutiæ is cited to show how individual muscle groups could be faradized without pain. There are required a faradic current, rheostat, electrode chairs, and the electrodes, and the session lasts an hour. During the session there is excessive perspiration, which led Bergonie to use the current chiefly for obesity in the ordinary manner; but it is apparent that the violent muscular work is in part responsible for the loss of weight. It is remarkable that the muscles do not show fatigue. The author has had cases in which all degrees of loss of weight have occurred—in some an extreme loss, such as 33 pounds in six weeks. The cure is indicated alone in obesity plus muscular insufficiency, but may readily be combined with diathermy and other physical therapy in various affections.

News of the Week.

Aid for Consumptives.—The State Charities Aid Association of New York announces that it has received gifts to aid the campaign against tuberculosis totaling $630,500. The largest single contribution to the fund was made by the late Mrs. Elizabeth M. Newton of Fredonia, N. Y., who bequeathed $150,000 to establish a hospital in Chautauqua County.

Plans for the establishment of a cottage settlement for tuberculosis patients of Rockland County, N. Y., are being prepared for Mrs. Thomas F. Ryan, who has purchased a hundred acre farm near Sloatsburg on which the settlement will be located. The place will be called "Loretto" in memory of a deceased daughter of the founder.

Seaside Hospital.—The Trustees of St. John's Guild have stated their intention of keeping their new Seaside Hospital at New Dorp, Staten Island, open throughout the year; heretofore the hospital has been open only during the summer months for the care of sick children. The Guild will now undertake also to care for convalescent mothers who have been discharged from the various city hospitals but are not fit to resume their ordinary household work. So far this season 1,624 patients have been admitted to the hospital which is at present the largest children's hospital in this country, comprising a plant of twenty buildings.

City Death Rate.—The great heat during the week ending August 9 was probably largely responsible for the increase in the death rate in New York City. The rate for the week was 13.5 per thousand of population, representing a total of 1,390 deaths, or 121 more than in the corresponding week of last year. The Babies' Welfare Committee announces, however, that during the first six months of the year the infant death rate in New York was lower than in any other large city of the United States and that from January 1 to August 9, 1913, there occurred 293 deaths less than during the same period of 1912.

Can Enforce Vaccination.—The question whether the Board of Education of New York City has the right to enforce the vaccination of children attending the public schools and can exclude children not vaccinated, was argued before Judge Rosalsky recently in the Court of General Sessions.

The judge decided that the board is authorized to enforce vaccination, but suggested that the matter be carried to the Appellate Court for final argument.

Department of Health and Diphtheria.—Commissioner Lederle has sent the following notice to physicians in the Borough of Manhattan, New York: "It is the firm conviction and belief of the Department of Health that if every case of diphtheria in New York City received five thousand units of antitoxin on the first day of the disease, the number of deaths from this cause—now entirely too high—would be markedly diminished. To further this end, the Department of Health of the City of New York announces that, beginning September 1, 1913, it will, whenever necessary, between the hours of 9 A.M. and 2 P.M., deliver promptly and free of charge, to any address in Manhattan, antitoxin for the treatment of diphtheria, provided that: 1. Request be made to the Department of Health at 149 Centre Street; Telephone, 6280 Franklin. 2. The person receiving the antitoxin signs a receipt therefor, containing a statement that the patient (or legal guardian) is unable to pay for same. The above offer is for a limited period only. If physicians avail themselves of it in sufficient numbers, the procedure will be extended to all boroughs and made permanent. The antitoxin will be furnished in syringe containers, ready for immediate use. The empty or unused syringes will be collected by the Department of Health the following day."

Gorgas to South Africa.—Announcement has been made of the acceptance, subject to the approval of the United States Government, by Colonel Gorgas, chief sanitary officer of the Isthmian Canal Commission, of the invitation extended him to undertake the improvement of the sanitary works on the Rand, South Africa.

Eugenics Congress.—The International Committee which met recently in Paris to determine the time and place for the next meeting of the International Congress on Eugenics accepted the invitation to meet in New York City, and selected September 20, 1915, as the date for the opening of the congress. The American delegates to the committee have been entrusted with the arrangements for the organization of the congress.

Dr. Edwin E. Goldmann, professor of surgery in the University of Freiburg, Germany, who has made notable contributions to the study of cancer, died at his home on August 12, of cancer of the liver. Professor Goldmann was for some time associated with Professor Ehrlich in his experimental work at Frankfort.

Medical Licenses.—As a result of the examinations held at Pittsburgh in June, licenses to practice medicine in the State of Pennsylvania have been granted by the Bureau of Medical Education and Licensure to 217 candidates.

Medical Practice Laws.—In Arizona a new medical practice act has recently been adopted, which creates a composite board of five members, two regulars, one homeopath, one eclectic, and one osteopath. Three forms of certificates are provided for: one, a license to practise medicine and surgery; one, to practise osteopathy; and one to practise any other system of healing. All applicants for licenses must file their diplomas with the board and must submit to examination in the fundamental subjects. The act also defines unprofessional conduct and specifies the procedure by which a charge of unprofessional conduct may be tried. Treatment by prayer and the like are exempted under the act.

The medical practice law recently enacted in Georgia provides for a State board, consisting of five "allopaths," three eclectics, and two homeopaths, to take the place of the three separate boards previously provided for. It requires that applicants for licenses must have attended a recognized school of medicine for four terms of eight months each, instead of three terms of seven months each as required by the old law. It also defines the requirements for preliminary education and the conditions under which the board may refuse to grant or may revoke a medical license, and makes it a misdemeanor for any person to practise medicine without a license, and a felony for any person to secure a license by fraud or to practise under a false name. It is stated, however, that the provisions of the law are not to be construed as interfering with the practices and beliefs of any religious sect, nor with the practice of osteopaths.

Oppose Army Canteen.—At the Convention of the Catholic Total Abstinence Union in Philadelphia on August 8, resolutions were adopted opposing the restoration of the canteen in the United States Army.

Civil Service Examination.—The New York State Civil Service Commission will hold an examination on September 13, 1913, for the purpose of filling a vacancy in the position of assistant physician at the Craig Colony for Epileptics, Sonyea, N. Y., at a salary of $900 per annum and maintenance. The position is open only to men who are licensed to practise medicine in the State, have been graduated from a registered medical school, and since graduation have had one year's experience in hospital work or three years in private practice. No written examination will be given, but candidates will be rated on their age, education, preliminary training, and experience. Further information may be obtained by addressing the State Civil Service Commission, Albany, N. Y., by September 1, 1913.

The Commission has also included the positions of nurse, head nurse, and matron in the County Tuberculosis Hospitals in the competitive class, and appointments will be made from one general eligible list. The positions are open to both men and women, at least twenty-one years of age, and residents of the State. Salaries vary from $40 to $75 per month and maintenance. No written examinations are given, but candidates are rated on their age, education, preliminary training, and experience.

Gifts to Charities.—By the will of the late Mrs. Julia Lorillard Butterfield of Cold Spring, N. Y., the sum of $40,000 is set apart for the erection at some accessible spot between Cold Spring and Nelsonville in Putnam County, N. Y., of a hospital building to be known as the Julia L. Butterfield Hospital. In addition the sum of $10,000 is provided for the equipment of the hospital and a trust fund of $100,000 is established for its maintenance. By the same will the Association for the Aid of Crippled Children of New York receives $10,000, and the Association of New York Day Nurseries $5,000.

St. Vincent's Hospital, New York, receives a bequest of $3,000 by the will of the late Louisa Varet of this city.

By the will of the late Joseph Kuder of New York the sum of $5,000 each is left to the German Hospital and St. Francis Hospital.

The Lebanon, Mt. Sinai, and Beth Israel Hospitals, and the Montefiore Home receive $500 each by the will of the late Henry Korn of this city.

By the will of the late Mrs. James W. Ridgway of Brooklyn, N. Y., the following bequests are made to medical charities: St. John's Guild, $2,500; the Home of St. Giles the Cripple, $2,000; the Brooklyn Hospital, the Brooklyn Home for Consumptives, and the Brooklyn Nursery and Infant Hospital, $1,000.

Mt. Sinai Hospital, New York, receives $10,000, and the Jewish Hospital, the Montefiore Home, and a number of other institutions, $2,500 each, by the will of the late Jacob W. Mack of this city.

St. Barnabas' Hospital and the Home for Incurables of Newark, N. J., received bequests of $5,000 each, to be applied to the endowment of free beds, by the will of the late Mrs. Charles C. Hardy of that city. In addition to these gifts, it is provided that the residue of the estate, the value of which is not given, shall be divided between the Hospital for Women and Children and the Home for Crippled Children.

The American College of Surgeons.—Sir Rickman John Godlee, president of the Royal College of Surgeons, London, has accepted an invitation to be present at the first meeting of the recently organized American College of Surgeons in Chicago on November 13, 1913, and to confer the degrees to be given at that time.

New York and New England Association of Railway Surgeons.—The twenty-third annual session of this Association will be held at the Hotel Astor, New York City, on Wednesday, October 22, 1913, under the presidency of Dr. John W. LeSeur, Batavia, N. Y. Dr. Hugh H. Young, of Baltimore, will deliver the "Address in Surgery." Railway surgeons, attorneys and officials and all members of the medical profession are cordially invited to attend. The secretary of the association is Dr. George Chaffee, 338 47th Street, Brooklyn, N. Y.

American Electro-Therapeutic Association.—The twenty-third annual meeting of this Association will be held at the Engineering Societies Bldg., 29 West 39th St., New York, September 2, 3, and 4, 1913. A full and interesting program has been arranged and the medical profession is cordially invited to attend.

Hospital in Debt.—It is reported that unless funds can shortly be raised the Rockaway Beach Hospital, New York, will be compelled to close its doors. The hospital is now in debt to the amount of $40,000, and an attempt is being made to raise this sum by a house to house canvass among the residents of the neighborhood.

School for Convalescents.—In order to provide for the care of patients recovering from heart disease there has recently been founded at Sharon, Conn., the Industrial School for Convalescents, in which it is designed to teach suitable trades to such patients. The institution is being financed by the Burke Relief Foundation and private contributions. The problem of the convalescent care of cardiac cases has long been a baffling one to the social workers in New York hospitals, since many of the men so affected have been engaged in heavy manual labor, to which they are not fit to return. At the new school patients discharged from hospitals will be permitted to spend three or four months, and during this time of convalescence will be enabled to learn some trade which may be followed with only slight risk to health. Fifteen adult patients, chiefly men, will be cared for at a time. The managers of the hospital include Dr. Lewis A. Conner, Dr. Frederick Brush, Dr. J. W. Brannan, Dr. George O'Hanlon, and Dr. N. Gilbert Seymour.

Obituary Notes.—Dr. Emma T. P. Allen of Brooklyn, N. Y., a graduate of the New York Medical College and Hospital for Women in 1892, and a member of the New York State Homeopathic Medical Society, died at her home on August 9, aged 68 years.

Dr. Augustus John Kirsten of Jersey City, N. J., a graduate of the Long Island College Hospital, Brooklyn, N. Y., in 1895, and a member of the American Medical Association and the New Jersey State and Hudson County Medical Societies, died at his home on July 25, from heart disease, aged 50 years.

Dr. E. Monroe Lane of Pawtucket, R. I., a graduate of the Bellevue Hospital Medical College, New York, in 1892, died in the Rhode Island Hospital, Providence, following an operation for intestinal obstruction, on July 31, aged 46 years.

Dr. Joseph Ingles of Larned, Kan., a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1878, died at his home on July 27, aged 65 years.

Dr. Walter A. Reynard of Stamford, Conn., a graduate of the Georgetown University School of Medicine, Washington, in 1907, died in the Stamford Hospital on July 30, aged 27 years.

Dr. Ovid Allen Hyde of Queens, New York, a graduate of the Eclectic Medical College of the City of New York in 1884, and for thirty years professor of anatomy in the same institution, died at his home, from apoplexy, on August 5, aged 61 years.

Dr. Frank M. Todd of Chicago, a member of the first class graduated from the Rush Medical College, in 1844, and one of the earliest experimenters with flying machines, died at his home on August 6, aged 92 years.

Dr. Louis Peiser of New York, a graduate of Erlangen in 1886, a member of the American Medical Association, the New York State and County Medical Societies, the German Medical Society, the East Side Medical Society, the Metropolitan Medical Society of New York City, and the Society of German Physicians, visiting physician to the German Hospital, and chief of the department of internal diseases of the German Hospital Dispensary, died in Carlsbad, Germany, after a short illness, on August 5, aged 55 years. Dr. Peiser went abroad last spring to recuperate after a season of overwork.

Dr. Oliver Brewster Taylor of Hartford, Conn., a graduate of the Harvard Medical School, Boston, in 1842, died at his home on July 27, aged 93 years. Dr. Taylor had for the past three years the distinction of being the oldest living alumnus of Harvard University.

Dr. William D. Straughn died of heart failure superinduced by heat prostration at Snow Hill, Md., on July 9 at the age of 49 years. He was graduated from Jefferson Medical College in the class of 1890. For a time after graduation he was engaged in practice at Fairton, N. J., but he had lived at Snow Hill for twenty years.

Dr. Mark L. Johnson of Tylertown, Miss., a graduate of the Memphis Hospital Medical College, Memphis, Tenn., in 1901, formerly in practice at Hackley, La., died at his home after a year's illness, on July 22, aged 46 years.

Correspondence.

ENGLISH-SPEAKING CONFERENCE ON INFANT MORTALITY.

(From a Special Correspondent.)

London August 6, 1913.

On August 4 and 5 an English-speaking conference on Infant Mortality was held in the Caxton Hall, Westminster, at which practically every English-speaking country of the world was represented. Among those present as specially appointed government delegates were Assistant Surgeon-General I. W. Kerr of the United States Public Health Service, Mr. Sherman C. Kingsley of the Children's Bureau of the Department of Labor of the United States, and Dr. Charles A. Hodgetts, Medical Adviser to the Canadian Commission of Conservation. Some fifty delegates came from the United States, whilst about 200 public health authorities in the British Isles sent representatives. At the opening session the chair was taken by the Right Hon. John Burns, president of the British Local Government, who gave the inaugural address. Mr. Burns' speech was marked throughout by sound common sense illumined at intervals by flashes of wit and humor. He said in part, that from humble beginnings the conference had now attained to the dimensions of a world-wide movement, embracing all the English-speaking peoples, the United States, Canada, Australia, New Zealand, and the oversea Dominions generally. He should like to say to the visitors from those other lands how important it was that they should practically co-operate with the Mother Country with regard to those objects they had in common. Last year 300,000 people left Great Britain for Canada, Australia, New Zealand, or the United States. The majority of these went to the various British Dominions, but those who did not go there went to the United States. Considering the similarity of life, language, aims, and ideals which characterized the English-speaking peoples, they were all called to the common duty of seeing that their stock was good, that their children were clean and healthy, that their women were virile and that their men were enduring. They were united in seeing that the source of their strength lay in noble motherhood, in healthy parentage, and in happy and healthy children; and as the stream was no purer than its source, it was their business, having concentrated so much on the child with such beneficent results during the past seven years to see that they did not lose sight of the mother. In securing the objects they had in view, there was an ever-increasing need for specializing on certain aspects of parental and child life. As countries became urbanized, communities concentrated population got dense per mile and denser per acre, and unfortunately too dense per house, and the country side was yielding to the town life. The result was that the early years of existence in urban communities were denied the quiet, the rest and the fallow conditions which were so essential to the health of child life. It even went beyond this. Just as the physical history of all of them, he believes, began with their grandmothers, so the life of the baby in city communities was measured, perhaps, more by its prenatal condition than by its post-natal environment after it had been healthily born.

The pre-eminent importance of ante-natal hygiene was indeed the keynote of the meeting.

Mr. Burns went on to condemn in unmeasured terms the too prevalent custom in Great Britain of women working in factories after marriage. As a striking example of the evil of this procedure he cited Lancashire, the part of England in which, on the whole, the working classes are most prosperous. In Lancashire, however, where pauperism stands lowest the infant mortality is highest, and the reason for this seeming anomaly is that the large majority of Lancashire working women work away from home. Mr. Burns said that he held strongly the view that for, at least, four months before the child was born, and longer after the child was born, mothers should be mothers and not machines. He remarked that he found that doctors' babies died at the rate of only 40 per thousand; while in the case of the upper and middle classes the rate was 77, in the case of artisans 100 to 130, in the case of miners 160, in the case of unskilled laborers 150 to 250, and in the case of agricultural laborers, notwithstanding their brutally low wages, only 97 per 1,000. The community was going to ask the doctor to do for everybody what he did so well for himself. High wages in themselves were not sufficient, because high wages with drink always meant inferior housing and were more fatal to the child with low wages with reasonable housing and restful surroundings. In the seven years since the conference began the general death rate of Great Britain had diminished 13 per cent., tuberculosis 18 per cent., but infant mortality over 30 per cent. The total saving of life in the seven years compared with the previous seven years was represented by 545,000 human lives. Owing to the diminished infant mortality nearly 200,000 infants had been saved and the saving this year was over 50,000 lives, or nearly the total emigration from the Mother Country to Australia.

Mr. Burns, commenting on the fact that in certain districts women had more children than they could afford to bring up, said that in such cases there were women with no children who might take the surplus youngsters off their hands, and as there were too many childless women mourning over cats and keeping the company of dogs he suggested that they would be much happier for the company of other people's children. Instead of wasting guineas (five dollar bills) and more on overcoats for lap dogs and slippers for hounds and bracelets for favorite pets, some of these ladies should come to him and he would be only too pleased to convert himself into a children's agency, by means of which he could provide them with human substitutes for their feline and canine pets.

Mr. Burns said in conclusion that he was solidly convinced that the lives saved by lower death rates meant healthier lives for the survivors generally. He did not belong to the "better-dead" school. Improved conditions that saved the life of the child helped the mother. The government regarded the health of the people as the supreme law, and however much trade and however much material supremacy might grow, all these things were as nothing unless they had clean and happy homes in which mothers could live decent lives.

A very large number of valuable papers on the care and treatment of children were read, including several by authorities from the United States. Among those who read papers were Dr. L. E. La Fetra, New York, dealing with the necessity for special education in infant hygiene, with particular reference to the medical profession. Dr. H. I.

Gerstenberger, Cleveland, on the organization of infant mortality work in Cleveland, showing the relation between a municipality, a babies' dispensary, and a university. Dr. Caroline Hedger, Chicago, on the relation of the education of the girl to infant mortality. Dr. G. R. Pisek, New York, on milk in the poor home. Dr. Fritz B. Talbot, Boston, on the wet-nurse problem. Assistant Surgeon-General I. W. Kerr, U. S. Public Health Service, on the supervision of milk supplies in the United States, and its bearing on the protection of public health. Dr. Philip Van Ingen, New York, on a campaign of prenatal hygiene in New York. Dr. James Lincoln Huntington, Boston, on the relation of the hospital to the hygiene of pregnancy. Dr. Henry L. K. Shaw, Albany, on the problem of the institutional infant. Dr. Chas. A. Hodgetts, Ottawa, on the health authorities' work in the home. Dr. Helen MacMurchy, Toronto, on infant mortality in Canada. Dr. Eric Pritchard of London contributed a particularly able paper entitled consideration of the economic uses of dried milks and patent foods, and Dr. Frederick Langmead of London read an equally instructive paper on artificial feeding of infants by citrated whole milk.

It only remains to be stated that the conference was in every respect a conspicuous success, a result largely due to the organizing powers of the secretaries, Dr. Eric Pritchard of London and Dr. A. R. Chalmers of Glasgow. Consuelo, Duchess of Marlborough, gave an at home on the evening of August 5 to the members of and delegates to the Conference, at Sunderland House, which was attended by several hundred members and their ladies.

MACHINE CLARIFICATION OF MILK; PASTEURIZING AT HOME.

To the Editor of the Medical Record:

Sir: The wave of dairy sanitation is spreading broadly over the land. The boards of health of the country are alert to the fact that tubercle bacilli-charged manure in milk is removable through machine clarification and that the remaining germs in milk can be destroyed by pasteurization, making milk clean as well as safe, and they are advocating same. Recently a bill actually passed the California Legislature overriding city ordinances against the sale of tuberculosis-infected milk, but the Governor, because of strenuous protests from the Board of Health, vetoed the bill. In the words of the immortal Brudder Jaspar, "De sun do move" along the sanitary milky way. Milk clarification, as a sane and just plain decent sanitary measure, is being generally accepted and practiced more and more as the days roll on. But it is not done at the right time, for instead of being employed at once, after the milk comes freshly from the stable, the filth (90 per cent. of which is manure only too often charged with virulent tubercle bacilli) is left in the milk to extend its germ influence by multiplication during the many hours in transit to the city, 18 to 24 hours in some cases. The time to remove the germ-laden filth from milk, and to a greater or lesser degree it is present in all milk, is at once, as speedily as possible, after it gets into the milk. It means much in a germ sense whether bacteria-breeding matter is, at once, by machine clarification, removed from its ideal culture bed, or whether it be left there until the milk reaches the city long hours afterward.

Clarification will remove filth, and even the slimes from undetected udder disorders, found even in "certified" milk at times, but it has not the power to remove the influence of that filth and slime upon the milk. Herein follows the necessity for pasteurization and pathogenic germ destruction, 145° F. for 30 minutes.

The milk leaving its initial source, the farm, machine clarified, the simple process of pasteurization under a physician's instructions should be done at home by the mother or nurse to insure the infant from harm. Commercially pasteurized milk may or may not be reliable, but the mother at home, who insisting upon clarified milk, then under the doctor's advice and instruction pasteurizes it herself, can feel absolutely safe as to the food of her nursling.

The value of machine clarification can be made manifest to any physician who will visit a creamery at the psychological moment when the "mud" is removed from the separating bowls at the "clean up" time. One visit will be enough, amply so, along convincing lines. As to pasteurization, few if any physicians now doubt its efficacy.

One of the manifest advantages and proofs along the line of milk clarification is the fact that clarified milk will keep sweet and fresh several hours longer than will non-clarified milk. Dairy sanitation, "like a wounded snake, drags its slow length along," and whilst the millenium of the "spotless dairy" is coming let us in the meanwhile hold fast to the two makeshifts, machine clarification at the farm, and pasteurization in the home under the doctor's instructions. The business of being a baby will not then be so strenuous.

Charles Cristadoro.

Ioma, California.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE KING DECORATES EXPLORERS—THEN OPENS NEW KING'S COLLEGE HOSPITAL—WESTMINSTER HOSPITAL, PROPOSED REMOVAL—COMMITTEE ON AFRICAN DISEASE—SLEEPING SICKNESS COMMISSIONS—LONDON UNIVERSITY SITE—SIR T. B. CROSBY—THE LATE COL.-SURG. HUNT, F.M.O., I.M.S.

London, August 1, 1913.

On Saturday morning the King received and decorated between forty and fifty officers and men of the Terra Nova Antarctic Expedition, with the lady relatives of the victims. The decoration was the Albert Medal for gallantry in saving or in attempting to save life.

In the afternoon the King and Queen drove to Denmark Hill to inaugurate the new King's College Hospital—removed from its old site in the Strand. This is the first of the great hospitals to leave the central crowded area to one where the movement and growth of the population has brought about such changes that the class needing its help is no longer around it, but has had to go farther from the overcrowded central positions. In its new location King's will have every opportunity of ministering to a dense community of more than a million persons, although itself occupying a healthy site among them, on rising ground, overlooking Ruskin Park. The site of twelve acres was presented to the hospital by its chairman and long generous supporter, Mr. W. F. D. Smith. The hospital was founded in 1839 with beds for 120 patients; these were increased as time passed to 220 or more. The new building, opened on Satur-

day by the King, when finished is to provide 600 beds. The removal is estimated to cost some £370,000 before it is completely rebuilt and equipped, and I hear that there remains of this sum £150,000 or thereabouts to be collected. There are to be eight blocks of wards, five of which are built. The two central ones have been named the King Edward VII block and the King George V block. The main corridor, nearly 900 feet long, will connect all the blocks. But the subsidiary communications are so designed that patients will pass from the waiting hall to the different consulting rooms and after being attended to need not return to the hall again. The foundation stone was laid just four years ago by the late King Edward and will be open for the reception of patients on October 1.

The next hospital to remove from the crowded area will probably be the Westminster, for this week a House of Lords Committee has sanctioned a bill authorizing the governors to sell its present site and build a new hospital within the county of London. This will not be the Westminster's first removal, for it was originally erected in 1719 in James street and in 1832 removed to Broad Sanctuary when the site was bought for £6,000. The price was then thought the full value. There is no room for expansion and for a long time the governors have thought about another removal and last year concluded that the time to attempt it had arrived, the changes that have taken place in the locality and the existence of other hospitals at no great distance rendering it desirable. The site is now of enormous value; the County Council and Office of Works would aid in order to widen the thoroughfare, and the Westminster Council only asked that their parliamentary powers of purchasing land for public improvements should not be affected and a clause to this effect is inserted in the bill.

The Colonial Secretary has appointed a committee, mostly of experts, to report: (1) upon the present knowledge available on the parts played by wild animals and tsetse flies in Africa in the maintenance and spread of trypanosome infections of man and stock; (2) whether it is necessary and feasible to carry out an experiment of game destruction in a small area and if so to decide on the locality, cost, and other details and propose a scheme; (3) whether it is advisable to attempt to exterminate wild animals, generally or locally, with a view of checking trypanosome diseases of man and stock; and (4) whether any other measures should be taken in order to obtain means of controlling these diseases. The committee is holding its preliminary meeting to-day.

Surgeon-General Sir David Bruce, chief of the Central African Sleeping Sickness Commission, has returned after two years' work with Lady Bruce, who took part in the laboratory work. Sir David will only remain at home a few weeks and will then return to Nyasaland for another year, in which it is thought the work may be completed. Some fifty miles from Lake Nyasa the commissioners have lived in mosquito huts, goat meat and garden produce their food. The natives were dosed with quinine. Sir David was the only one troubled with malaria. He reports that the disease called sleeping sickness in Nyasaland differs from that in Uganda or on the west coast. It is more rapid and more fatal. He has no case of recovery to report. It is disseminated by the *Glossina morsitans*, which is found over the whole of Africa, unlike the *Glossina palpalis*, which occupies only restricted areas and has been thought to be the carrier. The disease in Nyasa and Northeastern Rhodesia has been called sleeping sickness, but the work of the commission goes to show that it is the same as the tsetse fly disease of South African hunters and which was thought to affect animals only, but has now spread to man. It has been described by some as a new disease, but Sir David Bruce holds it to be the "ngana," which prevailed widely in the nineties and of which human cases have been seen in Northeastern Rhodesia, Portuguese East Africa, and South Zambesia as well as in Nyasaland. It is known the ngana was carried by *glossina morsitans*, so that probably wherever that is found the intense variety of sleeping sickness will be likely to be met with. The work of Sir David's commission has been carried on in a proclaimed district on the eastern shore of Lake Nyasa. Animals were shot in the morning and perfectly fresh specimens of their blood carried by motor cycle to the laboratory and examined without delay. Half of them were found to be infected with the disease in some form, so it would not seem improbable that practically all were diseased. In that case the only way of coping with the plague would seem to be to destroy all the animals in the district. But Sir David Bruce does not think there is danger of the disease spreading. Probably it may have been present in these areas from time immemorial and he seems to think it will not assume the terrible proportions of the variety of the Congo or Uganda. Camps for segregation were not liked by the natives and gave no chance of dealing with the disease, as it had mostly run two months before entering and was invariably fatal during the third month.

Those of your readers who are interested in tropical diseases will not need to be reminded that in 1911 a commission, consisting of Drs. Yorke and Kinghorn and Mr. Lloyd went out to ascertain the carrier of the trypanosome found in cases of sleeping sickness which had caused anxiety, as it was believed the patients had never been in contact with *Glossina palpalis*—then considered the parasite conveying infection. By 1912 they convicted the *Glossina morsitans* of carrying the trypanosome and established that its distribution, unlike *G. palpalis*, was independent of water, so that the proposal to remove the people from the neighborhood of streams would be useless. They found, too, that the big game supplied the food of the flies—were infected to a great extent. Then arose the suggestion to destroy such game, but naturally the objection to this course was that the flies might transfer their attentions to smaller animals and to man.

The London University Senate has not yet decided on a site for its new buildings. Before doing so it should consult the County Council, which has expressed a desire to co-operate in a way to secure a site worthy of the university and the metropolis. At the concluding meeting before the summer recess the Foundling Hospital was mentioned to the Council as worth a million and its sale would provide for a country home for the children. Others thought a site on the south of the Thames, adjacent to the new city hall, would be better. A deputation from the Senate, which waited on the Improvement Committee, had been offered a position next to the city hall with various inducements, including the building of an embankment, but nothing further had been heard of it. The view of the Education Committee that the Council, as an education authority, ought to be consulted, was generally expressed.

Sir Thomas B. Crosby, M.D., who was Lord Mayor of London last year—the first medical man who ever held that office—was presented on Tuesday last with a service of plate and a book containing the signatures of his brethren who had subscribed for it. Sir T. Barlow presided on the occasion, and there was a goodly assembly of leaders of the profession in the Hall of the Royal Society of Medicine. The presentation was made by Sir Rickman Godlee, president of the Royal College of Surgeons, and Mr. Bramley Taylor, master of the Society of Apothecaries, who mentioned that Sir T. Crosby began practice in 1852.

Professor Col. S. B. Hunt, P.M.O., late of the Indian Medical Service, died on July 24, aged 71. He took L.R.C.S.I. and L.R.C.P. Ed. in 1864 and entered the Indian Medical Service the following year. He was civil surgeon in Madras under the military department. By 1893 he had become surgeon to the Fourth District and Professor of Medical Jurisprudence in the Medical College. Afterwards he was appointed Principal Medical Officer of Bangalore and the southern districts. In 1895 he was Principal Medical Officer of the Madras Command with the rank of surgeon major-general. He leaves a son, who is a judge in Southern India.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

LEPROSY—SANITATION OF ILOILO—OUT-PATIENT DEPARTMENT OF THE PHILIPPINE GENERAL HOSPITAL—DISPOSAL OF GARBAGE IN MANILA—SANITARY CONDITIONS IN THE TOBACCO FACTORIES—PERSONAL.

MANILA, P. I., July 9, 1913.

A COMPARISON of the number of lepers collected throughout the Philippines during the fiscal year ended June 30, 1913, shows that during the present fiscal year there were 840, whereas for the preceding year there were 855. This would indicate that leprosy is not decreasing as rapidly as was originally hoped for. It has been found, however, that many of the cases are at present being discovered through the improved municipal police service which has lately been organized and that many of them are persons who have been in hiding for years. Considerable complaint has often been made by the health authorities over the frequency with which the municipal police allow lepers to escape during the time that they are awaiting transfer to Culion. It is obvious that as long as so many centers of infection remain uncontrolled a rapid reduction in the number of new cases cannot be expected.

The poor sanitary condition of the city of Iloilo in Panay has always been a thorn in the side of the sanitary authorities. Repeated attempts have been made to improve matters, but there has always been so much opposition that it did not seem possible to make much headway. There has, however, lately been a new provincial board elected, change has taken place among other officials, and now there is a majority who are imbued with the idea of rendering the necessary assistance to improve the sanitation of Iloilo. Dr. Cullen, the district health officer of Samar, has been transferred to Iloilo, and the work of regeneration is now in active progress. Much filling in and draining of low lands has been accomplished. A section has been set aside for the use of prostitutes and by private arrangement a regular medical inspection has been instituted. Venereal conditions have been very bad. In a group of several hundred unmarried persons examined over 50 per cent. were found to be suffering with either gonorrhea or syphilis. There are not sufficient municipal funds with which to start an anti-mosquito campaign, but with the assistance of the householders enough oil has been made available by which conditions are at least being greatly improved. It is customary in Iloilo for the owners of ordinary nipa houses, which in the Philippines are almost invariably built from 6 to 10 feet above the ground and left uninclosed, to inclose this space and rent it to their less fortunate brethren. As many of these houses are built upon low lands which are inundated at high tide, the condition of the basement dwellers can well be imagined. Further construction of this kind has been prohibited and an ordinance passed requiring every room to be at least three meters in height.

The requests for treatment at the out-patient department of the Philippine General Hospital have been so great that the original dispensary building is entirely too small to meet the demand. Forty thousand dollars has been made available for constructing an addition to the present dispensary. The plans for this building have now been completed and construction is shortly to begin.

In the past it has been customary for the city of Manila to collect all garbage, refuse, and street sweepings, and dispose of the same as a municipal function. Recently a contract has been entered into with a private company by which this work will be done hereafter by automobile trucks and disposed of in a modern plant which will convert the garbage and refuse into fertilizer and other commercial products. It is proposed to make the collections every night and in a much shorter time than is the case now, so as to inconvenience the public as little as possible.

In the past no satisfactory garbage receptacle has been in general use in Manila. Householders complained that even if they purchased a good galvanized iron can it was soon stolen. It was contended that so long as the police force could not protect the householder against thefts of this kind it was unreasonable to expect him continually to be purchasing new cans.

The Municipal Board of the city of Manila proposes to overcome this objection by providing a garbage receptacle which will be kept in good repair by the city and furnished at a rental of $1.50 per year. In this way all garbage and refuse containers will be provided with tight covers, the contents will not be accessible to rats, stray dogs, and other animals, and the nauseous odors which are now so frequent, it is hoped, will soon be a thing of the past.

The regulations in force with regard to the sanitary maintenance of tobacco factories that are engaged in the manufacture of cigars and tobacco for export have been very satisfactory; but, unfortunately, they could not be applied to those factories that are engaged only in the manufacture of product for local consumption. Lately an ordinance has been drafted, which is now before the Municipal Board for enactment, which will make the sanitary inspection of tobacco factories uniform regardless as to whether the manufacture of tobacco is for domestic or for export consumption.

Dr. Arlington Pond, the district health officer for Cebu, recently filed a libel suit against a native newspaper of Cebu which accused him of certain irregularities in connection with the collection and segregation of lepers. The trial has just been con-

cluded, and the verdict stated that not a scintilla of evidence was presented by the accused to substantiate his charges and the editor was accordingly fined 500 pesos with costs.

Dr. Louis Schapiro, who was in charge of the Bontoc Hospital for the Bureau of Health, has returned to the United States.

OUR LETTER FROM HAVANA.

(From Our Regular Correspondent)

THIRD CUBAN MEDICAL CONGRESS—YELLOW FEVER IN THE HARBOR OF HAVANA—DEATH OF DR. PLASENCIA—HONORS FOR DR. LANDETA.

HAVANA August 8, 1913

The third Cuban National Medical Congress will be held at Havana in December, 1914. The Executive Committee is composed of the following members: *President*, Dr. Gabriel Casuso, dean of the Medical School; *Vice-Presidents*, Drs. Fernando Mendez Capote, Faustino Sirven, Julio Ortiz, León Cuervo, and E. Sanchez Agramente, President of the Senate; *General Secretary*, Dr. Francisco M. Fernández, editor in chief of the *Crónica Médico-Quirúrgica* and member of the House of Representatives; *Vice-Secretaries*, Drs. Rafael Nogueiras, José de Cubas, Antonio Barreras, and Rafael Perez Vento, professor of the Havana University; *Treasurer*, Dr. Gerardo Fernandez Abreu, professor at the Havana School of Pharmacy; *Honorary Presidents*, the Secretary of Public Health, the Dean of the Medical Faculty, the President of the Academy of Sciences, the President of the Society of Clinical Studies, and Dr. Emilio Martinez who was the president of the Second Congress which was held at this city on February, 1911.

The Executive Committee of the Third Cuban National Medical Congress has in contemplation the celebration of an exposition of hygiene, pharmaceutical products, and the history of medicine, to be held at the same time as the congress. An appeal for exhibitors is hereby made and all correspondence should be addressed to the committee, Virtudes 37, Havana, Cuba.

The steamer *Hydra*, from Brazil, arrived at the Port of Havana on July 10, having had two deaths from apparent yellow fever on the trip. The vessel was quarantined and fumigated three times. On July 15, during one of the daily inspections rendered by order of Dr. Guiteras, the captain of the ship was found with fever. He was immediately taken to the Animas Hospital, a place for infectious cases, and after careful observation by the Commission on Infectious Diseases the case was diagnosed as one of benign yellow fever. The man is on the road to recovery and no new cases have appeared.

The president has sent a petition to Congress asking for appropriation for large reforms to be made in the Department of Charities. Six insane hospitals with capacity for 400 inmates each are asked for and 40 small hospitals with 25 beds each are to be erected in the interior of the island. An appropriation is also asked for the creation of a new hospital at the present site of Hospital No. 1, a dilapidated conglomeration of wooden barracks, and for the enlargement of the fine Mercedes Hospital. A Hospital for Children and a large National Asylum for the Aged complete this immense improvement. The bill will probably be presented to the House of Representatives of Dr. Francisco M. Fernández, who, although in the political party now in the opposition, is greatly interested in these matters.

Dr. Ignacio B. Plasencia, one of the best known and eldest Cuban practitioners, died recently in this city. In spite of his great age he continued his work until shortly before his death. Other deaths in the Island were those of Drs. Julio Cisneros, Joaquin Sigarroa, and A. Nuñez.

On the occasion of the fiftieth anniversary of his entrance into the medical profession a large number of medical men of this city intend to give a celebration in honor of Dr. John B. Landeta, who is the oldest practitioner of Havana. The homage will consist of a large barbecue and during the festivities a gold medal will be presented to Dr. Landeta.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 7, 1913.

1. The Surgeon and the Ptosis Problem. F. B. Lund.
2. The Rôle of Gastric and Intestinal Stasis in Some Cases of Epilepsy. H. Powers.
3. Hysteria with Fever and Ankle Clonus; a Case Report. A. Myerson

1. **The Surgeon and the Ptosis Problem.**—F. B. Lund states that unless ptosis and kinks of all degrees are associated with most definite symptoms of stasis, they should best be left severely alone. For constipation when due, as it frequently is, to kinking of the colon, caused by congenital conditions, acquired adhesions, or ptosis, or a combination of any two or all three of these factors, a rational surgical therapeusis may be cautiously applied. This may consist in the separation of adhesions, with closure of the raw surfaces in the opposite direction so as to prevent readhesions; in the division of the bands and the removal of membranes; in lateral anastomosis; in ileosigmoidostomy; or even in resection of a dilated cecum and ascending colon, with the hepatic flexure and part of the transverse, as has been done by the author in two cases. The latter procedure commends itself as less radical than the ablation of the entire colon, and as sparing the omentum, and having comparatively little raw surface on the posterior abdominal wall to which small intestine might be adherent. It also relieves the drag of the loaded and movable ascending colon across the pylorus, which kinks the latter and cripples and dilates the stomach. A fold of peritoneum was dragged across the stomach in both the cases operated upon by the author. This procedure removes *in toto* the cesspool in which stasis and fermentation chiefly take place, and leaves enough of the colon to perform its absorptive functions. It has been practised by Finney, Mayo, Bloodgood, and others. Resection of the sigmoid may be indicated and may be successful. Clark and others have resected the transverse colon for ptosis in cases in which the redundance was so great that it was thought that an omentopexy would not accomplish the desired result.

2. **Gastric and Intestinal Stasis in Epilepsy.**—H. Powers reports five cases of both grand and petit mal, having histories that differ widely in most respects. All suffered more when constipated and when careless about their diet, and all had been benefited by diet, laxatives, and exercises, and two had improved while not taking bromides. The *x*-ray demonstrated stasis in the first three cases, but not in the last two, in one of which there was an arrest of the disease and in the other only the lightest of petit mal attacks. The amount of stasis was in proportion to the severity of the disease. In one case there was atony of the stomach with a question of iliac stasis. In another there was marked ptosis, the greater

curvature of the stomach being below the iliac crests and the transverse colon being down in the pelvis, with consequent lengthening and accentuation of the hepatic and splenic flexures. One case had never taken the bromides, therefore in this case the stasis was not the result of the treatment. In another case there was a history of cerebral syphilis and of epilepsy developing five years after the primary lesion. But the epilepsy appeared at a time when the patient was debilitated from overwork and was also drinking to excess. As debility with alcoholic excess probably always causes gastrointestinal disturbance, it is fair to assume that such a condition existed before the epilepsy in this patient. In other words, it may have been the cause of the epilepsy. In one case there was consanguinity and epilepsy in two uncles, but it must be borne in mind that anomalies of the viscera, such as ptosis, are sometimes hereditary and that epilepsy in this patient may be the result of an inherited tendency toward enteroptosis rather than of inherited "instability of the nervous system."

3. Hysteria with Fever and Ankle Clonus.—A. Myerson reports the case of a woman, aged twenty-two, presenting as evidence of hysteria persistent vomiting, variable losses of consciousness without epileptiform characteristics, hemianesthesia, and mutism, who had in the course of her stay in the hospital a sharp rise in temperature lasting one hour and unilateral ankle clonus of a persistent type. There was no Babinski, Gordon, or Oppenheim reflex, the Wassermann reaction (blood and spinal fluid), and the fundus and color fields were negative. Recovery took place.

New York Medical Journal.

August 9, 1913.

1. Dysentery in the Tropics. E. R. Whitmore.
2. Acute Infectious Jaundice in Children. C. Herrman.
3. Retrocalcanean Bursitis. C. S. White.
4. A Combined Cystoscope and Evacuator. E. MacD. Stanton.
5. The Surgical Cure of Leprosy, Based on a New Theory of Infection. E. S. Goodhue.
6. The Use of a Very Minute Initial Dose in Tuberculin Therapy. M. Solis-Cohen.
7. A Case of Acute Dilatation of the Stomach Complicating Pneumonia. E. H. Goodman.
8. Chronic Intestinal Stasis. L. M. Kahn.
9. Polycythemia; with Report of a Case in an Insane Patient. R. M. Alexander.
10. Unilateral Septic Infection of the Kidney. A. P. Condon.

1. Dysentery in the Tropics.—E. R. Whitmore differentiates amebic from bacillary dysentery as follows: Amebic dysentery is endemic and does not ordinarily give rise to epidemics; bacillary dysentery gives rise to extensive epidemics. In amebic dysentery the process begins in the submucosa, from the specific tissue destroying property of the amebæ which have traveled in through the mucosa; bacillary dysentery is a diphtheritic or croupous process, involving the intestinal mucosa, and the submucosa is only secondarily involved. Liver abscess is a frequent complication in amebic dysentery; it is very rare in bacillary dysentery. Amebic dysentery tends to become chronic, with amebic relapses; bacillary dysentery is a self limited disease, with a tendency to complete recovery. Ipecac, in the form of emetine, is specific in amebic dysentery; a specific antitoxic and bactericidal serum gives the best results in the treatment of bacillary dysentery.

6. Minute Initial Dose of Tuberculin.—M. Solis-Cohen points out the advantages of the very minute initial dose in tuberculin therapy. With the exception of the method of White and Van Norman, which has not always proved satisfactory, and which can be used only with old tuberculin when a subcutaneous dose causing a reaction is desired, there is no way of ascertaining beforehand the proper therapeutic dose of tuberculin for the individual patient, or the amount that will produce a reaction in that patient. Only by beginning tuberculin treatment with a dose smaller, or at least no larger, than the one that will benefit the patient, or produce a reaction, can one obtain the good effects and avoid the harmful action of this dangerous agent. An initial dose larger than 0.000001 milligram will probably produce a reaction of greater or less severity in the majority of tuberculous subjects. It can be given, therefore, only to a limited number of selected patients. The number of tuberculous patients who will exhibit a severe reaction to 0.0000001 milligram of tuberculin is probably small. Hence, this is a safe dose for the average sufferer from tuberculosis, with the exception of advanced, toxic patients. As tuberculosis is usually a chronic disease, and its treatment prolonged, there can be no serious objection to taking a little time to determine the proper dose of tuberculin for the individual patient, especially if by so doing we avoid harming him. There is no immediate hurry. The proper method of giving tuberculin, therefore, would be to begin with 0.0000001 millgram, or 0.00000001 millgram, and if this dose should be found to be too small, to gradually increase it until the proper dose is reached. With this method tuberculin therapy will be robbed of its greatest danger, and many more patients will be able to take tuberculin than are now considered suitable for the excessive doses in general use at the present day.

7. Acute Gastric Dilatation in Pneumonia.—E. H. Goodman states that the success of treatment when this complication occurs depends mainly on the prompt recognition of the condition, and the diagnosis is not at all difficult, if one bears in mind that acute dilatation of the stomach is a complication of pneumonia. The early signs are pain in the stomach, vomiting of blackish material, intense thirst, and distention of the abdomen. Later signs are, enormous distention of the stomach, increased gastric tympany, and succussion splash. At the same time the patient's body is covered with a cold sweat, the expression is anxious, the pulse small, running, irregular, and intermittent, and the collapse is extreme. The early passage of the stomach tube is the treatment *par excellence*. Fussell rightly says that "when a patient is collapsed, with running pulse, it is often feared that the passage of the stomach tube may be fatal; but the danger one runs from this procedure is insignificant compared with the danger the patient faces if lavage is not practised, and this is so readily accomplished and gives such prompt relief that its employment should not be debated. Lavage should be continued until the return flow is clear, and the tube should be passed again at the first suspicion of returning dilatation." After the lavage the patient should be placed on the right side, and even on the face, provided this does not hamper the breathing too much. No food or water should be given by mouth, and rectal feeding may be practised instead. Fussell recommends strychnine and eserine, which the author employed in large doses, but without marked effect on the gastric condition.

Journal of the American Medical Association.

August 9, 1913.

1. Our Tendency to Fads. J. Zeisler.
2. Thyroid Extract in Nephritis. A Preliminary Statement of a New and Effective Method of Treatment. J. F. Percy.
3. Necessity of Consent to Operations. W. S. Wermuth.
4. Three Cases of Amebic Dysentery Treated with Salvarsan. S. H. Wadhams and E. C. Hill.
5. The Elimination of the Digitalis Bodies. R. A. Hatcher.
6. Venous Blood-Pressure as Influenced by the Drugs Employed in Cardio Vascular Therapy. J. A. Capps and S. A. Matthews.
7. Two Unusual Cases of Ectopic Pregnancy. One a Triplet. J. F. Baldwin.
8. Lactic-Acid Bacillus Spray for Diphtheria. H. B. Wood.
9. Tonsillitis Following Use of Staphylococcus Spray. C. M Davis.
10. An Anomalous Case of White-Spot Disease. H. H. Hazen.
11. Idiopathic Atrophy of the Skin, with Report of Case. H. G. Irvine.
12. Adaptation of the Cinematograph to the Study of Embryology and Tissue-Growth. J. E. McWhorter and F. Frime, Jr.
13. Neuroma Cutis (Dolorosum). M. L. Heidingsfeld.
14. The Newer Cutaneous Mycoses. E. D. Chapman.
15. Turpentine Poisoning Producing a Scarlatinoid Rash. J. D. Blackwood.
16. Unusual Bullet Wound of Frontal Sinus. K. Bulkley.
17. Erythema Scarlatinoids. L. J. Menville.

2. Thyroid Treatment of Nephritis.—By J. F. Percy. (See MEDICAL RECORD, July 5, 1913, page 37.)

3. Consent to Operations.—W. S. Wermuth discusses the legal aspects of this subject. The safest practice is to obtain the consent of the patient. If she be a wife, that is probably sufficient. If the patient is a child, at present the consent of the parent should be obtained. If the patient cannot consent, every effort should be made to gain the consent of some relative. Carefully explain the scope of the proposed operation to the patient, or if that be clearly inadvisable, to the nearest relative. Operate no more than outlined except in dire emergency.

5. Elimination of the Digitalis Bodies.—R. A. Hatcher finds that there is no evidence of the rapid destruction or of the fixation of the digitalis bodies in the animal organism. Certain of the digitalis bodies leave the mammalian circulation very rapidly, but there is no evidence that they are stored in greater concentration in one tissue than in another.

6. Venous Blood Pressure as Influenced by Drugs.—J. A. Capps and S. A. Matthews investigated the effects upon the venous blood pressure of various drugs usually employed for their effect upon the heart. They found that a rise in venous pressure occurred only after large doses of suprarenal extract, pituitary extract, and alcohol. Since in all these experiments the heart-action was seriously impaired the rise of pressure in the veins is explained on the basis of the development of stasis rather than on the basis of any vasomotor influence. A fall in venous pressure took place after the administration of nitrites and of large doses of morphine. In these experiments the heart-action was not impaired. Hence the fall in venous tension may be attributed, with a high degree of probability, to a direct influence on the venomotor mechanism.

13. Neuroma Cutis.—M. L. Heidingsfeld concludes than neuroma cutis is a well-defined clinical and pathological entity. Its relative infrequency is more illusive than real. Its failure to receive proper recognition and enumeration is doubtless due in large measure to technical omissions. There are good grounds for believing that well-defined cases of neuroma have been accorded classification with other affections of the skin. Every chronic lesion of the skin attended with severe paroxysmal pain, of spontaneous or easily induced type, should be carefully examined for nerve abnormalities and accorded recognition in conformity with the clinical and histological findings, irrespective of other pathological changes.

The Lancet.

August 2, 1913.

1. Tuberculosis of the Urinary Tract. J. Howell Evans, M.A.
2. On a Fatal Illness in Children Associated with Acute Interstitial Parotitis. M. H. Gordon.
3. The Production of Ulcer of the Stomach in the Rat. C. Singer.
4. Arsenic Cancer: a Case under the Care of W. Harwood Nutt. J. M. Beattie and R. J. Pye-Smith.
5. Some Notes on a New Guaiacol Chlor-Iodide Compound in the Treatment of Various Conditions. J. Maberly.
6. Laryngectomy Subsequent to Tracheotomy for Epithelioma of the Larynx. D. McKenzie.
7. A Case of Lightning Stroke, Followed by Recovery. Wm. Gem.

1. Tuberculosis of the Urinary Tract.—J. Howell Evans notes as a frequent clinical occurrence the advent of pyogenic organisms to a pre-existing tuberculous lesion. This produces a rapidly extending tissue destruction, pulmonary and renal. A tuberculous kidney is an inadequate kidney, consequently septic organisms are delayed and by accumulation set up a pyelitis and pyelonephritis with a consecutive cystitis. In dealing with this septic invasion of the urinary tract diuretics and urinary antiseptics must be employed. Tuberculosis of the kidney is, in the correct sense of the word, "secondary" to a tuberculous lesion elsewhere in the body—usually in the lung as a slight lesion more than less latent and apparently taking only a subsidiary part in the clinical picture. Owing to this hematogenous origin the kidney is necessarily the first point on the urinary tract to be attacked. Under these circumstances the tubercle bacillus is conveyed to the kidney without leaving any clinical trace either at its previous nidus, which is apparently latent, or at its point of entry, so that the renal focus appears clinically to be "primary." Overwhelming statistical evidence goes to prove the unilateral onset of tuberculosis of the kidney. The most indicative symptom experienced by the patient is "cystalgia," usually a scalding set up by toxic and pathogenic irritants which produce an edema, congestion, or a minute ulcerative papillitis on the mucous membrane surface at one ureteric orifice, extending to the trigone and the urethral orifice, with considerable discomfort culminating in severe pain, frequent micturition, and urethral smarting. These painful symptoms are greatly diminished by hexamethyl-entetramine, allowing of an early and complete intravesical examination accompanied by irrigation, not only of the bladder, but, *via* the ureter, of the pelvis of the kidney.

2. A Fatal Illness Associated With Acute Interstitial Parotitis.—M. H. Gordon presents a communication based upon the histological observation of an unusual lesion—parotitis—in a series of four cases under observation in the post-mortem room at St. Bartholomew's Hospital during the past few months. All of the patients were children. All had died after a short illness in which the symptoms pointed to meningoencephalitis. Post-mortem, meningeal congestion was found in all the cases, and in two of them there were flattening of the convolutions and other evidence of increased intracranial pressure. In all alike no pus was present in the meninges. There was no evidence of tubercle in the meninges, brain, or elsewhere. The cerebrospinal fluid was clear and contained an excess of lymphocytes, but no visible bacteria. Sections of the cerebral cortex and of the cord failed on microscopic examination to yield histological evidence sufficient to justify a diagnosis of poliomyelitis. As regards the rest of the body, the lymphatic glands both in the neck and mesentery were swollen. In two cases the lymphoid tissue in the small intestine was more prominent than usual, this change being most marked in Peyer's patches in one case and in the solitary follicles in the other. In two of the cases petechial hemorrhages were seen; in the first in the parietal pleura and visceral pericardium, and in the second on the under surface of the liver and beneath the capsule of the kidneys. In all the children both heart's blood and cerebrospinal fluid had failed to show growth on agar, and their illness would have remained a mystery had it not been for the following observation. Although the salivary glands were not obviously enlarged and had given rise to no symptoms, they were found in all the four children to show on histological examination foci of acute inflammation—chiefly interstitial in distribution. There arises a presumption that these children met their death as the result of the unusual action of the virus of mumps, and this is the view to which the author inclines. It is known, for instance, that cerebral complications, such as delirium, coma, convulsions, and so on, may occur occasionally during mumps, and a lymphocytic meningitis has also been observed. The author has observed an extensive outbreak of mumps this year, and none of the four children mentioned in the present paper had previously had mumps. If their illness was not due to the action of the virus of poliomyelitis or to that of mumps, there is a possibility that it was brought about by a virus as yet unidentified. For the present, judgment on this matter must be reserved.

5. A New Guaiacol Chlor-Iodide Compound.—Maberly reports the results he has obtained with a synthetic compound containing substituted chlorine and iodine de-

rivatives of guaiacol, which he has named mistura guaiacol chlor-iodide. This relieves asthma and the dyspnea of emphysema in a rapid and satisfactory manner. It has the peculiar property of being eliminated as a powerful local antiseptic at the uterus, where it acts as a curative agent in chronic and acute septic conditions. It acts as a lung stimulant and antiseptic in many forms of chronic bronchitis. Its value in the medical treatment of early and incipient phthisis, and also in some of the chronic forms, especially those in which the temperature is usually normal, requires further study, although present indications along this line are encouraging.

British Medical Journal.

August 2, 1913.

1. The Influence of the British Medical Association in the Establishment of Ophthalmology as a Special Science. T. H. Bickerton.
2. The Influence of Copper upon the Growth of Mouse Carcinoma. A. J. Gelarie.
3. The General Toxic Effect of Heavy Metals after Subcutaneous Injection, and on the Question of Poisoning by Volatile Emanations from Paints. B. Moore, G. F. Oldershaw, and O. T. Williams.

2. Influence of Copper Upon the Growth of Mouse Carcinoma.—A. J. Gelarie conceived the idea of studying the effect of copper upon carcinoma while carrying out an investigation directed to exhibit the influence of metallic salts upon various staining methods in common use. To this end the author's experiments were undertaken. These fell into two series—in the first a solution of a cuprammonium sulphate was injected subcutaneously into tumor mice; in the second colloidal copper was employed. The results obtained show that by means of the injection of copper-containing fluids implanted tumors in a certain proportion of cases pass into a stationary condition or undergo regression, and suggest that a similar result might be obtained in cases of spontaneous carcinoma. In those cases in which the tumor was unaffected a possible explanation is that the amount of copper absorbed into the circulation was too small to produce an appreciable effect. In the case of ammoniated copper sulphate difficulty was experienced owing to the irritating character of the liquid employed; in the case of colloidal copper difficulty was experienced owing to the large amount of fluid which it was found necessary to inject.

3. General Toxic Effects of Heavy Metals.—B. Moore, G. F. Oldershaw and O. T. Williams performed a series of experiments which, taken as a whole, show clearly that the heavy metals as a class possess one common toxicological character which preponderates over all others—namely, marked irritation, congestion, and destruction of the intestinal mucosa, caused by local accumulation and excretion, via the intestine, of the heavy ions. This effect is almost identical in character with that caused by the large class of the saponins or sapoglucosides, and it is remarkable that this latter class also are not absorbed when taken by the mouth, so that many times the lethal dose, as shown by subcutaneous injection, may be swallowed without any observable effect whatever. In both these sets of cases there is no attack on the mucosa caused by bringing concentrated drug in contact with its intestinal surface, but rather a specific affinity exists of drug and of tissue-cell of the intestine for each other, which brings the two together when the protection of the non-absorbent properties of the intestinal columnar cell are removed, and the selective concentration, for purposes of excretion, damages the excretory organ. The parallel between duodenal ulcers due probably to excretion of toxic organic bodies after extensive skin lesions, and the possibility that gastric ulcers due to gastrotoxins, as demonstrated by Bolton, may arise in a similar manner from local and specific concentration of toxic substances in process of excretion are alluded to. It is concluded from another series of experiments that there is no poisonous emanation from either basic lead carbonate or basic lead sulphate, even with much more thorough exposure than would occur to painters, or occupants of a freshly painted room, under ordinary conditions. For the animals were exposed within a few inches of a freshly painted surface surrounding them on all four sides and roof as well. It may be taken that true lead poisoning when it does occur arises from swallowing, inhalation as dust followed by swallowing, or absorption from skin or an abraded surface, and not from volatile emanations.

Berliner klinische Wochenschrift.

July 28, 1913.

Continuous Nourishment with the Duodenal Sound.—Lazarus gives the indications for this type of feeding as follows: Cachectic and wasting diseases like tuberculosis and pernicious anemia; stomach disease—dilatation, ulcer, caustic burns, spasms expressed by violent pains after eating—here the finest tubes only should be used—also before and after gastric operations; in all obstructions in the digestive tract from the lips to the pylorus, such as diphtheritic paralysis of the oesophagus or merely mechanical obstructions. The duodenal catheter is readily adapted to nasal feeding and gavage, and the patient is able to use the instrument upon himself. Duodenal feeding is excellent in superalimentation, in forced feeding, in repugnance to food, and may be tried in incoercible vomiting of any source. Finally it is possible to wash out the duodenum and small bowel in critical conditions—diabetic acidosis, and in all kinds of poisoning, especially autointoxication.

Cases of the Symbiosis of Higher Plants with Bacteria.—Benecke states that certain bacteria exist as galls upon certain vegetables. These were known in Malpighi's time as pathological swellings, but later as harmless and even normal excrescences. In the case of the legumins it was discovered by Frank in 1879 that disinfectants prevented these growths. Ward was able to cultivate the ablated masses in sterile nutrient media and others later succeeded in inoculating the bacterium. Since it may be shown that the latter is not a parasite, the relationship should be one of symbrosis, in each which plant and parasite are useful to each other or at least do each other no harm. The subject requires much study before general conclusions can be arrived at. At present various theories are alone in evidence.

Pathogenesis of Acute Articular Rheumatism.—Weintraud states that the *Diplococcus rheumaticus* of Poynton and Payne can be at best but one of several bacteria which are found in the lesions of this disease and claims that its etiological significance is receding. He regards the acute disease as an allergic reaction against some substance to which it has become sensitized. There is no reason to believe that any specific bacterium or bacteriotoxin is required for the sensitization. Rather is it the method by which the poison is generated. Naturally it must be the joint tissues which have been sensitized. The sensitizing substances may be bacterioproteins from the tonsillar ring or elsewhere. They may be actively secreted toxins or endotoxins set free by death. The purely anaphylactic syndrome may of course be complicated by sepsis. The anaphylactic theory if correct must lead to a change in therapeutics. Antizymosis is no longer the chief indication. The shocked joints need sedatives to calm their pain and irritation and these we have already found in acetyl salicylic acid and atophan.

Muenchener medizinische Wochenschrift.

July 29, 1913.

Case of Huntington's Chorea.—Goldstein mentions the autonomous nature of this affection as commonly recognized at present although there is undoubtedly a simi-

lar condition which is nonfamilial. Huntington insisted upon three criteria, viz.: heredity, onset in fourth decennium, and supervention of mental disturbance. Among others the author has seen cases in which the type was completely recognizable without heredity; such cases may represent progenitors of the familial affection. Several authors have seen cases in which the disease began in the third and even in the second decennium, and in one family a case was present in a 10-year-old child. Psychic disturbances are principally those of senile dementia. Exceptionally, however, any sort of psychosis may be encountered. There is now known to be a reciprocal relationship between the psychic and motor components, in that when one is marked the other is under average. Hence it is bound to happen that with pronounced motor activity there may be no dementia. In one well-known family of 11 choreatics but 3 or 4 had psychical disturbances. The author now reports his family of five generations. The arch founder was a woman who lived to an advanced age. Without stopping to regard collaterals we may state that the second generation was represented by the son of the old woman, and the third by his son. This latter had six children representing the fourth generation. Two of these had the disease and one other had seizures of some sort. The fifth generation comprises a number of children too young to develop the disease. In two collateral branches there were two or three cases but one of the branches became extinct, while in the other the disease seems to have been outlived, and this branch will also soon become extinct.

Treatment of Granulating Wounds.—Wittek reports the case of an extensive wound which failed to heal under skin grafting à la Thiersch, the patient untimately refusing his consent to this resource. The author had read of Widmer's experience with solar rays. This would have been essayed but no sunshine was available. Hot air baths were next tried in vain, and the hot air douche was then tested. This soon showed a good effect and by persistent use a large surface of the wound granulated, or rather a pellicle formed from the dried exudate produced by the heat. From the cells in the exudate epidermis was uniformly generated, both from the margins and surface proper. The result cannot be ascribed to mere drying alone, for the author had used the hot air chest in vain. There is something about the impact of the jet of air—a sort of massage effect—which along perhaps with the drying secures the desired result.

Seasickness and Vagotomy.—Fischer speaks of the necessity of a theory before we can treat seasickness rationally. He recalled the fact that he had once used physostigmine for vagus irritation in certain students and that in some cases the clinical picture of seasickness developed—salivation, nausea, vomiting, vertigo, headache, pallor, cold and moist skin. He therefore concluded that seasickness may be simply vagus irritation. The antidote would therefore be atropine and while on board a Hamburg-American liner he gave the latter to a large number or seasick passengers (1 mg. to men; ¾ mg. to women). The results are said to have been surprisingly favorable.

Deutsche medizinische Wochenschrift.

July 24, 1913.

Is Psoriasis a Syphilide or Tuberculide?—Schoenfeld refers to the newly awakened view that psoriasis is not a disease *per se* but a symptom of various diseases. Long ago psoriasis was looked upon as an "arthritide" and the opinion has never fully died out, as it is often seen in chronic rheumatoid joint affections. But this type of joint disease appears to coincide with Poncet's tuberculous rheumatism. Menzer has recently indicated that psoriasis is a hybrid affection due to a mixture of tuberculous and streptococcic or staphylococcic infection. The author has begun to investigate material from Menzer's standpoint. Naturally all the 23 cases were first tested by the von Pirquet procedure. In 19 cases when this was sufficiently pushed there was a positive reaction, and in but one was there any manifest tuberculosis. In three other cases the dose was increased notably with positive results and in the fourth there was no reaction even when 50 mg. of von Pirquet's solution was used. All these reactions were general. Naturally the accidental association of psoriasis and tuberculosis is by no means uncommon. Local reactions were not much in evidence, the few cases noted being dubious. There was never any reaction by the old tuberculin method. The material was also tested by staphylococcus opsonogens; of 10 cases there were three which gave positive results, there being a slight rise of temperature. This resource was also tested in treatment in one case with doubtful result. Galloway has reported his belief (1907) that in certain cases of psoriasis the staphylococcus is a factor in modifying the lesions. This evidence is all practically negative because of the dosage used in von Pirquet's test. Such large doses in a tuberculous subject should have given pronounced local and general reactions and the absence of such virtually proved the material free from tuberculosis. It was an old belief that psoriasis was in part at least a syphilide as shown by the term psoriasis syphilitica. This belief no longer exists because the Wassermann reaction is chiefly negative. The author concludes that thus far no evidence has been offered which shows conclusively that psoriasis is not an independent affection.

Combination Salvarsan-Hg Treatment of Syphilis.—Scholtz and Riebes state that the ultimate results thus far attained in this direction show that in the great majority of cases definite recovery occurred. The percentages judged by the Wassermann reaction appear to be for primary spyhilis 90-100 and for recent secondary syphilis 80-90. Salvarsan appears to be slightly preferable to neosalvarsan in effectiveness and freedom from danger. The affection which appears as an acute cerebral edema or encephalitis hemorrhagica two or three days after the injection of salvarsan or neosalvarsan must be set down as due to salvarsan intoxication.

Physician's Services—Statute of Frauds.—Action was brought for the services of a physician and surgeon rendered to another at the defendant's request. The defendant pleaded the statute of frauds, alleging that the contract was for the debt of another. Plaintiff's evidence tended to show that the defendant, after seriously injuring the other with an axe, authorized the plaintiff to be called to assist in the treatment of the injured man. The defendant's evidence tended to show that he did no more than indicate a willingness to stand for the injured man's father for a doctor's bill not to exceed $10. It was held that this evidence did not tend to support a plea of the statute of frauds, and it was error not to withdraw the plea from the jury.—Williamson v. Green, Alabama Court of Appeals, 58 So. 974.

Restraint of Practice.—A specialist in the treatment of particular diseases, who employed remedies prepared and used according to formulas of his own, entered into a contract limiting his right to practice his specialty, and also limiting his right to sell or disclose the formulas. It was held that such a contract is valid. Having, on retiring, sold his influence and good-will to the firm of which he was a member, and its successors, he and any one in collusion with him might be enjoined from doing any act to prevent his vendees from enjoying the benefits of such influence and good-will to the same extent as they were enjoyed before the sale.—Mills v. Ressler, Kansas Supreme Court, 125 Pac. 58.

Insurance Medicine.

Life Insurance Facts.—Dr. H. A. Baker, Medical Director Pittsburgh Life and Trust Company, in his annual address as Chairman of the Medical Section of the American Life Convention, at Hot Springs, Ark., February, 1913, said that the purpose of the meeting was the further education of the medical directors in the principles of life insurance medicine, and he prefaced the work of the meeting with a brief review of the important events that have recently transpired in the field of insurance medicine. In the report of the joint committee of the Medico-Actuarial Mortality Investigation, a new table was given of average weights for males and females and a new mortality table to serve as the basis for computing the expected mortality in the different classes of risks under investigation. The table of average weights for males is based on over 220,000 lives accepted for life insurance during January and July of alternate years so that any difference due to the amount of clothing might be corrected. When compared with the table published by Dr. O. H. Rogers in 1897, the new table shows an increase in weight of two or three pounds in the heights below five feet four inches; in all other heights above this, the two tables are practically the same. The average height of all insured men was found to be five feet eight and one-half inches. The new table of weights for females was based on about 136,000 lives and practically no variation from previous standards. The average height of all insured women was found to be five feet four and one-half inches. According to the report, difference in the weight between men and women of the same height is slight below 20, but above that age the men are distinctly heavier, the difference becoming less marked as they grow older. Another interesting fact is that the average weight may not have the lowest mortality, and an investigation is in progress to determine the influence of build on mortality. It was shown in a paper read by Dr. Rogers in 1910, that the mortality was high among the underweights at the younger ages, becoming normal in this loss at 10 per cent. underweight and continuing so up to about 24 per cent. overweight. At the older ages, the mortality is normal from about 23 per cent. underweight to about 8 per cent. overweight, increasing thereafter very rapidly. Heretofore the young underweights and old overweights have been looked upon with disfavor, but in a short time a table of actual mortalities as to the correct insurability of these applicants will have been compiled. The new mortality table already referred to shows some surprising results and sets a new standard for future medical selection. The committee reports a general improvement in mortality in recent years, which, however, is not uniform at all ages. Apparently, two independent forces are at work tending to improve the mortality: first—better sanitary conditions and increasing medical knowledge resulting in continued improvement in the general health of the community; second—more intelligent methods of medical selection. Improvement in the mortality is shown among the younger ages only and notwithstanding careful selection and improved methods of medical examination, the mortality at ages 50 and over has shown no improvement, but has become worse. Symonds has suggested that this may be due in part to the increased skill in controlling the zymotic diseases, thus permitting many weaklings to attain adult life, but with no capacity to withstand the diseases of degeneration or to reach old age. Diseases of degeneration are producing more and more deaths and modern medicine seems powerless to control them. The struggle for a better living, social ambition, the neglect of the commonest rules of health and hygiene, lack of exercise and overindulgence in eating and drinking are among the powerful factors in the production of old age as reflected in the increased mortality of the tables above 50. Dr. Baker is of the opinion that another important factor is productive of the higher mortality at the older ages of entry, namely, an increasing selection on the part of the older applicants against the company. The elderly entrant is now better able to exercise a keener judgment as to the prospective value of a policy in his own particular case and his own opinion as a risk is often in agreement with the mortality. The man who lacks faith in his ability to live is the one most desiring insurance, and no effort is too great to secure it, even the concealment of material facts regarding himself. The ability of medical directors to pick out and reject this type of applicants has not kept pace with the ability of these applicants to select against the company, in the speaker's opinion. He suggests that aside from the rigid physical examination and all other tests employed by standard companies, a thorough analysis of the applicant's motives in desiring insurance should be made by the officers of the company. This would mean the amount applied for, form of policy, whether term or otherwise, the applicant's ability to pay the premium, his standing as a man of business, his habits and all factors entering into the moral value of the risk. The overweights at these older ages are hopelessly bad and must be guarded against. If, therefore, there has been a deterioration in the mortality of insured lives at the older ages, probably due to a faulty selection, while greater care has been shown in the estimation of physical value of risks at the younger and older ages, the error may be in the estimation of the moral value of the risks at the older ages.

Hungarian Mortality Tables.—The mortality of the insured in Hungary has been published in four volumes of 2,500 pages. It covers the data in regard to 18 Hungarian workmen's life-insurance societies during the past twenty-five years. The numerical unit is the insured person, but the medical selection has the same significance. There have been published thus far 28 mortality and 16 complete aggregate tables, every two of which deal with the same material from the viewpoint of the two numerical units; other statistical refinements are present in abundance. The men occupy 19 tables and the women 9. It appears that 328,508 men required treatment, nearly 2,000,000 outlived the observation period, and 30,000 died. The corresponding figures for the women were 46,342, 323,764, and 6,342.—*Zeitschrift für die gesamte Versicherungs-Wissenschaft*, March 1, 1913.

Heart Symptoms Excited by the Examination.—It is noteworthy that transient accentuation of the first sound at the apex may occur in nervous young patients examined while their hearts are acting rapidly; it vanishes in a few minutes when the patient becomes less nervous and the heart slower. The phenomenon is common in connection with life insurance examinations.—Herbert French, in the "Index of Differential Diagnosis."

Book Reviews.

Taschenbuch der Therapie. Nut besonderer Berücksichtigung der Therapie an der Berliner. Wiener u. a. deutschen Kliniken. Herausgegeben von Dr. M. T. Schmier, Redakteur der "Klinisch-therapeutischen Wochenschrift." Neunte Aufgabe. Wurzburg: Verlag von Curt Kabitsch. 1913.

This book, which is small enough to be carried in the coat pocket, is a veritable treasury of information. It contains a therapeutic vademecum in which the various diseases are arranged in their alphabetical order, and briefly described, with a summary of their treatment, including a large number of prescriptions. These conform to the practice in the Vienna, Berlin, and other German clinics. It contains also the formulæ of cosmetics, a description of the materia medica, curative sera, nutrients, incompatibles, the diagnosis and treatment of acute poisonings, first aid in sudden illness, subcutaneous injections, inhalations, comparative weight tables, tuberculin diagnosis and therapy dose tables, drop equivalents, watering places, health resorts, private sanatoria, and other tables and data of value to the practitioner. Of particular value are the numerous prescriptions given under the various diseases in the therapeutic vademecum.

Krankheit und Soziale Lage. Herausgegeben von Dr. M. Mosse, Berlin, u. Dr. Med. G. Tugendreich, Berlin, 2 Lieferung. Price 6 marks. 3 Lieferung, price 4 marks. München.

Disease and social condition are two concepts that are closely associated and more than justify the preparation of a treatise such as this, embodying the various phases of this association. Part II contains the following articles: "The Influence of Social Condition Upon Disease and Mortality in Woman," by W. Weinberg; "The Influence of Social Condition Upon Disease and Mortality in the Child," by G. Tugendreich; "The Influence of Social Condition Upon Fitness for Attendance at School," by M. Fürst; "The Influence of Social Condition upon Fitness for Military Service," by H. Meisner; "The Influence of Social Condition upon Nervous and Mental Diseases, Suicide and Crime," by G. Voss; "The Influence of Social Condition on Alcoholism," by B. Laquer. Part II contains the following articles: "The Influence of Social Condition upon Sexual Diseases," by A. Blashko; "The Influence of Social Condition upon Infectious Diseases," by F. Reiche; "The Influence of Social Condition upon Tuberculosis," by M. Mosse; "The Influence of Social Condition upon the Incidence of Tumors," by A. Theilhaber; and "The Influence of Social Condition upon Dental Diseases," by F. Willinger. All of the above topics are dealt with in the thorough manner characteristic of the German scientific writers, and should prove invaluable to the student of social medicine.

Le Laboratoire du Praticien. Deuxième Fascicule. Analyse Clinique. Méthodes et Procédés. Guide de Diagnostique et d'Hygiène Prophylactique des Maladies Communes, Exotiques et Tropicales. Par Paul Gastou, Chef du Laboratoire Central et de Radiologie de l'Hôpital Saint Louis. Avec 24 planches contenant 243 figures et photographies en noir et couleurs par Louis Niclet. Price 4 francs. Paris: A. Poinat, 1913.

The second installment of this work on clinical laboratory methods is quite as original and interesting as the first one was. Within its eighty large pages are comprised no less than 423 figures, partly in black and white and partly in colors, often unusual in the object depicted and always excellent in execution. Hematology, bacteriology, and parasitology are the subjects chiefly considered and the technical methods necessary for their application in diagnosis are described with sufficient minuteness for all practical purposes. Gastou attaches much importance to the use of the dark-field condenser and a large number of the illustrations show bacteria, spirilla, moulds, etc., as seen by this method of illumination. While in no sense adapted to replace the usual works on this subject, the book contains much information of value and will be found of interest by all those who are engaged in clinical laboratory work.

Zur Psychopathologie des Alltagslebens. (Ueber Vergessen, Versprechen, Vergreifen, Aberglaube und Irrtum). Von Prof. Dr. Sigm. Freud, in Wien. Vierte, vehrmehret Auflage. Preis 5 M. Berlin: S. Karger, 1912.

Those who wish to test Freud's theories and who have not the opportunity of investigating the psychoneuroses will find by a study of this fascinating book that an inexhaustible material is always at hand in the analysis of the flaws in the functioning of the normal mind. Motives of which we are not at the time aware have determined many of the temporary inadequacies of our mental functioning. They have not really been due to mere chance or inattention. The phenomena of forgetting; the mistakes of speech and of reading and writing; misprints; false visual recognition; the mislaying of objects; erroneously carried out actions; symptomatic acts; these and other errors and flaws in our daily mental happenings are ingeniously explained by psychoanalysis. The present is the fourth edition of this very popular book and contains considerable new matter.

Health Resorts of the British Isles. Edited by Neville Wood, M.D., Member of the Council of the Section of Balneology and Climatology of the Royal Society of Medicine, with the Assistance of an Advisory Committee Appointed by the Council of the Section. With forty illustrations and three maps. London: University of London Press, Hodder & Stoughton, 1912.

Great Britain has not a worldwide reputation asa country of health resorts. People of other lands seldom go to a health resort in Great Britain, while, as a rule, its own inhabitants, that is, if they can afford the expense, go to the south of Europe for treatment. According to many British authorities this course is pursued partly through ignorance of the health-giving properties of some of the British resorts and partly because the native spas and health resorts have not been rendered sufficiently attractive nor have they been sufficiently well advertised. The book before us describes the health resorts of the British Islands from the standpoints of health and scenery and the descriptions, together with the excellent illustrations, would make one believe that Great Britain is well supplied with natural health resorts where many diseases can be treated as effectively as at the German and other European spas. The Royal Society has been well advised to publish the work and has been fortunate in securing so able an editor as Dr. Wood.

Die Ulnaris Lähmung. Monographische Studie als Beitrag zur Klinik der peripherischen Nerven-Erkrankungen. Von Dr. Kurt Singer, in Berlin. Mit Einem Vorwort von Gh. Med.-Rat Prof. Dr. Ziehen. Preis 4 M. Berlin: S. Karger, 1912.

The author of this little monograph seems to be familiar with the literature of the subject and to have had plenty of material for personal observations. He divides the various forms of ulnar paralysis etiologically into those due to mechanical causes; those due to neuritis from compression, from infections, from toxic agents, from autotoxic states, from occupation, from certain dyscrasia; those forms associated with other nerve paralyses; and those forms which occur as part of the symptoms complex of other organic nervous diseases. The anatomy and physiology of the ulnar nerve are given and the etiology, diagnosis, prognosis, and treatment of the various forms thoroughly described.

Yearbook of the United States Department of Agriculture—1912. Washington: Government Printing Office, 1913.

The latest Yearbook of the Agricultural Department is similar in general appearance to its immediate predecessors, although not quite so bulky as some recent volumes. It contains the usual varied assortment of papers on a great variety of topics of interest to farmers, etc. It is well illustrated with numerous plates, mostly half-tones, but a few in colors. The papers of perhaps chief interest are those dealing with poultry, forests, soils, dairying, irrigated lands, and especially a short monograph on the chestnut bark disease (*Endothia parasitica*).

The appendix as usual contains details of department organization and statistics of principal crops, transportation, and imports and exports of agricultural products.

Flatulence and Shock. By F. G. Crookshank, M.D., London, M.R.C.P.; Physician (out-patients) Hampstead General and N. W. London Hospitals; Asst. Physician the Belgrave Hospital for Children. S. W. Price $1.00. New York: Paul B. Hoeber, 1913.

The cause of flatulence is discussed and some cases are found which are neurotic and some dietic. The theories as to secretion of air, swallowing air, etc., are discussed. He deals more with the former. Shock is described as the condition when the reaction of the nervous system to afferent impulses is incompatible with the usual performance of vital functions. The psychical element may be great and fright may be causative, especially in delayed shock or trauma neurasthenia. He discusses the theory that the chromaffine system is more or less responsible for the adjustment of the system in cases of shock.

Society Reports.

Seventeenth International Medical Congress.

Held in London, August 6-12, 1913.

Sir Thomas Barlow, Bt., M.D., F.R.S., President.

(Special Report to the Medical Record.)

The opening of the International Congress of Medicine took place in the Albert Hall, Kensington, the headquarters of the Congress, but before dealing with the opening ceremony it may be as well to describe briefly the general arrangements of and other details connected with the Congress. As said before Albert Hall, that vast structure erected as a memorial to the late Prince Consort, was chosen as the headquarters of the Congress and in most respects it was admirably adapted for the purpose. Here were the offices of the courteous Secretary General, Dr. W. P. Heringham. The various bureaus relating to the Congress were grouped around the large hall itself. Most of the buildings used in connection with the Congress were situated at a conveniently short distance from the main building, an advantage which can hardly be overestimated, and which has not been the case at some former congresses.

There were twenty-six sections, the meetings of which were held in the University of London, the Imperial Institute, the Royal School of Science, the School of Art, and the Central Technical College. These buildings are all within a radius of a few hundred yards. Sectional meetings were also held in the buildings of the Royal College of Physicians of London, the Royal Society of Medicine, St. Thomas' Hospital, the Royal Army Medical College, and the Royal Dental Hospital. The morning sessions were devoted to discussions on fixed subjects.

The social side of the Congress was well looked after and there were receptions, soirées, dinners and garden parties, but the lighter aspect of the meeting will be dealt with later. Your correspondent wishes to acknowledge his obligations and express his gratitude to the editor of the *Lancet*, who has throughout the congress been the unofficial representative of press affairs. Through his courtesy in allowing him access to information not otherwise available at the time, the writer has been enabled to send a good deal of matter which, if relying upon his own resources, he would not have been in a position to transmit. On the whole then, the arrangements were satisfactory, as satisfactory indeed as was possible to expect in the circumstances.

First Day—Wednesday, August 6.

The Opening Ceremonies took place in Albert Hall at 11 A. M. There were said to have been considerably more than 7,000 delegates present. The scene was picturesque, for although the great majority of members were clothed in garb of sombre hue, the monotony of the dark clothes was relieved by the bright dresses and headgear of the ladies present, by the scarlet, purple, green, blue, and so forth, of the gowns and hoods of university professors, and by the uniforms of army and naval surgeons of different nationalities. Of these last the uniforms of the military and naval representatives of France and Germany, of Italy and Austria, were the most showy by far. Some of the most striking figures were attired in the gorgeous habiliments of the Far East, and in short the whole ensemble was pleasing and diversified. A similar attractive lack of sameness was displayed in the costumes exhibited on the platform, not the least obtrusive of which were the robes of heliotrope worn by that eminent Frenchman, M. Landouzy—they literally struck the eye.

Punctually at eleven the strains of the national anthem resounded on the great organ, heralding the entry of Prince Arthur of Connaught, who had been deputed by the King to perform the inaugural ceremony. Prince Arthur wasted no time in getting over the formalities of inauguration, and delivered his speech in a voice clear enough to be distinctly heard all over a hall not famous for its good acoustic properties. Sir Edward Grey, the British Minister for Foreign Affairs, then welcomed the delegates in the name of the government.

Presidential Address.—Sir Thomas Barlow, President of the International Medical Congress, then delivered the presidential address. He said in part: A whole generation has passed away since the International Medical Congress last met in London. What a magnificent galaxy of talent in medicine, surgery and pathology was gathered around the then Prince of Wales! It is fitting that we should follow the admonition of Ecclesiasticus and praise famous men and fathers that begat us. Our president, Sir James Paget, was a great clinical pathologist. His mind was stored with all that was then known of the morbid anatomy of surgical disease and injury, and the family relationship of the different diatheses, was a splendid teacher and possessed a lucid eloquence and a moral fervor not excelled by any of his contemporaries. Jenner and Gall, Wilke and Gairdner were our great teachers of clinical medicine. Each of them based his knowledge on the sure foundation of the post-mortem room and the hospital wards.

Hughlings Jackson was the philosophical exponent of the new neurology. Jonathan Hutchinson was the patient, accurate recorder of the natural history of disease in multitudinous departments, and, characteristically enough, he was the organizer of our congress's clinical and pathological museum. The pioneers of abdominal surgery, Spencer Wells, Thomas Keith, and Lawson Tait, were with us. Huxley, the most brilliant expositor of natural science of his time, discoursed to us on the relations of medicine and biology. William Bowman, whose work on the minute anatomy of the eye was the foundation of modern English ophthalmology, was one of our most useful members. Last of all the Englishmen whom I will mention was our great Lister, then in the zenith of his grand career.

Our foreign brethren were no less illustrious in the bede-roll of medical and surgical achievement. Virchow, the Nestor of morbid anatomy, honored and beloved by us as by his own countrymen, delivered a fine historical discourse on the value of pathological experiments. Volkmann gave a critical survey of the recent advances of surgery. Robert Koch gave what may be truly called a path-breaking demonstration of the microbial findings in several morbid conditions. Von Longenbeck and Esmark spoke for military surgery; Donders and Snellen for ophthalmology; Baccelli, Murri, and Pantaleoni represented Italian medicine. From the United States came Austin Flint, the accomplished physician and master of physical examination; Billings, prince of medical bibliographers, and Bigelow, the famous surgeon.

The great French school was represented by Brown-Séquard, Charcot, Lancereau, Bouchard, Verneuil, and a host of others; but there was one great Frenchman who towered aloft among all his contemporaries, and who, though not a medical man, exercised by his discoveries, a profound influence on the medicine of the world—and that was Louis Pasteur. Now let us realize to ourselves that the congress of 1881 marked not the parting of the ways, but emphasized the notable fact that the parting of the ways had been already passed. The times of superstition, empiricism, and transcendental speculation had vanished. But what of the period of accurate and detailed observation? That was neither superseded nor completed, but it was already supplemented and redirected into more fruitful channels by the new development of experimental methods. If it had not been for the work of Pasteur, Lister and Koch, which was expounded to us thirty years ago, how poverty stricken would have been the output of medicine and surgery in this our Congress of 1913!

Consider the bare fact that the fifteen sections of the 1881 congress have, by the inevitable specialization and concentration of work, become twenty-three sections and three subsections in 1913, but so imperative is the demand for mutual conference that we have no fewer than fourteen meetings arranged in which sections have found it desirable to discuss various problems in joint session. In what ways have we pursued and expanded the work of our fathers? First, unquestionably, in the development and application of bacteriology, Koch's great discovery of the life history of the tubercle bacillus was published in the year after the London Congress, and what an enormous body of knowledge has grown out of that discovery!

Referring to the research work with regard to the means taken to stamp out certain tropical diseases Sir Thomas paid a high tribute to the splendid hygienic work done by Americans in Cuba, in Panama, in the Philippines and in Costa Rica. He reviewed the milk problem and while recognizing the fact that this problem is still with us pointed out that we have profited by the blunders of our early generalizations. Cleanliness in a milk supply from start to finish has a far more exhaustive meaning than in days gone by. The president remarked that the routine traditional employment of alcohol in disease had been happily largely discredited.

With respect to the magnificent triumphs of the surgery

of this generation, he said that it was beyond his power adequately to speak, but he could refer to the wide fields opened up through the beneficent protection of Listerism. The active cooperation of surgeons and physicians had gained for us some knowledge of what Moynihan and others have happily described as "living pathology." In conclusion Sir Thomas said that it was impossible even to enumerate the varied ways in which medicine had cooperated with economics, social legislation and philanthropy, which is summed up briefly as public health. The school house and the scholars, the home of the poor, the colliery and the factory, the dangerous occupations, the sunless life of the mentally deficient, had benefited and would benefit still more by its friendly invasion. He ventured to foretell that not many years hence every department of life and work would be strengthened and purified by its genial and penetrating influence.

Dr. W. P. HERRINGHAM, the Secretary-General, made a few remarks in which he warmly praised the work of his staff in the organization of the congress. Afterwards he announced in a commendably clear and distinct voice the names of the visitors. The stage setting of this part of the proceedings was not altogether a success and it became a somewhat tedious affair. As said before the acoustic properties of the Albert Hall, apart from its size, are not of the best, and many of the speakers were almost inaudible.

Dr. WILLIAM THAYER, United States, led the procession and in a short speech referred to the inspiring emotion of such a scene. The other delegates followed in alphabetical order. One of the few speakers who could be heard with ease was Professor Landouzy, who made eloquent references to the enterprise of England in matters relating to public health. It may be said *en passant* that the French delegates easily excelled as speakers. As a rule their voices were melodious, their articulation good, and their choice of language and expression happy in the extreme. Even to those who did not understand French it was pleasing to listen to the tuneful periods of a speaker like Professor Laudouzy. A speech by Professor Lucas Championnière on behalf of the International Association of the Medical Press brought the morning's ceremonies to a conclusion.

The Address in Medicine.—Dr. A. CHAUFFARD, Professor of Clinical Medicine in the University of Paris, delivered the Address in Medicine at 5.30 o'clock on August 6. He took as his text medical prognosis, saying: Is it not for us the daily problem, the anxious question which is constantly being put to us and which we put to ourselves? Ever since there have been sick patients and men who endeavor to relieve them and to restore them to health, the same query has come up in every case: Will a cure be effected and by what therapeutical means? Prognosis and treatment, such were from the very first the two instinctive needs, the two immediate demands of the sick man. It was only at a later period, at a more advanced stage of medical culture, that the imperious need became felt of diagnosis, which is a notion of purely intellectual and logical order. But if diagnosis has been the latest of our acquisitions, it has now taken its proper rank—the first. What physician, failing an accurate diagnosis, could venture on a prognosis or prescribe a treatment? An entirely modern idea—but one which should imbue our minds nowadays—is that of defining in each particular case the mutual relationship between those three fundamental elements of medical judgment: to know, to foresee, to act. Instinctive in the remote ages and, later, hesitating and seeking its way for a long period of time, the act of the physician tends to become more and more rational and systematic. It is passing from art to science which our epoch is striving hard to achieve, often with success. In this uninterrupted evolution medical prognosis has not remained at a standstill; almost before our own eyes, and by the mere progress of contemporary science, it has undergone a gradual change. Its methods are being modified, its limitations are being carried further back every day; it is in a state of perpetual transformation. The present time is perhaps a suitable one for a general survey of our present position and for an appraisement of our acquisitions and desiderata. Such is the task I intend to attempt this afternoon before you.

After referring to the Hippocratic era Professor Chauffard went on to say that the modern era begins with Auenbrugger and Corvisart who introduced percussion; with Laennec, the immortal inventor of auscultation; with Richard Bright, the creator of renal pathology. The succeeding stage is marked by the influence of Claude Bernard's memorable work, and now after an immense amount of analytical work we find ourselves returning to Hippocratic prognosis, to the synthetic and comprehensive consideration of what the ancients used to call the *State of forces*. Whether from a historical or a practical standpoint, we thus find that prognostic investigation has progressed by successive stages from anatomical lesions to functional disturbances and to chemical changes until it has reached the stage where judgment is based on criteria of a dynamic and vital order. How can we estimate the prognosis of heart disease if we do not take into account the functional value of the myocardium, of hepatic disease if we ignore the uroegenetic function of the liver, of nephritis if we know not the degree of renal permeability and the amount of urea in the blood serum? What should we know about the future of a diabetic subject if we did not ascertain the state of his nutritional exchanges, if we did not detect first signs of the acid intoxication which threatens him? Again, what should we know about a gouty subject if we knew nothing about his blood pressure or the working of his kidneys? If diagnosis consisted simply, as Pinel would have it, in "assigning to a given disease its proper place in Nosology" it would be a most fruitless and conventional effort. Our conception is a very different one; for us diagnosis signifies the recognition, as perfect and precise as our means of investigation will allow, of a morbid condition considered in regard to its origin, its present state, its future course. Thorough diagnosis is almost one with scientific prognosis—at least they constitute two closely connected ways of considering the same fact. If we remember all that we owe to contemporary hematology, to biological chemistry, to electrology, to radiology, we see how inseparable are the notions of diagnosis and prognosis thus obtained. Of equal importance, both for diagnosis and prognosis, are the temperature charts, the curves of urine and weight, the cardiovascular tracings such as we have learned to take and interpret them from Marey and from James Mackenzie, the research in the blood of bactericidal properties, of agglutinins, of opsonins, the analysis, both qualitative and quantitative, of the various constituents of the serum. We arrive at the same conclusion if we consider the history of the leucocytes of the blood, with their chemiotactic and phagocytic reactions. Thus prognosis takes its immediate share in all the advances of diagnostic technique. This unceasing progress might make us imagine that there are no limits to its possibilities. It certainly is far from having reached its future boundaries although we feel hemmed in by the present-day ones. These we shall attempt to define later.

With reference to remote prognosis the speaker said that medical prognosis is a very complex matter necessitating the consideration of multiple criteria, and pointed out that now the future to physicians is inseparable from the actual disease they are treating, for every day the question of remote prognosis arises, and it may be said to have made its appearance in science with the discovery by Bouilland of rheumatic endocarditis. From that time on the prognosis of rheumatic fever has been a different matter. Next to, or rather before, immediate prognosis now arose the question of remote prognosis; as in a case of rheumatic fever the first thing a physician wants to know is whether the heart is affected or not; over and above the present illness is the fear of valvolitis. The prognosis for the morrow takes the lead of the prognosis of the day. He stated that the various zymotic diseases afford many examples analogous to this classical instance of chronic heart disease, originating with rheumatic fever and progressing afterwards for years and years as an autonomous disease, with the special association of anatomical lesions and functional disturbances.

In connection with family, collective and social progress, the speaker was of the opinion prognosis should include the future of the patient's descendants. That is, that it is evident that the possibility of inherited syphilis or tuberculosis, that the transmission of abnormal immoral conditions, such as hemophilia and congenital hemolytical icterus, or of family taints like those so often met with in neuropathology, do aggravate these several diseases by placing them in the group of hereditary pathological conditions. Further, next to the prognosis concerning the individual, the collective prognosis must be considered. There is a question of a practical order which originated quite recently with the contemporary investigations on germ carriers. For the detection of local fungi of meningococcal infection investigations are necessary to determine whether the cases observed are sporadic or whether they are the first signs of a more or less extensive epidemic. Thus Professor Chaufford points out

we are led to form the epidemiological prognosis. Regarding the limitations of medical prognosis it was pointed out that an essential difference must be made between theoretical and clinical prognosis and that finally dominating the whole question of prognosis, there remains to be gauged the possibilities of the organism that has fallen a prey to sickness. Shall we find in it the resources necessary for overpowering disease? How much can stand, and how much can we expect of it?

In conclusion Professor Chauffard made use of the following sentences pregnant with knowledge and sound sense:

Medical prognosis is, as it were, the corollary and the practical application of diagnosis; it borrows its methods, it follows its progress. In the course of its modern evolution it has taken its share of all the advances of scientific medicine; it has not ceased to walk in the paths of clinical analysis and of experimental pathogenesis; its aim has been raised, its scope extended. It appears as the synthesis of medical criteria; it precedes, checks, and justifies treatment and prophylaxis. If we consider the constant advances of medical prognosis and the many opportunities it affords us of ascertaining the lessened gravity of disease we can better appreciate the progress already achieved, and our efforts will thus meet with their greatest reward and incentive.

Uncertainty and disappointment must necessarily be often our lot; but since the science of prognosis is one of the loftiest summits of medicine, we must in our ceaseless advance ever strive to behold its crowning height. Even if it remains distant and lost in the clouds, we must never despair of lessening the intervening distance. Such an ambition is a duty and it will ever be the best stimulant to medical and endeavor.

Second Day—Thursday.

Address in Surgery.—Dr. Harvey Cushing, Professor of Surgery, Harvard University, delivered this address. He said in part: Thirty-two years have elapsed, a full generation, since this Congress, under the distinguished leadership of Sir James Paget, last gathered in London. Among the participants on that occasion were five of the immortals in the history of the medical sciences: Huxley, naval surgeon, zoologist, paleontologist, educator, philosopher, anthropologist, archæologist, statesman, and sanitarian; Pasteur, the chemist; Lister, the surgeon; and Koch, the bacteriologist, among the foremost contributors of all time to the welfare of their kind. On the foundations which these men laid a new conception of biology, and man's place in nature; the doctrine of cellular pathology; fermentation and immunity; wound healing without suppuration; bacterial diseases. A transformed medical edifice has been erected. Methods of investigation, the direct outcome of those which they evolved, we still employ; weapons which they devised are still, and always will be, effective, not only in a hand to hand conflict with individual examples of many of the disorders to which man and the animals needful to his existence are exposed, but better still in their prevention. Professor Cushing referred at some length to the restrictive legislation in Great Britain in 1876 designed to hold in check animal experimentation and laboratory investigation, and expressed his opinion that the spirit of investigation, all too rare, should be generously subsidized rather than taxed, encouraged rather than hindered. It was pointed out that the rôle of the medical man is changing and he becomes more and more a servant of the public health and less and less a prescriber for individual ills, and the address continues thus. In matters of health the people as a whole have been largely permitted to shift for themselves, and when they have forgotten how large a percentage of the faces of the eighteenth century were pock-marked, many of them wish again to exercise their individual discretion regarding vaccination. "Where there is no vision the people perish'." Governments though interested in the welfare of the domesticated animals are too often indifferent to the public health, and only in the face of emergencies, the greatest of which continues to be warfare, are they stirred to action, since freedom from disease is as essential as food and ammunition in the prosecution of a successful campaign. Hence have arisen the most striking examples of the effectiveness of preventive vaccination, at first against smallpox and latterly against typhoid fever.

The effect of the present realignments of medicine is particularly apparent in the case of the military surgeon, for the Parés, the Wisemans, the Larreys, the Dupuytrens, and the Langenbecks of to-day are occupied with preventive inoculation, with the screening of the sick, the protection of water sources; more concerned with the first aid package than with the extraction of bullets; more often called upon to use the microscope than the scalpel and ligature. Little wonder that from men of this type great contributions have come. It is a far cry from Guthrie's amputation through the hip joint at Waterloo to Laueran and the discovery of the malarial plasmodium or to Walter Reed and the mosquito and yellow fever.

In reference to some of the achievements due to animal experimentation the speaker drew attention to the fact that in the search for biological truths the God-given privilege of becoming obvious benefactors to their species comes to but few men. No one of the countless inquisitors of nature knows whether the mantle of recognition will fall upon him, or for the matter of that, especially cares, provided he be given the personal satisfaction of having taken a step forward in knowledge, no matter how trifling at the moment that step may appear to be.

To whom is chiefly due the expectancy of recovery for the consumptive? It is to Leuwenhoek and the microscope; to the father of Lister and to Abbé, who perfected its lenses; to René Laeunec and his stethoscope; to Sir William Perkin, whose experiments with the coal-tar by-products furnished the necessary color reagents; to Villemin, who demonstrated the communicability of the disease; to Koch, whose genius made possible the recognition and cultivation of the organism; or to Ernst von Leyden's propaganda in Germany and the United States; to Trudeau, himself a victim of the disease, through whose precepts and example tuberculosis has been moved into the open, where is is being effectively attacked in a campaign of education shared by laymen, legislature, and physician alike. Unquestionably, through experimentation on animals the most important step in this progress was made—the discovery of the bacillus tuberculosis and its identification as the causal agent not only in pulmonary consumption but in the many "strumnous" and "scrofulous" disorders which puzzled our forebears.

Where will lie the chief credit for the approaching victory over the great social scourge which since its outbreak in Columbian times has undermined the vigor of the race? It will be with those earlier men who gave us the tools of research, the microscope, the culture media, and the coloring dyes; with Schaudinn, who discovered the spirochete; with Wassermann and the possibility of a chemical diagnosis; with Metchnikoff, who successfully transferred syphilis to the ape; or with Ehrlich, who, by his original methods, has had the triumph of synthetizing a drug possessing a special affinity for the infecting organism but leaving uninjured the tissues of the infected host.

What would the opponents of animal experimentation of 1876 have thought could this have been foreseen, this which is only the beginning, with pneumonia and cancer still to be overcome? That the means do not justify the end? That it is unfair to the lower animals, some species of which with unquestioned cruelty man sacrifices for adornment, for sport, for covering, for food; some of which he deliberately mutilates in the process of domestication or in preparation for his table; some of which, like the infected rats and squirrels of plague-ridden districts, he must attempt to exterminate for his self-protection? But in the search for knowledge the investigator does not exempt himself as a subject of so-called vivisection when lower animals do not suffice for the purpose; nor will he ever hesitate even to endanger his life, whatever may be the ethics of the qestion, if thereby information is likely to be gained concerning some disease fatal to his kind.

Speaking of the approaching transformation of the tropics, the orator said: To whom is due the approaching transformation of the tropics into a possible habitat for civilized man? Again, a series of investigators on investigators' shoulders, until Theobald Smith, in the case of the tick-infected cattle decimated by bovine malaria (Texas fever) in 1893 showed for the first time that a parasite might be an essential intermediary host in the transfer of a disease from animal to animal. Promptly all blood-sucking parasites of man became objects of suspicion, and ere long convictions followed—first in the case of filaria by Manson, then Ross's demonstration that the mosquito is also an essential link in the cycle of "million murdering" malaria, a discovery which was made possible through his studies of infected birds. But when it became necessary to establish unequivocal proof in the case of man, the younger Manson and Warren, of the London School of Tropical Medicine, did not hesitate to submit themselves to the bite of infected mosquitoes sent for the purpose to England from the Roman Campagna. It is hardly possible for one unfamiliar with the experimental method and its necessary tedious controls to conceive of the patient, unflagging, time-consuming labors on the part of many

investigators the world over, often conducted in most unhealthy districts and in the very shadow of death, which step by step were required to lead to this final demonstration—labors which in review seem almost beyond the possibility of accomplishment. The discovery of the malarial plasmodium of the blood, the determination of its several varieties, the study of the sexual cycle of its development, the observation of the changes in the stomach wall of the mosquito and the final lodgment of the sporozooites in the glands of the proboscis, the recognition of the particular species among the many genera of mosquito concerned, the establishment of the fact that the female alone is the active agent, the finding of the length of time necessary for infectivity each step, whether made by Frenchman, by Italian, by Canadian, by Englishman, or by German, was a triumph of the spirit of research, and no great objection is raised if, in the process, the mosquito, bird, and mare are the subjects of experimentation.

Soon the participation of another species of mosquito in the transmission of a still more dreaded disease was demonstrated in Cuba by the United States Yellow Fever Commission, at which time Carroll, Lazear, and some brave volunteers from the ranks permitted themselves to be bitten by infected parasites—the lamented Lazear dying a victim of the disease he had invited. The imagination of the public is only beginning to respond to these acts of heroism constantly being performed by investigators the world over—performed for humanity's sake, and surely no less, but even more heroic than the quickly applauded dangers risked in warfare for the sake of country alone. Far better could our proof of the transfer of yellow fever through the bite of the stegomyia have come through the sacrifice of lower animals had animals susceptible to the disease been available for the purpose, but to the members of that commission there seemed no alternative to experimentation upon human volunteers. And what have been the results? Pestilential districts become habitable; commerce with tropical ports, once annually quarantined because of the recurrence of a dread scourge, continues the year round; across an isthmus formerly plague-ridden two oceans are being joined, where under a former *régime* shovels alone, without drainage and screens, proved utterly unavailing.

And after the cattle tick and the mosquito, other biting parasites—the flea and the bed-bug, the fly and the louse—have risen in dignity from a disgrace to a menace. Immediately the patient studies of the insect world by the entomologist, disturbed from his quiet seclusion as a systematist into active participation in medical problems, become of the greatest practical value, and under the wing of preventive medicine his specialty, like that of the helminthologist and protozoologist, becomes as essential to the medical curriculum as was that of the botanist a century ago. These are astonishing changes to have been brought about by the experiments of one modern scientist who had the training, the imagination and the patience to investigate the ticks of cattle afflicted with a destructive plague, and after four years of laborious study to identify them as essential agents of the disease.

Professor Cushing laid special stress on the benefits derived by animals from animal experimentation and in connection with the question of the elimination of pain remarked that experimental therapeutics will in time doubtless give us the ideal anesthetic in the form of a drug possibly allied to chloretone or scopolamine, a single injection of which will induce a prolonged insensitive sleep, perchance of long enough duration for primary wound healing to occur. Then will the surgeon's sense of responsibility, whether in laboratory or clinic, be greatly lightened, for undoubtedly today inhalation anesthesia itself gives him his chief anxiety, and his patients, whether animal or man, their chief discomforts. Still, in spite of its present defects, the discoverer of anesthesia—and it is a pity that there is no one man to whom we can unqualifiedly attribute its discovery—shares with Lister the credit of having made of surgery the most important agent which we possess for the cure of disease. Its principles are so definite, its technique so easily acquired, its performances in the long run so safe, that as a therapeutic measure human vivisection—to use this cruel word in a sacred sense—has almost wholly lost its terrors. The triumphs of surgery stand beside those of hygiene and preventive medicine as the notable medical achievements of these 30 years.

Of the new alignments which have been the outcome of this modern surgery I particularly wish to speak. Is it not a striking fact that the health officers comprising the medical corps of our armies and navies—men who have a medical degree and who may be called upon in an emergency to practice any branch of greater medicine—are called surgeons? I have indicated in some of the preceding paragraphs how far their activities may be removed from handicraft, supposed to be the chief business of surgeons. Though formerly this may have been their sole occupation, they are now coming to use more the armament of the scientific physician and public health officer. Thus the army medical officer, unhampered by tradition, more nearly fulfils the office of the Greek physician, who, as Sir Clifford Allbutt has so well said, had no more scruple in using his hands in the service of his brains than had Phidias or Archimedes; whereas his brother in civil life still adheres to the traditions of the times when the manual and debasing craft of surgery was cast off from medicine.

Surgery by force of circumstances groped its way alone through the dark centuries—a craft largely devoted to the repair of wounds and injuries inflicted in warfare. But its principles were sound, its growth steady—until now, and particularly in the past generation, it has rapidly developed into the most generally useful therapeutic measure which the physician has at his command. Its principles, moreover, are as profitably employed by the investigator in his laboratory as by the clinician in the case of an individual, the victim of disease. It has served to break down medical sects and systems, such as Hahnemannism, for what principle of homœopathy justifies the use of scalpel and forceps? Indeed, surgery has been one of the great factors in the present realignments of medicine, for from Lister and Pasteur as their fountain head the great streams of progress have flowed, in the case of the individual, into the art of surgery, and in the case of the community, into prophylactic medicine. Even the physician, who for so long held himself aloof from anything savouring of handicraft returns to it with that useful instrument the hollow needle; and paracentesis, lumbar puncture, and the extraction of blood for diagnostic, or the administration of drugs and sera for therapeutic, purposes by a minor surgical act are an acknowledged part of his therapeutic resources. By a strange transformation, too, he has become the phlebotomist, and the venesections and cuppings, formerly the overworked province of the barber-surgeon, are largely practiced by him to-day. Billroth said some 30 years ago, "Die innere Medicin müsse mehr chirurgisch werden," and this seems to be what is taking place. Before Billroth's time it was largely internal medicine *versus* external surgery, for operative measures were necessarily confined to the exposed parts of the body; the visceral surgery of to-day—the larger part of the present surgeon's work, in the inauguration of which Billroth himself played no inconspicuous part—was then inconceivable.

As to the position of surgical specialties the speaker expressed himself in the following manner: In no subdivision of medicine has the overlapping of internal medicine and surgery been more apparent than in the difficult subject of neurology, a subject which has been conspicuously poor in therapeutic resources. Time was, and not long ago, when under the direction of the neurological diagnostician who mapped out the field of operation on the scalp, blundering attempts were made to do his cranial surgery for him. The combination was an utter failure for the same reason that similar combinations had always proved failures before. Not until the operative possibilities of neurology were taken up by those possessing some preliminary knowledge of, and interest in the nervous system and its diseases, as was notably the case with Sir Victor Worsley, in other words, not until certain neurologists began to do their own surgery did the recent rapid strides in this direction come about. To-day a school of operating neurologists is being trained to continue this work, for as promising a future lies before intracranial as lay before abdominal surgery; but the error must not be made of permitting surgical specialists to enter this or any other restrictive field of operative endeavor without a broad preliminary training in medicine and general surgery.

Dr. Cushing also dealt with the organization of hospitals and medical schools and drew attention to the fact that the practitioner cannot be chemist, neurologist, bacteriologist, ophthalmologist, radiographer, surgeon, and what-not rolled into one and do effective work. The Jonathan Hutchinsons of the profession are, alas, rare. And as the cooperation of these experts in special lines becomes more and more necessary the tendency will grow for those conjoint studies of individual cases of disease to be carried out in properly equipped hospitals, where the data essential for a diagnosis can be made more quickly and effectively accumulated and the paraphernalia for

treatment kept in smooth running order from constant use. This is particularly true as far as it concerns surgery for in proportion as this form of therapy is the more dangerous, so much the more need is there for surrounding it by every possible safeguard against misuse or accident. The more difficult and complicated problems of disease will gravitate to large institutions where no longer "visiting" appointees but directors of hospitals unite in continuous service unhampered by an ill-adapted hospital administration can uninterruptedly devote themselves to their work without entering into competition for practice beyond the wals of the institution. The cry has been raised that this evolution of the physician and surgeon will make teachers incompetent to instruct those who are to enter practice, but this same cry was once raised against the appointment of the full time physiologist anatomist, and pathologist, whose loss of contact with practical medicine, it was presupposed, would disqualify him on these same grounds. The essential thing to inculcate into the student is the habit of acquiring clinical knowledge for himself. And there is no possible way of doing this except by bringing him into immediate touch with the sick-bed. This makes, in the words of Huxley, for centrifugal education, whereas our customary methode are centripetal in direction, with the effort to drive formulæ into the student's head rather than to teach him to produce ideas of his own.

(To be continued)

NEW YORK ACADEMY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held March 27, 1913.

Dr. George G. Ward, Jr., in the Chair.

Intraligamentous Fibroid Causing Periodical Retention of Urine.—Dr. Henry Dawson Furniss reported the case of a single woman, forty-seven years of age. Her menstrual history was negative. During August, 1912, on arising one morning she found that she could not pass her urine; after several hours this inability passed away. She had no further trouble until September of the same year when she had the same trouble and catheterization was necessary. She had a similar attack in October and another in January. After careful questioning it was learned that she had had some frequency in urination since the spring of 1912. Since last fall she had been getting up two or three times during the night. The bladder irritability had decreased since taking salol in January. She passed no calculi and had no hematuria. The urine contained only a few epithelial cells and a few hyaline casts. On attempting to pass the cystoscope an obstruction was met and the beak of the instrument had to be turned well to the left in order to enter the bladder. Only the left side of the bladder could be seen and it was found that the uterus was displaced to the left by a hard mass, more or less elliptical in shape, with the long axis running transversely. The mass was the size of two fists. On February 15, 1913, the growth was exposed and found to be a large intraligamentous myoma springing from the left cornu of the uterus. This was bluntly dissected out. The ureter was below and to the right of the mass and was not disturbed in the dissection. The patient left the hospital in two weeks.

Large Bilateral Renal Calculi Forming Casts of the Pelvis.—Dr. Furniss reported the case of a nurse, thirty-seven years of age. She had been in good health until the beginning of her present trouble about six years ago when she was seized with severe pain in the left renal region and was unable to void her urine. A year later she had a similar attack, but this time the pain was in the right renal region. After this the attacks came on every six months, then every three months, and later every six weeks, alternating from one side to the other. During the attacks she had vomiting which seemed to relieve the pain. She had dysuria, but never suppression as in the first attack. Three years ago she was taken ill with pain, high temperature, and bloody and pussy urine. Since that time all the attacks had been on the right side. She began to lose weight three years ago, and for the past four or five months had been losing strength. The catheterized bladder urine showed a large amount of blood and pus and the cystoscope showed a general catarrhal cystitis. Slightly elevated spots were seen over the base of the bladder in the bifurcation of the small blood vessels; these were not tubercles. Dr. Furniss said he had seen these in only one other case; this was a case of renal calculi. There was no drainage from the right ureter, but a large amount of pus was seen coming down along the side of the ureter. Urine from the left ureter showed a moderate amount of pus and some red blood cells. An intravenous injection of 0.6 phenolsulphonaphthalein did not appear in the bladder before the end of nineteen minutes. Radiographs showed a shadow of a large branched calculus in each kidney which formed a cast of the pelvis. On February 14, a large calculus was removed from the right kidney. The patient made a stormy convalescence but was able to return home on the thirty-eighth day after the operation. The stone in the left kidney was left until the patient had enough strength to warrant its removal. Much damage had been done to the kidney function by the presence of these calculi as was indicated by the marked delay in beginning the elimination of the phenolsulphonaphthalein. The operation was done under gas-oxygen anesthesia. Had he used ether, or had he attempted to operate on both sides at once, he felt sure that he would have lost his patient.

Leucoplakia Uteri, with Case Report and Exhibition of the Specimen.—Dr. Thompson T. Sweeney presented this communication. His case appeared at the clinic on June 14, 1910. She was thirty-three years of age, and gave a good family history. She had been married ten years and had had no children. She had a suspected abortion shortly after marriage. She was curetted eight years ago. Three years ago she contracted syphilis. She suffered with a profuse yellowish discharge of unpleasant odor, and complained of backache and pain in both iliac regions. She had frequent micturition, reflex nervous symptoms, and gastric disturbances. A diagnosis of acute gonorrhea was made and treatment given. On April 5, 1912, she was operated upon for pyosalpinx. A curettage, appendectomy, right salpingo-oophorectomy, left salpingectomy, and suspension of the uterus were done and the patient left the hospital in good condition. She again appeared at the clinic in the latter part of May when the leucoplakia was first discovered. The plaques were observed first on the posterior lip of the cervix but spread rapidly over the whole cervix in spite of every effort to control the disease. The continuous sero-sanguinous discharge caused the patient much depression. A Wassermann reaction was positive. No improvement followed an injection of salvarsan. On December 19, 1912, a complete hysterectomy with vaginal cuff was performed abdominally. The left ovary, which appeared normal, was not removed. The patient made an uneventful recovery and left the hospital in January. The cervix and uterus were slightly enlarged. The cervix was covered externally by a bluish gray membranous-like layer, not readily detachable; when an attempt was made to strip it off, a raw surface was exposed beneath. This area was moderately wrinkled and had a few excoriated areas two to three millimeters in diameter over it. On cutting the uterus open anteriorly, a narrow pointed prolongation of the opaque covering was seen extending over the posterior lip into the cervical canal for a distance of 1 c.m. The endometrium was soft, evenly distributed, reddish gray in color, and was easily scraped away. Three small globular intramural fibroids were seen. The microscopical examination showed hypertrophy of the cervical layer of the cells or statum corneum, and was especially marked over the cervix, where it presented a structureless appearance and was identical with the condition of hyperkeratosis noticed in thickened skin, such as was frequently found on the palm of the hand. Beneath the horny covering was seen a thin layer of flattened or oval cells containing both coarse and fine granules (keratohyaline granules); the nuclei of these cells were for the most part small and deeply staining. The lower strata of the epithelium did not appear to exhibit any pathological change. No evidence of malignant proliferation could be discovered in the many sections examined. The examination indicated a condition of marked chronic inflammation of the cervix involving particularly the subepithelial tissue; associated with this reaction were the epithelial changes of hyperkeratosis, giving rise to the clinical observation of leucoplakia and the increase in keratohyaline granules of the stratum granulosum. No clue of its etiology could be obtained from this investigation.

Dr. O. S. Hillman opened the discussion on Dr. Sweeney's report and said that the specimen which was presented gave one a very imperfect idea of the actual condition of the cervix immediately after the operation; this was largely due to the action of the preserving fluids, which had caused the specimen to shrink. The question of leucoplakia was an old one and had been much discussed in medical literature. Most of the cases reported were leucoplakia of the buccal cavity; leucoplakia of the esophagus, bladder, and

penis had also been mentioned. Involvement of the vulva, vagina, and uterus seemed to be less frequent. Generally speaking, the condition in mucous membranes was identical with hyperkeratosis of the skin, which was principally a thickening of the superficial horny layer. As to the etiology nothing definite had been determined. Syphilis had been credited with being the etiological factor in many cases. This, however, might be merely a coincidence, as many cases of leucoplakia occurred in which syphilis can be definitely excluded. In this case of Dr. Sweeney's the most striking feature from both a clinical as well as a pathological point of view, was the extent of the lesion. Practically the whole cervix uteri was involved and the process even extended on to the vagina. The hypertrophy of the stratum corneum was very marked and this produced the typical opaque gray appearance which was noticed. An important point to consider in cases of leucoplakia was the liability to the development of malignant disease. From a consideration of the pathology of the condition it would seem that if a chronic irritation of the surface epithelium in any way predisposed to the development of malignancy, the incidence of malignant invasion would be comparatively high. The possibility of carcinoma in such cases should be borne in mind in regard to the treatment. Dr. Hillman called attention to the serosanguineous discharge which was a feature of this case and said it was probably due to the marked vascularity of the subepithelial tissues associated with a severe inflammatory reaction, especially about the blood-vessels. There was no evidence of a syphilitic etiology as far as the pathological examination of this case was concerned.

Dr. Robert T. Frank said that differences of opinion regarding the etiology of leucoplakia of the cervix were still entertained, but apparently any long-continued irritation must be held responsible. He differed from Dr. Sweeney as to the nature of the serosanguineous discharge; this should be interpreted as the causative irritant, not as a criterion of the severity of the disease, or as arising from the leucoplakia itself. The discharge was a residuum of the antecedent and partly healed gonorrhea which could not longer be demonstrated by bacteriological methods (spreads). He considered that the syphilitic infection might be merely coincident. The proper treatment in this case was hysterectomy. Dr. Frank warned that the diagnosis of leucoplakia should be made with caution in women afflicted with complete prolapse whose protruding cervix, exposed to irritation and dessication, often showed a superficial epidermization with hornification. From the microscopical examination of the specimen no doubt of its true leucoplakic nature could be entertained.

Dr. Sweeney referred to the prognosis in these cases of leucoplakia and recalled a case which involved the tongue. A spot on the epiglottis was removed and was found to be an epithelioma; smoking as a causative factor was not to be considered in this instance. In none of the eight cases of leucoplakia of the cervix that had been reported was there any metritis. There was, however, the serosanguineous discharge from the cervical canal. The case presented was the second one he had seen.

The Clinical Significance of the Urine in Pregnancy.—Dr. Harold C. Bailey read this paper. He gave a historical survey of his subject from the year 1843, when Lever of Guy's Hospital applied the albumen test to the urine of ten women having puerperal convulsions and found it highly albuminous in all but one instance, and discussed the opinions of various authorities as to the relation of acute yellow atrophy, pernicious vomiting of pregnancy, and eclampsia. He stated that it was positive that the liver in acute yellow atrophy, pernicious vomiting of pregnancy, and eclampsia, was in a pathological condition. The degenerations present would indicate a toxin or toxins of a somewhat similar nature in all three conditions. In chloroform and chloral poisoning the liver picture was not far different from that seen in fatal cases of pernicious vomiting. In liver degenerations produced by chloroform, chloral, phlorizin, hematoxic sera, and hydrazine the metabolism was considerably affected as evidenced by an increase in the total nitrogen, but in all of these poisonings the nitrogen fractions retained approximately their normal ratios. Work reported by Folin during the past year tended to place the deamidation of amino-acids in the tissues chiefly rather than in the liver. The recent work of Murlin, Heyneman, and Landsburg indicated that the liver functionated normally during pregnancy. Murlin and the author in their observations found that the ammonia and the amino-acid nitrogen were not necessarily increased in pre-eclampsia or eclampsia. When an increase in the ammonia occurred it might possibly be explained by changes in the diet or by under nutrition or to decomposition of the urine by contamination. Dr. Bailey concluded as follows: (1) Liver degenerations in the toxemias of pregnancy were accompanied by low nitrogen excretion and by reported changes in the ratios of the nitrogen fractions. (2) Liver degenerations produced by a number of toxic substances was accompanied invariably by an increase in the total nitrogen excreted, but without important changes in the relationship of the various fractions to the total nitrogen. (3) Folin's work would attribute the amino-acid deamidation to the tissues. (4) Pre-eclampsia and eclampsia might show no marked changes in the nitrogen partitions. (5) It was possible that except for the lowering of the total nitrogen and changes in the various fractions due to the diet and the amount of absorption the nitrogen partitions in eclampsia would show no marked differences in relationship when the urine was collected and preserved by the methods used in metabolism studies in the laboratory.

Dr. Frederic E. Sondern said that he was very much opposed to the throwing over of the nitrogen partition altogether, because they occasionally obtained valuable information from such a determination. He still believed that the intestinal auto-intoxication, this putrefaction in the intestine, was an etiological factor in the toxemias of pregnancy. He also believed that there was a proteid metabolism called lithemia, or the gouty tendency, etc., which acted as a causative factor in the toxemia of pregnancy. They should divide the acute exacerbations of a chronic inflammation from any lesion of the kidney which was due to a lesion of the kidney alone. There were some cases of eclampsia due to an exacerbation of a previous chronic nephritis. If a patient died during or after the attack, characteristic liver changes of the toxemia of pregnancy might be present. Pathological and histological changes occurred in any person who died of uremia and who was not pregnant; they might not be at all characteristic but they should be borne in mind. The condition of the urine in these two conditions was somewhat different. Casts had been found in the high blood pressure cases during an entire pregnancy. One might meet with cases of hyperemesis, with headaches, and without any increase of the blood pressure. They also might meet with the so-called liver cases in which the blood pressure was very low. These were the two conditions which should be separated. Dr. Sondern advised that one should always be on the lookout in these cases for every evidence of faulty intestinal metabolism and should resort to whatever remedies seemed to be indicated in order to avoid the possible occurrence of this toxemia of pregnancy. One of the evidences of a toxemia of pregnancy could be obtained from a careful examination of the urine for an acidosis.

Dr. Robert T. Frank said that the cause of eclampsia had been made the subject of many theories, and that nearly every hypothesis advanced had sooner or later been explained away; only one factor remained constant and unchangeable, and that was the fetus and its equivalent, the placenta. What interested him more than the pathological investigations of eclampsia were the physiological researches on pregnancy, such as those of the speaker and Dr. Murlin. Researches which dealt with isolated clinical symptoms of eclampsia, or with single organs such as the renal inflammation or the liver autolysis, might be of some value, but would never throw light upon the primary cause. To-night they had heard the kidney and the intestine accused; why not the brain or lungs as well? The cause was to be found in, or arising from, the fetus or placenta, and the action of the poison was wide spread and systemic. Dr. Bailey had referred to Folin's methods, which permitted chemical analysis of very small samples of blood. If these and similar methods would stand the test, we then would have means at our disposal to elucidate the most fundamental problem to be dealt with, namely, the possible leakage or discharge of amino-acids, ferments, and other products from the placenta into the maternal blood stream.

Dr. William S. Stone did not believe that all were agreed that all was known on this subject. Many a woman, without any premonitory signs of importance, suddenly would have a severe headache, sometimes a general edema with the urine boiling solid, with somewhat severe convulsions; labor would be induced, the child delivered, and the woman would get well. There were many of these cases that he saw and he believed that frequently they would get well even if one did not induce labor prematurely. He did not believe the nitrogen partition was of practical value, because it took too long to obtain it, and the patients got well or died before one could arrive at anything satisfactory from such an examination. Much could be learned regarding these cases by paying particular attention to faulty metabolism.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

IDAHO STATE BOARD OF MEDICAL EXAMINERS.

October, 1912

(*Concluded from page 275.*)

OBSTETRICS.

1. State cause, symptoms, diagnosis, and treatment of ectopic pregnancy.
2. Describe lochia, the curve of Carus, the amnion, the colostrum.
3. State the diagnosis and management of a face presentation.
4. What is version? When indicated? Describe three methods of version.
5. Describe the ovum and the embryo at the end of the second month.
6. Prolapsus funis. How managed?
7. The perineum. How protected at labor?
8. How would you treat an adherent placenta?
9. Give the different presentations.
10. State cause of postpartum hemorrhage. Give treatment.

GYNECOLOGY.

1. What is the normal position and what factors tend to keep the uterus in place?
2. Give the etiology, symptomatology, and treatment of chronic endometritis.
3. Give the symptomatology and treatment of acute salpingitis.
4. Give the diagnosis of tubal pregnancy.
5. Give the diagnosis of uterine fibroid.
6. Describe the operation for incomplete lacerated perineum.
7. What are the most common causes of diseases of women?
8. Give the symptomatology and diagnosis of carcinoma of the fundus uteri.
9. Describe normal menstruation and the various disorders of menstruation.
10. Give the etiology of pruritus vulvæ.

SURGERY.

1. Give symptoms and treatment of hallux valgus.
2. Give definition, symptoms, and diagnosis of subphrenic abscess.
3. Give symptoms and diagnosis of exophthalmic goiter.
4. Name the general and local causes of hematuria.
5. Describe treatment of fracture of the patella.
6. Give symptoms and diagnosis of tuberculosis of the epididymis.
7. Give symptoms and diagnosis of acute osteomyelitis.
8. Describe appearance and symptoms of carbuncle.
9. Give symptoms of Pott's disease.
10. Describe some one surgical procedure in the treatment of hemorrhoids.

HYGIENE.

1. Write a paragraph on the effect of tuberculosis in fowl, as to its frequency, organs affected, morphology of bacilli, and liability of contagion to humanity.
2. Tell what you know of prophylactic measures, against the spread of tuberculosis in dairy cows.
3. Give a brief history of vaccination against smallpox, with some definite statistical data as to its value.
4. Describe in detail the methods in use for the obtaining of sterile vaccines and antitoxins.
5. Which is of the greater value in the ventilation of rooms: increased floor space or increased height of ceiling?
6. Name diseases and conditions to be expected from the use of polluted drinking water.
7. Distinguish between autointoxication and infection. Give examples by name of disease only.
8. Give obvious reasons why the Idaho system of smallpox quarantine would be valueless in case of an epidemic.
9. What pernicious effects may we foresee from the use of high speed and aviation, apart from the direct loss of life?
10. Is this a usable water?

	Parts per M.
Total solids	109.
Loss on ignition	58.
Chlorine	5
Required oxygen	4.1
Nitrites	.0
Nitrates	0.29
Free ammonia	0.0
Albuminoid	0.02

If not, why?

ANSWERS.

OBSTETRICS.

1. ECTOPIC GESTATION. *The Symptoms* for the first few weeks are exactly similar to those of normal pregnancy. Later, sharp, cramp-like, periodic pain occurs and is reflected down one thigh. About the third month menstruation returns. The bleeding is profuse and attended by some pain. Flesh-like masses (decidua) are discharged. Nearly all the signs of normal pregnancy are present. Physical examination will reveal a softened cervix, an enlarged and displaced uterus, and the presence of a small cystic tumor, sensitive and adherent, on one side of the uterus. *Rupture* is attended by great pain and syncope. If the hemorrhage is intraperitoneal and extensive, death results in a few hours, attended by symptoms of profound shock; rapid, weak pulse; blanched, cold skin; sighing respiration, and fall of temperature. If the hemorrhage is extraperitoneal, it will be limited and the symptoms of shock and bleeding will be slight. Before rupture the diagnosis is difficult, but afterward the history of early pregnancy, intense pain, syncope, and collapse will distinguish this condition.

The treatment consists of removal of the affected tube and ovary as soon as the diagnosis is made. In late extrauterine pregnancies it may be necessary, after controlling hemorrhage, to suture the sac-wall to the lower angle of the abdominal incision.—(*Pocket Cyclopedia.*)

2. *Lochia* is the discharge from the uterus for the first few days after labor; it consists mainly of blood.

Curve of Carus is the longitudinal axis of the pelvic canal; it forms a curved line, the center being at the symphysis.

Amnion is the innermost of the fetal membranes, and is continuous with the fetal epidermis at the umbilicus; it contains the liquor amnii.

Colostrum is the first secretion of the mammary glands following labor; it is laxative.

3. FACE PRESENTATION. *Diagnosis:* Vaginal examination will show a high position of the presenting part, and also a mouth or nose, which should not be mistaken for a breech. Abdominal palpation may reveal the deep groove between the child's occiput and back. *Management:* If the chin is presenting anteriorly, expectant treatment may suffice; but care must be taken to observe that the chin does not rotate backward. Spontaneous version may occur, and the presentation become a vertex one. Failing this, or as a means of favoring this, postural treatment, such as Walcher's position, has been recommended. If, in spite of this, engagement has not occurred, cephalic version is indicated, care being taken not to rupture the membranes. If this is not successful, podalic version should be tried. If, after all these manipulations, the child is still alive and the head is engaged, symphyseotomy is indicated; if the child is dead, craniotomy should be performed.

4. *Version*, or turning, is a procedure by which some part of the fetus other than that originally presenting is brought to the superior strait of the pelvis.

The *varieties* are: (1) Cephalic, in which the head is brought down; (2) podalic, in which the (breech or) feet are brought down.

Each of these two varieties may be performed in three ways: (1) By external (abdominal) manipulation. (2) By internal manipulation, in which the whole hand is passed into the uterine cavity. (3) By combined external and internal manipulation, in which one hand is employed externally, and the fingers of the other hand are inserted into the os uteri.

The *indications for version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother, and (7) in any case where speedy delivery is imperative.

5. "*During the second month*, the embryo increases gradually in size, and at the end of the eighth week measures about one and a quarter inches in length, and the whole ovum is about the size of a hen's egg. The umbilical vesicle has become small, and is suspended from the embryo by a narrow vitelline duct. The umbilical cord has increased in length, and the villi are becoming numerous

in the region of the decidua basalis. The limbs, after the fifth week, show grooves which mark them out into three distinct segments, and rudiments of the fingers and toes have also appeared. Centers of ossification appear early in the sixth week in the lower jaw and in the clavicle. At the end of this month the nose begins to assume its normal shape."—(Jellett's *Manual of Midwifery.*)

6. *Treatment of prolapsed funis* consists in: (1) Not rupturing the membranes prematurely unless there is some positive indication; (2) postural treatment, in which the woman is placed on her back or on the opposite side to that on which the cord lies, with hips and pelvis elevated, or the knee-chest position may be adopted; (3) reposition of the cord, either manually or with some form of repositor; (4) speedy delivery, by forceps or podalic version.

7. *To protect the perineum:* The patient should be restrained from bearing down unduly; extension of the head must be retarded, and the central part of the occiput must be allowed to be born first; pressure must be made with the hand between the coccyx and the anus; when the perineum has had time to stretch, extension and expulsion are allowed; after the birth of the head care must be taken to see that the perineum is not torn by the birth of the shoulders.

8. *Treatment of adherent placenta:* "A finger—one or two—must be insinuated between the uterus and placenta at some point already partially separated, or, if no partial separation exist, at a point where the placental border is thick, and then passed to and fro transversely, through the uteroplacental junction, acting like a sort of blunt paper knife, until separation be complete. Another mode is to find or make a margin of separation as before, and then peel up the placenta with the finger-ends, rolling the separated portion toward the palm of the hand upon the surface of the still adherent part. Great care is necessary to avoid peeling up an oblique layer of uterine muscular fiber, which might split deeper and deeper until leading the finger-ends through the uterine wall into the peritoneal cavity. Should such a splitting begin, leave it alone and recommence the separation at some other point on the placental margin. It is sometimes only possible to get the placenta away in pieces. These should be afterward put together and examined to indicate what remnants are left behind. It may be quite impracticable to get out every bit, but small remnants or thin layers too firmly adherent for removal do not distend the womb enough to create hemorrhage from their bulk, and the subsequent danger of septicemia from their decomposition may be obviated by injecting warm (2 per cent.) creolin water into the uterus twice daily, until everything has come away."—(King's *Obstetrics.*).

9. The *different presentations* are: (1) Head (including Vertex, Face, Brow, and Ear); (2) Pelvic (including Breech, Knee, and Foot); (3) Transverse (including Arm, Shoulder, Back, etc.).

10. *Postpartum hemorrhage* is due to relaxation of the uterus. *Management:* Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin, or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging with gauze of uterus and vagina may be necessary. Whatever is done must be done promptly, and everything likely to be needed for this emergency should be prepared beforehand in every labor.

GYNECOLOGY.

1. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine, and rectouterine.

2. CHRONIC ENDOMETRITIS. *Causes:* Debility, repeated pregnancies, laceration, and subinvolution of uterus, fibroids, gonorrhea, or sepsis. *Symptoms:* Neuralgic, bearing-down pains; cramps; dysmenorrhea; irritable bladder; menorrhagia or metrorrhagia; leucorrhea, which may be blood-stained or purulent; profuse hydrorrhea; loss of appetite, constipation, dyspnea, palpitation, sterility. The uterus as a whole is abnormally tender; the uterine cavity is enlarged; the external os is patulous, and shows a tendency to bleed on being touched. *Treatment:* The general health must be attended to; rest is indicated; constipation must be avoided; tonics are of slight use; ergot is useful for the menorrhagia or metrorrhagia; vaginal douche, pessaries, hip-baths, and counterirritation have all been recommended; curettage may help; and one or both lips of the cervix may be amputated.

3. SALPINGITIS. *Etiology:* Septic infection, gonorrhea, menstrual congestion, taking cold at the menstrual periods. *Diagnosis:* A dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesion; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain.

Treatment: Rest in bed, hot vaginal douches, saline purgatives, liquid diet, morphine (if necessary) for pain, removal of pathological conditions and complications; radical operation (salpingectomy, or salpingo-oophorectomy) may be necessary.

4. See OBSTETRICS. 1.

5. *Symptoms of fibroids:* Hemorrhage, leucorrhea, pain, pressure symptoms (disturbances and displacements of bladder, rectum, urethra, and uterus), backache, bearing-down sensation, dysmenorrhea.

6. In *incomplete laceration of the perineum:* "The parts are cleansed and a pledget of sterile cotton or gauze pushed up the vagina to stop any flow from the uterus obscuring the wound. The sutures (preferably of aseptic silk) are passed with a moderately curved needle about two inches long as follows: Beginning at the posterior end of the laceration (that nearer the anus), the needle enters the skin near the edge of the wound and follows a circular course until its point appears at the very bottom of the laceration (a finger of the other hand in the rectum guarding against its penetrating that canal); it then enters the opposite side of the laceration at the bottom of the wound and comes out of the skin opposite its point of entrance, having followed a similar circular course to that pursued on the other side where it first went in. The ends are *loosely* tied or secured by catch-forceps, until the requisite number of sutures are passed in a similar manner (half an inch apart), when the wound is again cleansed, the vaginal plug removed, and the sutures tied tightly enough to coapt the parts without injurious constriction, the order of succession in tying being that in which the sutures were passed."—(Landis's *Obstetrics.*)

7. The *most common causes of the diseases of women* are: Syphilis, gonorrhea, errors of development, injuries incident to labor, neglect during menstruation, improper clothing and habits of life, and celibacy.

8. *Cancer of fundus of uterus* is diagnosed by the presence of tumor, cachexia, hemorrhage, pain, and offensive discharge; microscopic examination may aid in the diagnosis. It is to be *differentiated* from: Polypi, fibroids, retained placenta, and chronic endometritis.

9. *Menstruation* is a periodical disturbance in the female, characterized by a bloody mucous discharge from the uterine cavity: it lasts during the period of woman's sexual activity, but is temporarily suspended during pregnancy and early lactation. *Amenorrhea* is absence of menstruation during the period of sexual activity. *Vicarious menstruation is* a flow of blood from some organ (other than the uterus) recurring at the monthly periods and taking the place of menstruation. It may occur from the hemorrhoidal vessels, the lungs, the skin, the nails, the mammary glands, ulcerated surfaces, and many other parts. *Supplementary menstruation* means a menstrual flow from the uterus and also from some site (as given under vicarious menstruation). *Menorrhagia* is a condition characterized by excessive loss of blood during the menstrual periods. *Metrorrhagia* is a hemorrhage from the uterus at other than the menstrual periods. *Dysmenorrhea* is unduly painful menstruation.

10. PRURITUS VULVÆ may be *caused by:* Parasites; diseases of the vulva, as inflammation, edema, vegetations, congestion, irritating discharges, lack of cleanliness, diabetic urine; it may also be of nervous origin, or idiopathic.

SURGERY.

1. HALLUX VALGUS. This consists of abduction of the great toe, so that the head of the first metatarsal bone is exposed to pressure from the boot. The joint soon undergoes degeneration similar to that of osteoarthritis, and the structures around become thickened. An adventitious

bursa forms over the most prominent part, and when inflamed is called a bunion. The bone is thickened under the bursa from periostitis. The bursa may suppurate, and the abscess may extend to the joint.

Treatment: As the affection is produced by wearing boots which have not a straight inner margin, suitable boots will relieve early cases. In more advanced cases a toe-peg in the boot serves to keep the hallux in good position; or a bunion spring, which is a lever acting on the outer side of the hallux. In the worst cases free excision of the head of the first metatarsal bone gives the best results.—(*Aids to Surgery.*)

2. *Subphrenic abscess:* "A subphrenic abscess is a collection of pus beneath the diaphragm. The pus, as a rule, occupies a part of the lesser peritoneal cavity; in rare instances it is extraperitoneal (when it is of renal origin); in some cases it is contained in the area between the diaphragm, cardiac end of the stomach, and liver or spleen. It is an unusual thing for such an abscess to break into the general cavity of the peritoneum, but it may break into the pleural sac.

"*Symptoms:* These are the constitutional symptoms of suppuration and a swelling in the subdiaphragmatic region, these symptoms ensuing upon one of the causative conditions before mentioned. In many cases the abscess cavity contains gas as well as fluid. Empyema and subphrenic abscess resemble each other. In empyema the upper limit of the fluid is concave; in subphrenic abscess it is convex. In empyema the flow of pus through an aspirating needle will be most marked during inspiration; in abscess during expiration—the same is true of the rush of gas. In empyema the needle does not oscillate; in abscess it does. The fact that an abscess contains gas is shown by the existence of a tympanic percussion-note over a part of the cavity and an alteration in the area of tympany with an alteration in the position of the patient. An abscess of the liver does not contain gas and alters decidedly the outlines of the organ."—(From Da Costa's *Modern Surgery.*)

3. See THEORY AND PRACTICE. 4.

4. *Causes of hematuria:* "(1) *Renal hematuria* is due to acute nephritis, calculus, tumors, or injury of the kidneys. Blood casts may be found. (2) *Vesical hematuria* is due to calculus, tumors, injury, cystitis, or the presence of the *Bilharzia hematobia.* In the last the ova cause papillimatous tumors in the bladder. (3) *Prostatic hematuria* is due to congestion, calculus, ulceration, or malignant disease. (4) *Urethral hematuria* is due to catheterism, laceration, or gonorrhea. The blood flows independently of micturition. (5) *Constitutional causes* are purpura, scurvy, hemophilia. Hemoglobin is present, but not corpuscles, in paroxysmal hemoglobinuria. The spectrum and hemin tests are the most certain, but the guaiacum-ozonic ether test is reliable for urine."—(From *Aids to Surgery.*)

5. FRACTURE OF PATELLA. *Treatment:* The best method is open operation, and wiring four or five days after the accident; for only by this means can bony union be obtained. The obstacles to bony union, without open operation, are that the tilting of the lower fragment cannot be overcome in any other way; the aponeurosis cannot be removed from between the fragments, nor the blood-clot from the joint, except by slow absorption. If no operation is done the union is fibrous, and the fibrous bond will stretch unless the patient be condemned to a stiff knee for six to twelve months. A working man is badly off with either a stiff knee for that time or a stretched bond forever.

The *open operation* must necessarily be aseptic. The knee may be washed out with 1 in 40 carbolic or 1 in 2,000 bichloride without injury, or sterilized saline solution may be used. The joint is opened by a horseshoe incision, the blood-clot is removed, the aponeurosis clipped away, the bones drilled and fixed in accurate apposition with silver wire, and the wound is closed without drainage. As atrophy of the quadriceps occurs early, massage and passive movements must be begun in ten days. The patient may go about on crutches in three weeks. Bony union is firm in six weeks.—(*Aids to Surgery.*)

6. *Tuberculosis of the epididymis.* The disease begins slowly, the epididymis may feel hard and nodular, later the vas may become thickened; an abscess may form, and also a sinus, discharging thick pus. An acute epididymitis usually follows gonorrhea; syphilis is more apt to affect the body of the testis. Tubercle bacilli in the urine or in the pus will make the diagnosis absolute.

7. OSTEOMYELITIS. *Symptoms:* Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present.

It is to be *diagnosed* from (1) *Rheumatism,* in which more than one joint is affected and the tenderness is *in* the joint, and not *near* it. (2) *Tubercular arthritis,* in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis,* in which the bone and periosteum are not affected, and in which there is always a wound.

8. A *carbuncle* is a localized inflammation of the subcutaneous tissue, which goes on to sloughing, and is of a more extensive character than a boil. Staphylococci are the common exciting cause, while the predisposing causes are lowered vitality from diabetes, albuminuria, or after infective fevers. Inoculation is by autoinfection or directly from the surface. The disease begins as an infiltration of a patch of subcutaneous tissue, which is hard, painful, and tender, and the skin over it red and hot. The infiltration may extend till it is the size of a dinner plate, and the inflammation ends in sloughing and suppuration, not only of the subcutaneous tissues, but of small areas of the skin over it, so that openings develop in the skin, and allow of the exit of pus and sloughs. The openings extend, the sloughs separate, and the wound heals by granulation.

9. The *symptoms of Pott's disease of the spine* are pain, tenderness on pressure, rigidity of the back, and a sense of weakness, which may usually be recognized by the child's actions. When suppuration occurs, the pus may enter the sheath of the psoas, destroying the muscle, and presenting in the iliac fossa or groin as an iliac or psoas abscess; or it may pass backward through or external to the quadratus lumborum, and point in the loin, when it is known as lumbar abscess. In the cervical region retropharyngeal abscess may occur. Spinal paralysis may come on at any time and myelitis develops in the later stages.—(*Pocket Cyclopedia.*)

10. *Operation for hemorrhoids:* "It must be ascertained first that the piles are not due to disease elsewhere, as cirrhosis or stricture, or to pregnancy. The bowels are emptied, and the patient is placed in the lithotomy position. The sphincter is then dilated with two thumbs, to expose the piles, which are caught up with ring forceps. A clamp is applied to the piles in turn, and they are removed by the cautery. The bowels are kept confined for five or six days, when castor oil is given. Very little pain and no bleeding follow this operation. Removal can be done by snipping the mucous membrane around the pile and ligaturing its base."—(*Aids to Surgery.*)

HYGIENE.

1. *Tuberculosis in fowls is quite common.* "The bacillus of avian tuberculosis shows a more luxuriant and moister growth than the human type, and grows at 43.5° C., is very pathogenic to rabbits, scarcely pathogenic to guinea pigs, and not at all to dogs, even intravenously, whereas the human type produces an acute infection. Morphologically it is almost identical with the human type, and stains similarly. It is found in lesions in fowls and pigeons, and some other bird species. Fowls fed on human tubercle bacilli are not found to become tuberculous. The identity of the two types is said to be established by the experiments of Nocard, who rendered mammalian tubercle bacilli pathogenic for fowls by keeping them in the peritoneal cavities of hens in collodion sacs for six months. Conversely, prolonged cultivation and passage of the avian type through the mammalian body are said to cause them to approach closely to the mammalian type. . . . . Fowls are very susceptible to intravenous, intramuscular, and subcutaneous inoculation of the avian tubercle bacilli, and also to feeding. In the former modes, the lesions are in the spleen and liver, and frequently in the lungs, cervical glands, muscles, and bones. After the feeding method, there are similar lesions, with, in addition, characteristic tuberculous lesions in the mucous membrane of the intestine. . . . . Unmodified avian tubercle bacillus is a negligible factor in the production of human tuberculosis."—(McKail's *Public Health Chemistry and Bacteriology.*)

2. *Protective vaccination of cattle against tuberculosis* "Hutyra tested von Behring's method of vaccinating cattle, and the results obtained led to a quite optimistic expression of belief in the permanent value of this method, but later experiments have caused him to speak of the method with greater reserve. It appears that the resistance conferred by von Behring's method against subsequent intravenous injections with tubercle bacilli declines quite rapidly and disappears entirely toward the end of the first year. The resistance of inoculated cattle toward natural infection from other tuberculous cattle is never striking and disappears after a few months. In further experiments to test von Behring's method two intravenous vaccina-

tions were given in the place of one, as previously recommended. It was found that the resisting power of cattle thus treated was at first very pronounced or almost absolute, but that it was not of long duration, disappearing entirely within eighteen months. Hutyra concludes from his experiments that at present the only method for controlling tuberculosis which has stood practical test is that of Bang."—(Bergey's *Hygiene.*)

3. *Vaccination against smallpox* was introduced by Jenner in 1796 and, after some opposition, has been adopted by the entire civilized world. It was introduced into this country in 1800. "In London, during the third quarter of the seventeenth century the average annual mortality from smallpox per million was 4,000. A hundred years later, between 1770 and 1780, it was more than 5,000; in the first years of vaccination it was more than 2,000; by the middle of the nineteenth century it fell to about 500, and in the last decade of the century to less than 75. In the whole of England, during the period of optional vaccination, the mortality rate fell from about 2,000 to 417, and after the practice was made compulsory, in 1850, it fell to 53."—(Harrington's *Hygiene.*)

4. *Preparation of vaccines:* "Having isolated the organism, it is inoculated upon one or more agar slants, and after a growth of from five to seven hours with streptococci and pneumococci, or with 18 hours for staphylococci and colon, the growth on these inoculated slants is taken up with salt solution, thoroughly shaken up in the diluting solution and standardized."—(Stitt's *Bacteriology.*)

"The methods used *in the production of antitoxins* were introduced by Behring, who found that by injecting susceptible animals with increasing amounts of extracellular toxin he produced in the blood serum of the injected animal certain changes which made the serum capable of counteracting the same toxin when injected into other animals. . . . . In practice, the bacilli are cultivated in bouillon. The cultures are freed from all living bacilli by filtration. The liquid filtrate contains the toxin. This filtrate is injected into healthy, susceptible animals, in increasing doses. Usually the horse is used, since large quantities of blood can be drawn from this animal on account of its size, and, moreover, the horse is very susceptible. . . . . Eventually enormous doses of toxin are given, and the animal acquires a high degree of immunity The blood of the animal is withdrawn, taking care to avoid contamination, and the serum allowed to separate in the refrigerator. The serum of the blood is drawn off and constitutes the antitoxin."—(Williams's *Bacteriology.*)

5. In the ventilation of rooms, increased floor space is of greater value than increased height of ceiling.

6. *Polluted drinking water* may cause: Typhoid, cholera, diarrhea, dyspepsia, goiter, poisoning by lead or zinc, dysentery, colon bacillus infection, diphtheria, scarlet fever, and intestinal parasites.

7. *Autointoxication* is a condition caused by the absorption of substances formed in the body during the ordinary processes of metabolism. Uremic poisoning is such a condition.

An *infection*, such as typhoid or tuberculosis, is caused by the presence of a microorganism introduced from without.

9. *High speed and aviation* may induce: Neuroses, eyestrain, hysteria, nervous prostration, and various traumatisms.

10. It is not a usable water: it requires too much oxygen, and there is too much chlorine.

Miscellany.

The Inventor of Dover's Powder.—J. A. Dixon details a number of interesting facts concerning Thomas Dover, the English physician and navigator, who was born in 1660 and who died in 1742. He was known in his day as the "Quicksilver Doctor," having created quite a stir by advocating the use of crude mercury in the treatment of many diseases. In 1708 he sailed on his famous voyage around the world. The expedition, which consisted of six armed ships, was noted for three achievements: the taking of the town of Guayaquil, the capture of the lesser *Manila* treasure ship, and the relief of Alexander Selkirk ("Robinson Crusoe") from his voluntary exile on the island of Juan Fernandez. It is suggested that it was Dr. Dover who introduced Selkirk to Daniel Defoe and persuaded the former to entrust his diary to the famous author of "Robinson Crusoe." Selkirk conceived a grievance against Defoe for stealing his story and swelling it into the great romance. Previous to his voyage around the world Dover had settled in Bristol and had achieved honorable distinction as the first medical man who gratuitously offered his services on behalf of the poor, under the care of the guardians of that city. This was in 1696, during an epidemic of spotted fever, of which he wrote later, "About Fifty Years since, the Fever raged so much in Bristol, so that I visited from Twenty-five to thirty Patients a Day for a considerable time, besides their Poor Children taken into their Workhouse, where I engaged myself, for the Encouragement of so good and charitable an undertaking, to find them Physick, and give them Advice at my own Expense and Trouble, for the two first years. All these Poor Children in general had this Fever, yet no more than one died out of the whole Number, which was near two hundred." The hospital where Dover worked is a well-known landmark in Bristol, called St. Peter's Hospital, and now used as the offices of the guardians.—*Proceedings of the Royal Society of Medicine,* June, 1913.

Cheese from the Viewpoint of Proverbial Medicine.—Of distinct medical interest are a number of proverbs about cheese. There is a saying found in the Harleian MSS., "Cheese is physic for gentlemen and meat for clowns"; the "fees" in the adage "Bread and cheese for the sound are good fees," are probably perquisites, wages, or rewards. Cheese is also conjoined with bread in the Latin proverb, *Caseus et panis sunt optima fercula sanis,* and with an onion in the other Latin one, *Caseus et caepe veniunt ad prandia sacpe:* about butter and about fruit as well as about cheese it has been said "Gold in the morning, silver at noon, lead at night." Two French proverbs emphasize the wisdom of eating little cheese or none at all, namely, *Fourmage qui moins en mange est tenu le plus sage,* and *Jamais homme sage ne mangea fromage;* but if a man must have his cheese with his bread then another French proverb says, *Pain legier, pesant fourmage, devez toujours prendre si vous estes sage:* and Howell gives "White loaf and a hard cheese never shames the master." There is the old proverb, "To believe that the moon is made of green cheese," but although one has a general idea of its meaning it is unlikely that many know exactly what green cheese is. It is not called green, says Boorde, "by the reason of colour, but for the newness of it, for the whey is not halfe pressed out of it." There were four cheeses in those days, green, soft, hard, and spermyse, whatever the last named may have been. Addison, in the *Spectator,* has some very interesting remarks upon antipathies, and cites cheese as one of the things which some people cannot abide. Some of these persons, he wrote, "offered to our consideration the miraculous Powers which the Effluviums of Cheese have over Bodies whose Pores are disposed to receive them in a noxious Manner; others gave an account of such who could indeed bear the Sight of Cheese, but not the Taste; for which they brought a Reason from the Milk of their Nurses." There is an Italian proverb which carries a terrible warning to the child who eats cheese or too much of it: *Il caccio fa romperle scarpette e ingrossar la lingua.* Certainly it is very alarming to think of any foodstuff bursting our shoes and making the tongue swell up!—*British Medical Journal.*

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FURTHER EXPERIENCES WITH DUODENAL ULCER.*

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IN 1909† I described six cases of duodenal ulcer. In all these the thread test was the mainstay for diagnosis. In this paper I cited the literature up to that date. It appeared to me of interest to broach this subject anew based on my recent experiences.

Among the foremost newer writers on this subject I will only mention Ewald, Albu, Gaultier, Kuttner, Mayo, Stockton, Pewsner, and last, but certainly not least, Moynihan.

Duodenal ulcer which has been formerly considered a rare affection is now discovered quite frequently. Moynihan deserves a great deal of credit for giving characteristic pictures of this disease and for having laid much stress on the symptom of "hunger pain." which, while not a positive sign of this affection, is greatly suggestive. Moynihan‡ goes, however, much too far in making the following statements which are cited from his recent work on duodenal ulcer. This eminent surgeon says: "Recurrent severe 'hyperchlorhydria' is duodenal ulcer. The symptoms of which the patient makes complaint are ascribed to hyperacidity; but it is extremely interesting to know that it is usual for the gastric juice in such cases to contain less free HCl than the normal. And in a large experience I have never operated upon a case of protracted or recurrent 'hyperchlorhydria' without finding a duodenal ulcer. In such cases it is very rare to find any excess of acidity when a test meal has been given" (p. 112).

"The terms 'Acid dyspepsia,' 'Hyperacidity,' 'Hyperchlorhydria,' are then not only dangerous as concealing the fact that the condition which causes them is not functional, as is implied, but organic; but they are misnomers, also, for the presence of an excessive acid is most infrequent" (p. 118).

"In the differentiation from gastric ulcer there is, as a rule, no great difficulty. If pain after food does not appear for two hours or more, it may be said with reasonable confidence that the ulcer is in the duodenum. I am convinced of the importance of the time element in cases of gastric and duodenal ulcers" (p. 122).

"The period of relief from pain conferred by the taking of a meal is then the first and a chief point to be considered in the differential diagnosis" (p. 123).

As will be seen later on the picture complex as given by Moynihan is frequently encountered in gastric ulcer, and in affections of the gall-bladder. It may also occasionally occur in some neurotic derangements, but this is more difficult of demonstration.

My own experiences with duodenal ulcer embrace a considerable contingency of cases. Most of them have been treated medically, and but a comparatively small number have been operated.

In order to show the value of diagnostic signs the material operated upon will be used as a guide. For convenience we may divide these into the following groups: Group I.—*Duodenal ulcer with positive thread test confirmed as such by operation.*

To this group belong the following cases:

CASE I.—J. F. H. This case was described in the MEDICAL RECORD April 3, 1909. Blood stain 61-62 ctm.; operation by Dr. Willy Meyer.

CASE II.—L., about forty years old, suffered for the last eight years from recurrent attacks of severe pains three or four hours after meals and vomiting. For the last three months patient was troubled more persistently and had lost about forty pounds in weight. The examination showed constant hypersecretion and intermittent ischochymia. While in the hospital patient vomited a considerable quantity of blood. The duodenal bucket showed permeability of the pylorus and a minute blood-stain at 59 ctm. from the lips. The liver was enlarged. Patient was operated upon by Dr. Willy Meyer and a duodenal ulcer found; a gastroenterostomy was established.

CASE III.—Y., about fifty years old. Principal symptoms: Severe gastric pains and periods of vomiting of large quantities of foods and fluids for the last three years, with some intervals of euphoria in between. Lost thirty pounds in the last six months. The examination showed dilatation of the stomach extending to symphysis, hyperchlorhydria, constant hypersecretion, and intermittent ischochymia. There was marked peristaltic restlessness of the stomach visible, and the diagnosis of pyloric obstruction appeared quite certain. The duodenal bucket, however, showed distinct bile stains at the end of the thread, and a small blood stain at about 60 ctm. Duodenal ulcer with patent pylorus and severe spasm was diagnosed. The operation performed by Dr. Willy Meyer confirmed these findings.

CASE IV.—Mrs. E., about thirty-five years old, suffered for the last four years off and on for periods varying from four to six weeks from gastralgia of a rather mild type occurring two hours after meals, relieved by eating. The examination with the tube disclosed simple hyperchlorhydria. There was no blood in the gastric contents. The

*Read at a meeting of the Section on Medicine of the International Medical Congress, August 11, 1913, at London, England.

†Max Einhorn: "Duodenal Ulcer and Its Treatment." *American Journal of the Medical Sciences*, August, 1909.

‡B. G. A. Moynihan: "Duodenal Ulcer." London, 1910.

duodenal bucket showed bile at the end of the thread and a blood stain at 58 ctm. Duodenal ulcer was diagnosed. After bismuth medication patient felt well for a whole year, when her previous symptoms returned. Dr. Furniss then operated patient, performing a gastroenterostomy. He found a duodenal ulcer about three-quarters of an inch beyond the pylorus.

Case V.—A. M., about forty years old, was troubled with recurrent attacks of dyspepsia and vomiting for the last five years. The last attack was severer and more persistent than the former ones. Patient lost twenty-five pounds within four months. Examination revealed a considerably dilated stomach, hyperchlorhydria and slight ischochymia. The duodenal bucket passed the pylorus and showed a small blood stain on the thread at a distance of 59 ctm. from the teeth. An operation by Dr. W. J. Mayo revealed a duodenal ulcer and gastroenterostomy was performed.

Case VI.—Miss Jean C. This case is described in my paper "On Stretching the Pylorus" (Medical Record, June 10, 1911). Blood stains at 57 ctm. Patient felt well for two consecutive years when one night she was suddenly attacked with most violent pains and severe collapse. A laparatomy was performed by Drs. Dowd and Coe and a perforated duodenal ulcer was found very near the pylorus. The opening was closed and a posterior gastroenterostomy done.

Case VII.—I. F., forty-two years old, a patient of Dr. A. D. Mayer, never had any digestive disturbance, except occasional belching and constipation. He had a hemorrhage from the bowel for the first time in November, 1912, the second hemorrhage occurring on May 20, 1913. There was no vomiting. The duodenal bucket on May 30 went into the duodenum (bile stain 60 to 69 ctm.). There were found also two distinct blood stains, one at 59 the other at 60 ctm. These two stains situated so closely together pointed either to the

Fig. I.—The radiograph of the stomach of I. F. (Case 7) reveals an elongated snail-shaped organ which lies high up, the greater curvature being some 4½ inches above the umbilicus in the prone position. There is considerable spasticity noted in the prepyloric region with narrowing, producing characteristic snail stomach, which, combined with the close proximity of the hepatic flexure to the first portion of the duodenum, would suggest ulceration.

margins of one ulcer or to two small ulcers situated closely together. The patient was operated upon June 2, 1913, by Dr. Willy Meyer. The stomach was not dilated and revealed nothing abnormal. In the duodenum about three-quarters of an inch beyond the pylorus, two small ulcers were found, hardly more than half an inch apart, which could plainly be felt through the serous coat.

In seven cases of duodenal ulcer, in which the diagnosis was based principally on the thread test, the operation corroborated the seat of the ulcer in the duodenum. In this group one patient presented rather the picture of cholecystitis with gall-stone colic (H.), the second had no gastralgia whatever, but suffered from recurrent severe melaena (I. F.).

Group II.—*Duodenal Ulcer with positive thread test not confirmed by operation.*

Case *VIII.*—P., thirty-three years old, suffered from severe gastralgia and vomiting for periods of two to three months for the last six years. He had lost about twenty pounds during his last attack. Examination reveals an extremely dilated stomach extending to the symphysis, hyperchlorhydria, and a slight degree of ischochymia. The duodenal bucket test showed a permeable pylorus and a distinct blood stain between 59 and 60 ctm. Duodenal ulcer leading to pylorospasm was the diagnosis and an operation advised. The latter was performed by Dr. W. J. Mayo, who discovered a diseased appendix to which he ascribed all the other symptoms.

Case IX.—M., forty-two years old, suffered for the last five years from recurrent severe dyspepsia with vomiting. The pains would appear two to three hours after meals and would be relieved either by an alkali or by eating. There was also hunger pain, occurring principally in the middle of the night. Patient came to the hospital in 1911 after a large hematemesis. He was treated with duodenal alimentation with good results. His pylorus was then stretched several times with benefit. In 1912 patient had a new attack of severe gastralgia followed by a profuse gastric hemorrhage. The result of the duodenal bucket had varied at different times. It showed a permeable pylorus but there was once no blood stain on the thread, and another time there was one at 58 to 59 ctm. The operation performed by Dr. F. Kammerer disclosed an extensive callous ulcer involving the stomach in the immediate vicinity of the pylorus.

In these two patients (P. and M.) in whom the clinical picture as well as the thread test pointed to duodenal ulcer the operation disclosed a different diagnosis. Case VIII., operated on by Dr. W. J. Mayo, showed no affection of the pylorus or duodenum but a diseased appendix, which reflexly had caused the picture complex. The other case (IX) was operated on by Dr. F. Kammerer and a callous ulcer found in the stomach in the immediate vicinity of the pylorus.

Group III.—*Duodenal ulcer found at operation with a negative thread test.* Of this variety I possess but one example.

Case X.—Harry G., thirty-three years old, had been suffering for six months from frequently recurring severe pains in the region of the stomach. There was no vomiting. He was constipated and had lost twenty pounds. Examination revealed hyperchlorhydria and slight continuous hypersecretion. The duodenal bucket passed the pylorus and showed no blood stains (bile stain from 66 ctm.). The stomach extended one to two fingers' width under the navel and a slight resistance was found over the gall-bladder on deep inspiration, also over region of pylorus which was somewhat sensitive to pressure, and could at times be somewhat more plainly palpated. The diagnosis of probable cholecystitis was made, and operation advised. The

latter was performed by Dr. Willy Meyer. There were adhesions around the gall-bladder, stomach and colon. After loosening these and examining the pylorus and duodenum more closely a small infiltrated place half an inch in size was found on the posterior wall of the duodenum. Posterior gastroenterostomy was performed. Hyperchlorhydria, hunger pain, and intermittent slight ischochymia pointed toward beginning stenosis of the pylorus or duodenal ulcer, but a slight resistance in the gall-bladder region and the negative thread test with permeable pylorus led me to the diagnosis of probable cholecystitis. The operation by Dr. Willy Meyer disclosed a mass of adhesions imbedding the pylorus, duodenum and the gall-bladder. After severing these the duodenal ulcer was found showing itself through an area of infiltration of the anterior duodenal wall about an inch from the pylorus.

Group IV.—*Probable duodenal ulcer in which operation failed to find the seat of trouble.*

Case XI.—Dr. C., about fifty years old, has been suffering from digestive disturbances and severe profuse hemorrhages from the stomach, which recurred every seven years. After the second hemorrhage by which the patient nearly lost his life he was operated upon by Dr. R. Park in the presence of Dr. C. G. Stockton. There was no ulcer in the stomach; the organ was opened but nothing could be discovered except a somewhat congested and hyperemic mucous membrane. The stomach and abdominal wound were closed by suture. In May, 1912, patient had a third hemorrhage from the stomach. He then went through a thorough ulcer cure. The trouble, however, remained: severe burning and pains two or three hours after meals, which were relieved by the ingestion of food. The patient also used to awake at one or two A. M. with hunger pains. Examination revealed hyperchlorhydria and slight continuous hypersecretion. The duodenal bucket showed a permeable pylorus and a blood stain at 61 to 62 ctm. pointing to an ulcer of the duodenum. I advised the patient to undergo an operation, but he refused. He then underwent a two-week period of duodenal feeding and was relieved of all his troubles.

The course of the disease in conjunction with the positive thread test make it almost certain that a duodenal ulcer exists which must have been overlooked at the operation.

Group V.—*Gastric ulcer with positive thread test confirmed by operation giving clinically the symptom complex of duodenal ulcer.*

Case XII.—W. H. v. G. This case is described in my paper: "A New Method of Recognizing Ulcers," Medical Record, April 3, 1909. Blood stain 53-54 ctm.

Case XIII.—W. L. B. This case is described in my paper: "Further Remarks on Duodenal Alimentation." *Interstate Medical Journal*, 1910, No. 10. Blood stain 45-51 ctm. This patient felt pretty well for two years, when he had a profuse gastric hemorrhage. He was operated on about two weeks later by Dr. R. T. Morris and the diagnosed gastric ulcer found at about the middle of the lesser curvature. The ulcerated area was infolded and a posterior gastroenterostomy established.

Case XIV.—June 10, 1913. J. R., 35 years old, was troubled for the last five years off and on by gastric pains for periods of five to six weeks' duration. The pains would appear four to five hours after meals and would be relieved by the ingestion of food. During night patient would frequently awake with hunger pain. No vomiting. During this last attack patient entered the German Hospital. The duodenal bucket at first did not pass the pylorus; the length of the thread was 23 inches

Fig. II.—Radiograph of stomach of J. R., immediately after the bismuth meal reveals a stomach of moderate size, hanging well to the left of the median line. Peristalsis not vigorous, rather wavy; short contractions are noticed, particularly in the prepyloric region.

and was bloody at the end; the bucket was likewise filled with coffee-brown material. A day later under the influence of atropin the bucket passed the pylorus; the end of the thread was bile stained, while there was a distinct blood stain between 20-21 inches. Gastric ulcer near the pylorus was diagnosed and patient treated with duodenal alimentation with temporary improvement. Quite soon after resuming a more liberal diet by mouth the pains returned. The patient was then operated on by Dr. Willy Meyer. A good-sized ulcer of the lesser curvature not far from the pylorus was found.

Fig. III.—Taken three hours after the bismuth meal shows hypertivity, the stomach having almost emptied itself in half the normal time. The wavy, irregular, short peristaltic contractions noticed in the prepyloric region with the hyperactivity indicated by the rapidity of the emptying power would suggest the possibility of some superficial ulceration in the prepyloric region.

Resection and gastroenterostomy were then done.

This group distinctly shows that contrary to Moynihan's contention a differentiation between gastric and duodenal ulcers cannot be made merely by the time the pains appear.

Group VI.—*Periodic recurrent pains in the upper abdomen with negative thread test confirmed by operation as to the absence of duodenal ulcer.*

Case XV.—Mrs. J., 56 years old, has been suffering from pain in the epigastrium, which occurred three or four hours after meals and was alleviated by the taking of food. Off and on patient had slight rises in temperature. Examination of the stomach contents showed the absence of HCl; acidity = 20; the duodenal bucket showed that the pylorus was permeable; there were no blood stains; contents of bucket reacted alkaline, showed the presence of amylopsin, absence of trypsin and only a trace of steapsin. The diagnosis of cholecystitis with an affection of the pancreas was made and duodenal ulcer excluded. Patient was operated on by Dr. Willy Meyer. No ulcer was found, but cholecystitis and chronic pancreatitis were present.

Case XVI.—April, 1913. A. E. D., 38 years old, complained for a year of severe pains occurring periodically in the epigastrium accompanied by vomiting and occasional slight rise of temperature. These attacks are so violent that morphine must frequently be given subcutaneously. Examination revealed slight dilatation of the stomach with normal secretion. The duodenal bucket showed permeability of the pylorus and no sign of duodenal ulcer. The diagnosis of gall-stones was made.

Operation by Dr. Willy Meyer on April 24, 1913, showed a gall-bladder filled with stones and the absence of duodenal ulceration.

Case XVII.—W. Z., 28 years old, suffered for the last four or five months with considerable gastralgia two or three hours after meals, relieved by eating. There was hunger pain at night. Frequently patient would be attacked by severe spells of vomiting. Obstinate constipation and loss of flesh were present, also a considerable degree of anemia. Examination of the stomach showed a moderate degree of hyperchlorhydria, no blood. The duodenal bucket showed a permeable pylorus

Fig. IV.—Radiograph of stomach of W. Z. The stomach is of the cowhorn variety, lying high up. The first portion of the duodenum is fairly well fixed. The pylorus is very patulous so that the bismuth meal is seen rapidly pouring out into the duodenum. Beginning at the pylorus and extending six inches beyond that point, the duodenum is markedly dilated and seems to have met with some obstruction, as portions of the bismuth meal are retained from six to eight hours, showing marked delay.

and no blood stains. The *x*-rays revealed an irregularly shaped stomach and some stenosis in the duodenum. Fig. 4.* During the period of observation a tumor appeared in the epigastrium. The diagnosis of pancreatic tumor was made. Dr. Willy Meyer operated upon this patient and found an inoperable extensive tumor of the pancreas with secondary metastases in the jejunum. There was no duodenal ulcer present.

*For the four excellent *x*-ray pictures I am indebted to Dr. Wm. H. Stewart, Radiologist of the German Hospital.

In two cases of this group clinically the picture complex of Moynihan for duodenal ulcer existed. The thread test as well as other phenomena indicated another affection, which assumption subsequent operation found to be correct.

I may be permitted to insert here a table showing the results of the thread test and of the operation in the above-cited cases.

TABLE SHOWING THE RESULT OF THE THREAD TEST IN THE OPERATED CASES CITED ABOVE.

Case No.	Name	Diagnosis	Bloodstain Distance From Lips	Result of Operation	Did Thread Test Correspond With Result of Operation?
			Cm.		
1	J.F.H.	Duod. Ulcer	61–62	Duod. Ulcer	Yes
2	L.	"	59	"	"
3	Y.	"	60	"	"
4	Mrs. E.	"	58	"	"
5	A.M.	"	59	"	"
6	Miss Jeanne C.	"	57	"	"
7	J.F.	"	59–60	"	"
8	F.	"	59–60	Appendicitis	No
9	M.	"	58-59	Gastric Ulcer near Pylorus	"
10	H. G.	Cholecystitis	None	Duodenal Ulcer, Adhesions of Gallbladder, Stomach and Colon	"
11	Dr. C.	Duod. Ulcer	61–62	Nothing found	"
12	W. H. von G.	Gastric Ulcer	53–54	Gastric Ulcer	Yes
13	W.L.B.	"	45–51	Gastric Ulcer on Small Curvature	"
14	J.R.	"	50–52	Gastric Ulcer on Small Curvature	"
15	Mrs. J.	Cholecystitis & Pancreatitis	None	Cholecystitis and Pancreatitis	"
16	A.E.D.	Cholelithiasis	None	Cholelithiasis	"
17	W.Z.	Tumor of Pancreas	None	Tumor of Pancreas	"

If we consider the above cases the following facts are quite evident: The subjective symptoms alone are not sufficient for the diagnosis of duodenal ulcer. The thread test is an important aid in the diagnosis of gastric and duodenal ulcers, although this alone is not a positive proof of either the existence or the absence of a duodenal ulcer.

It is, therefore, best to base our conclusions not on one sign alone, but rather on the entire ensemble of evidence on hand.

Treatment.—The treatment of duodenal ulcer is still a mooted question. The surgeons generally advocate operative intervention, while most clinicians advise medical treatment.

At a symposium on duodenal ulcer, held at the recent meeting of the New York State Medical Society at Rochester, N. Y., the consensus of opinion (J. B. Murphy, Stockton, and others) was that the principal point of importance with regard to the cure of duodenal ulcer was rest for the affected area. This was the aim of medical as well as surgical treatment.

Most of my cases of duodenal ulcer were treated medically. In some, however, in which definite indications for surgery existed, an operation was advocated. The rules I follow with regard to treatment are the following: In very mild cases a light diet, rest abed for a week or two, and subnitrate of bismuth, with or without the addition of calcined magnesia, are prescribed. In this type of cases the rest abed, if conditions require it, may be omitted and a more liberal diet then arranged.

In cases of a slightly severer type, frequent late gastralgia, hunger pain, the occasional appearance of occult blood in the stools, the rest treatment abed is obligatory.

In cases with severe symptoms, violent pains, vomiting, hematemesis or melaena, absolute rest for the stomach and duodenum is required. Here rectal alimentation can be applied, especially if we have to deal with well-nourished individuals. If, however, the rectal enemas are not well tolerated, or if we have to deal with patients poorly nourished, duodenal alimentation should be instituted. For this mode of feeding affords both perfect rest and full nutrition. I have applied it for a period of two weeks in most of my cases of duodenal ulcer with good results. It is self-understood that the milder types of duodenal ulcer may be subjected to this more rigorous mode of treatment with much benefit, either in case of failure of the more lax measures, or if the patient so desires. A course of treatment by duodenal alimentation may also be prolonged over a longer period of time or repeated after a while as the case may require.

The indications for surgical intervention in duodenal ulcer may be put as follows:

1. Perforation requires immediate operation.

2. Recurrent profuse hemorrhages (hematemesis or melaena or both) endangering the life of the patient require a prophylactic interval-operation.

3. Frequent small hemorrhages, not being influenced by rational treatment, leading to an appreciable degree of constant anemia, demand operative intervention.

4. Cases with constant continuous hypersecretion, accompanied by intercurrent ischochymia, not yielding to treatment, should likewise be operated.

5. Severe pains, not influenced to a considerable extent by a repeated course of rational medical treatment, form a strong indication for operative measures.

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NOTES ON THE PATHOLOGY OF SIMPLE AND EXOPHTHALMIC GOITER.*

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I have recently reviewed the pathology of the thyroid glands removed from 1,208 patients in the Mayo Clinic presenting symptoms which would ordinarily be diagnosed as exophthalmic goiter and, for purposes of control, 585 thyroids removed during 1912 from patients whose condition would ordinarily be diagnosed as simple goiter. Some of the conclusions of more general interest to the clinical diagnostician and surgeon have been presented elsewhere.[1] I wish to present here, however, certain data of interest more directly to the pathologist.

Much of the trouble in interpreting the pathology of the thyroid gland has come from the associated difficulty of the clinician in definitely grouping the clinical symptoms. Recently, however, Plummer[2] has sharply differentiated the toxic symptoms of goiter into two clinical groups: First, toxic exophthalmic, and, second, toxic non-exophthalmic. Plummer points out that, aside from, sooner or later, exhibiting the symptom of exophthalmos, the cases of the first group are acute and, in many respects, resemble the symptoms of acute alcoholism, while those of the second group are chronic and, in many respects, parallel the train of symptoms associated with arteriosclerosis from chronic alcoholism. In

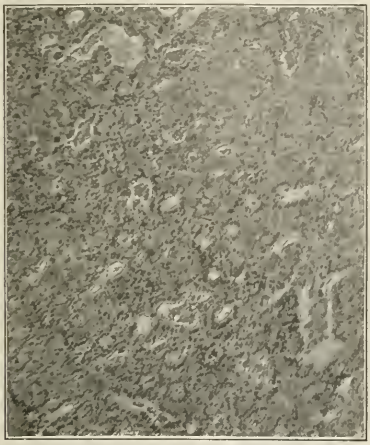

Fig. 1.—Photomicrograph of section of thyroid x120 diam. Type A. Early primary parenchymatous hypertrophy and hyperplasia. From case of clinical early exophthalmic goiter.

this latter group are many cases so mildly or so aberrantly toxic that clinicians in the past have frequently listed them as simple goiters. Plummer suggests that this latter term should be abandoned by the clinician and in its place should be substituted the term non-toxic.

Technique.—While, by the study of freshly removed thyroids grossly it is possible to determine the general contour of the gland, the presence or absence of encapsulated adenomata, the relative

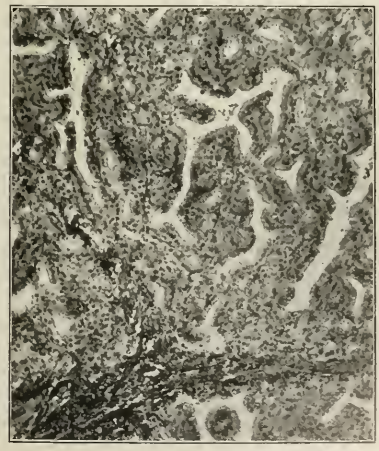

Fig. 2.—Photomicrograph of section of thyroid x120 diam. Type B. Advanced primary parenchymatous hypertrophy and hyperplasia. From case of clinical severe exophthalmic goiter.

amount of gross degenerations and the consistency of the fresh colloid, and while it is also possible to differentiate marked primary hyperplasias, adenomata, etc., in properly stained frozen sections of perfectly fresh tissues, yet any careful estimate of the

*Read by title before the American Association of Pathologists and Bacteriologists, Washington, D. C., May 7, 1913.

amount of hypertrophy, hyperplasia, atrophy or regeneration of the parenchymal cells, of the size of the acini, of the amount of the contained colloid and its density as indicated by its staining reaction, as well as the variation in most of the finer details of the cells themselves, must all come from the study of good sections of fixed tissues. Zenker's fluid, ten per cent. formalin, and Bensley's chromosmic mixture are the best and most convenient fixatives for routine work.

While there is some shrinkage of the less dense colloid in even the most carefully prepared paraffin sections, yet this is less confusing than the error due to the use of celloidin as an embedding medium, since the stainability and refractive index of the latter are frequently so near that of the colloid that the two are indistinguishable.

The most desirable stain we have tried for routine examinations is Weigert's hematoxylin, followed by Van Gieson's picric acid and acid fuchsin.

Since each thyroid gland consists of an enormous number of acini, each of which is capable of taking on changes quite distinct from those found within the acini adjoining it, it is only by the selection of representative blocks from a large number of areas, by the study of a number of sections from each block, by the tabulation of the detailed results of such study, and, finally, by the summary of this tabulation that one may hope to arrive at any fairly accurate estimate of the total hyper- or hypo-function of the gland which will enable him to state the clinical condition of the patient from whom the gland was removed. In my studies I have used a scheme of tabulation indicated by the column headings in Table I:

discussion. On the tabulation sheets the patients have been arranged in the same order as that maintained on the sheets on which were tabulated the clinical data concerning the same patients. This has made it a relatively simple matter to finally co-

Fig. 3.—Photomicrograph of section of thyroid x120 diam. Type C. Regressing primary parenchymatous hypertrophy and hyperplasia. From case of clinical exophthalmic goiter, late stage.

ordinate the clinical and pathological data, a process which, with any large number of patients, becomes almost impossible without some prearranged plan.

TABLE I

EXOPHTHALMIC GOITER, PAGE 60A, YEAR 1912

MACROSCOPIC. Indicate amount of gland involved by common fraction. Describe all encapsulated tumors in RED in the upper part of the case space and all other tissues in black in the lower part.

	IDENTIFICATION DATA							OPERATIONS			
	OFFICE NO.	HOSPITAL NO.	NAME	ADDRESS	SEX	AGE	WEIGHT Kilos / HEIGHT Centimeters	FIRST Date and Character	SECOND Date and Character	THIRD Date and Character	AMOUNT of Each Lobe Removed R-Rt. L-Lt. I-Isth.
1											
2											

EXOPHTHALMIC GOITER, PAGE 60B, YEAR 1912

MICROSCOPIC. Indicate amount of gland involved by common fraction. Describe all encapsulated tumors in RED in the upper part of the case space, and all other tissues in black in the lower part.

	VESSELS		STROMA		ACINI		PARENCHYMA CELLS							
	SIZE of Smaller Blood Vessels 1. Diminished. 2. Normal 3. Increased. 4. Dilated	SIZE of Smaller LYMPHATICS 1. Diminished. 2. Normal 3. Increased. 4. Dilated	AMOUNT in Walls of Acini 1. Reduced. 2. Normal 3. Increased 4. Great Increase	INFLAMMATORY Changes 0, 1, 2, 3, 4	DEGENERATION H Hyaline Ct Cartilage M Myxomtous Cl Calcareous 0, 1, 2, 3, 4	SIZE of Cavity 0 None. 1. Small 2. Medium. 3. Large 4. Very Large	SHAPE T-Tubular Lumenless S-Spherical Lumenless V-Spherical Lumen N-Normal Irregular P-Papillae 1, 2, 3, 4	MICROCYSTS (Distended Single or Joined Acini) Size 0, 1, 2, 3, 4	SIZE 0.-Embryonic 1. Atrophy 2. Normal 3. Hypertrophy 4. Very Marked Hypertrophy	NUMBER 1.-Reduced 2. Normal 3. Hyperplasia 4 Marked Hyperplasia	SHAPE S-Spherical (Embryonic) Cb-Cuboid (Normal) Cl-Columnar (Hyperphy) P-Flattened (Pressure) 1, 2, 3, 4	CYTOPLASM Cl Clear G-Granular V-Vacuolated Cd-Colloid 1, 2, 3, 4	NUCLEUS, SIZE OF 1. Shrunken 2. Normal 3. Swollen. 4 Fragmented	NUCLEUS STAINING Reaction 1.-Feeble 2. Normal 3.-Intense. 4.-Irregular	MITOSIS 0, 1, 2, 3, 4	CYTOLYSIS 0, 1, 2, 3, 4
1																
2																

The character of the data and the method of recording it are here indicated and need no further

In the interpretation of the pathologic data, I have followed the hypothesis that the symptoms of

true exophthalmic goiter, if not due to, are at least constantly associated with, an overproduction of an absorbable secretion within the thyroid gland. The presence of such a hypothetic secretion within the blood of the patient suffering from symptoms of

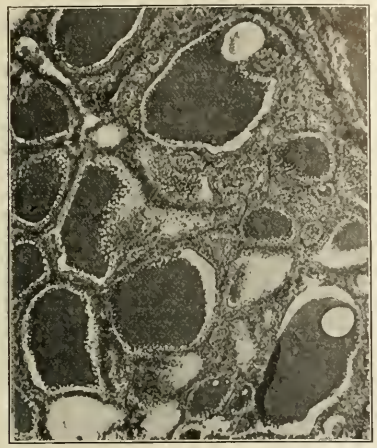

Fig. 4.—Photomicrograph of section of thyroid x120 diam. Type D. Secondary regeneration of atrophic parenchyma. From case of clinical toxic non-exophthalmic goiter.

exophthalmic goiter has not yet been positively proved, though the work of Blackford and Sanford[3] on the depressor action of extracts of fresh thyroid and of the serum from exophthalmic goiter patients goes far to establish the hypothesis of the existence of such a substance within the blood of toxic exophthalmic goiter caes.

Classification of Histological Conditions of the Thyroid.—The following classification of the histologic conditions met with in the thyroid has been followed in these studies:

I.—Embryonic (undeveloped) thyroid.
II.—Normal (resting) thyroid.
III.—Vascular changes.
  1. Hyperemia.
  2. Hemorrhage (including resulting cyst formation).
IV.—Inflammations.
V.—Progressive changes.
  1. Hypertrophy (functional, with hyperemia).
  2. Hyperplasia ("exophthalmic" goiter).
  3. Adenomatosis (multiplication of acini without encapsulation).
  4. Regeneration (of previously atrophic parenchyma).
VI.—Retrogressive changes.
  1. Retention of secretion (colloid goiter).
  2. Atrophy (of parenchyma).
  3. Degenerations.
    a. Colloid (of parenchyma and stroma).
    b. Hyaline.
    c. Amyloid.
    d. Calcareous.
    e. Cystic.
VII.—Tumors.
  1. Benign.
    a. Fetal adenomata (encapsulated).
    b. Adult adenomata (encapsulated).
  2. Malignant.
    a. Mesotheliomata.
    b. Carcinomata.
    c. Sarcomata.

DIAGNOSIS	WEIGHTS IN GRAMS				GENERAL CHARACTERISTICS						
IMMEDIATE With Corrections in Red	TOTAL of all Tissue removed	ENCAPSULATED TUMORS	Removed GLAND TISSUE Outside of Encapsulated Tumors	ENTIRE GLAND Estimated Weight Outside Encapsulated Tumors	CONSISTENCY 1.-Very Soft 2.-Soft 3.-Firm 4.-Hard	ROUGHNESS of Outer Surface 0.-Smooth 1. 2. 3. 4	CAPSULE 0.-V Thin 1.-Thin 2.-Medium 3.-Thick 4.-V. Thick	HEMORRHAGE 0. 1. 2. 3. 4.	DEGENERATION H-Hyaline Zt-Cartlg Mx-Myxom Cl-Calcareous 0, 1, 2, 3, 4	CYST, Size of 0.-None 1.-Small 2.-Medium 3.-Large 4.-V. Large	BLOOD VESSELS Size of Larger 1. 2. 3. 4.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	 1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	 2

SECRETION			DIAGNOSIS Final Path		CHEMISTRY			SUMMARY				DIAGNOSIS of Clinical Condition			PROGNOSIS	OFFICE NO.	
AMOUNT 0, 1, 2, 3, 4	DENSITY of Staining Reaction 0.-No Stain. 1.-Feeble 2.-Moderate. 3.-Marked 4.-Intense	GRANULAR CONTENTS A-Amorphosis C-Crystaline E-Epithelium 0, 1, 2, 3, 4	HISTOLOGY	CLASS	AMOUNT OF IODINE per Gram of Dry Gland	ACETONITRIL Reaction of GLAND TISSUE	ACETONITRIL Reaction IN BLOOD	INDEX of Total Parenchyma per Kilo Body-weight	INDEX OF TOTAL FUNCTION	INDEX OF EXCRETION	INDEX OF TOTAL CIRCULATING SECRETION	STAGE OF TOXIC SYMPTOMS 0, 1, 2, 3, 4	SEVERITY OF TOXIC SYMPTOMS 1, 2, 3, 4	SEVERITY OF SECONDARY CHANGES 0, 1, 2, 3, 4	RT-Relief of Toxic Symptoms. 0, 1, 2, 3, 4 WT-Relief of Secondary Symptoms. 0, 1, 2, 3, 4		
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2

So far as the pathology of the two toxic types of goiter and the non-toxic is concerned, the chief

lesions of the thyroid to which attention must be given are hypertrophy, hyperplasia, regeneration and atrophy of the parenchyma, retention of secretion and the formation of adenomata.

Hypertrophy and Hyperplasia (see Figs. 1, 2,

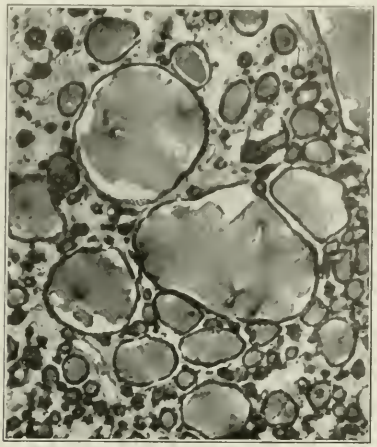

Fig. 5.—Photomicrograph of section of thyroid x120 diam. Type E. Fetal adenoma with some acini distended with colloid. From case of clinical toxic non-exophthalmic goiter.

and 3.)—Hypertrophy of the parenchyma as indicated by the presence of large-celled columnar epithelium, with nuclei approaching the free extremities of the cells, was present in the parenchyma of the glands from all of the 945 cases of true exophthalmic goiter examined. On the other hand, it was found in the glands from but four of the 485 cases of so-called "simple goiter" operated on durin the year 1912. Similarly, hyperplasia was found in the glands from every one of the 945 cases of true exophthalmic goiter, being present in 926 cases, ninety-eight per cent. On the other hand, it was present in less than one per cent. of the specimens examined from the 585 cases of so-called "simple goiter" operated on during 1912.

Hypertrophy and hyperplasia are marked by a progressive increase in the size of the acini. Thus, of the thirty-two glands which are marked as A (early parenchymatous hypertrophy and hyperplasia), the average size of the acini is indicated as 2 (medium), of the 412 glands grouped as B (active advanced primary parenchymatous hypertrophy and hyperplasia), the average size of the acini is 2½ (medium to large), while in the 409 thyroids grouped as C (regressing primary parenchymatous hypertrophy and hyperplasia), the average size of the acini is 3 (large).

The shape of the acini also varies directly as to the amount of hypertrophy and hyperplasia. Thus, of the 945 cases examined, the irregularity is noted as 2 (moderate), or greater, in 933 cases, ninety-nine per cent., while projection of papillæ within the acini is noted as 2 (moderate), or greater, in 852 cases, ninety per cent.

In hypertrophic thyroids the cytoplasm becomes more granular as the cells become more columnar. A careful study of this characteristic of the cells was made of the specimens obtained during 1911 and 1912 from exophthalmic goiter cases. Of the 363 glands studied, 291 (ninety per cent.) showed very marked granularity of the cytoplasm.

The nucleus is nearly always swollen in the columnar epithelium. Thus, of the 364 cases studied consecutively with this point in view during 1911 and 1912, 361 (ninety-nine per cent.) showed that wherever the epithelium approached the columnar type, the nuclei were perceptibly swollen. The staining reaction of the nucleus is almost invariably intensified in hyperplastic parenchymal cells.

The amount of the secretion within the acini varies with the stage of the disease in true exophthalmic goiter. Thus seventy-five per cent. of the cases of group A (early primary parenchymatous hypertrophy and hyperplasia) are marked 0, 1 or 2 (absent, small or moderate), ninety-six per cent. of the cases marked B (advanced active parenchymatous hypertrophy and hyperplasia) have the amount of secretion indicated as 1, 2 or 3 (small, moderate or large), while ninety-five per cent. of the cases marked C (regressing parenchymatous hypertrophy and hyperplasia) have the amount of secretion within the acini indicated as 2, 3 or 4, that is, as moderate, large or very large.

Similarly, the density of the secretion varies with the stage of the disease. Thus, of the cases of group A (early parenchymatous hypertrophy and hyperplasia), seventy-five per cent. gave a staining reaction of the secretion in fixed tissue which is indicated as 0, 1, 2 (absent, slight or moderate), while of the specimens in group B (advanced parenchymatous hypertrophy and hyperplasia) ninety-eight per cent. are similarly marked, but of the cases in group C (regressing parenchymatous hypertrophy and hyperplasia) seventy-five per cent. are marked as 2, 3 or 4 (moderate, marked or very marked) degrees of density.

The hypertrophy of the parenchymal cells is indicated grossly in the gland by a total increase of tissue from two to ten times the normal weight. The average weight of the portion of thyroid removed from our cases of group A (early primary

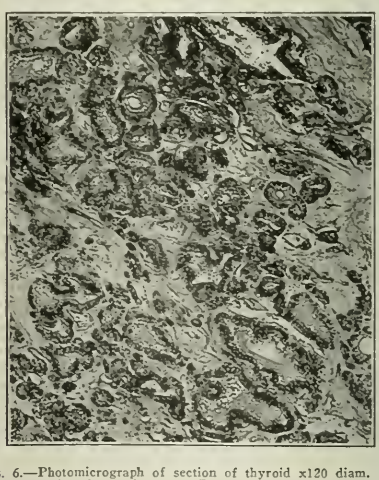

Fig. 6.—Photomicrograph of section of thyroid x120 diam. Type F. Degenerating fetal adenoma. From case of clinical toxic non-exophthalmic goiter.

parenchymatous hypertrophy and hyperplasia) was 38 grams, the average weight of the portion of gland removed from the cases of group B (active advanced parenchymatous hypertrophy and hyperplasia) was 61 grams, and the average weight of

the portion of glands removed of group C (regressing primary parenchymatous hypertrophy and hyperplasia) was 51 grams, while the average for the entire series of glands of the three types (groups A, B, and C) of primary parenchymatous hypertrophy and hyperplasia was 55 grams.

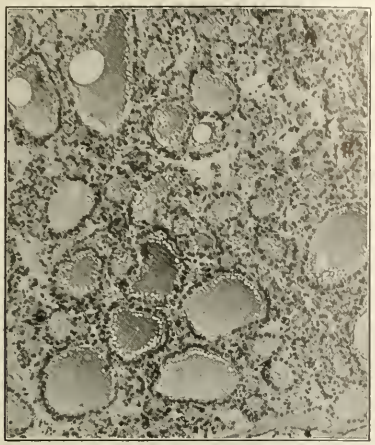

Fig. 7.—Photomicrograph of section of thyroid x120 diam. Type G. Adult "colloid" adenoma. Note dense colloid in small acini. From case of clinical toxic non-exophthalmic goiter.

While the increase in size of the gland in all cases operated on of primary parenchymatous hypertrophy and hyperplasia is marked, the total weight of the gland is not as great as of those removed from cases of non-toxic or toxic non-exophthalmic goiters. For example, the average weight of the portion of gland removed from the patients with severe toxic non-exophthalmic goiter (but on "exophthalmic goiter" list) was 77 grams, while the average weight of the portion of gland removed from the non-toxic and aberrantly toxic cases ("simple goiter" list) of 1912 was 159 grams.

Regeneration of Parenchyma (see Fig. 4).—There is abundant evidence to show that thyroid parenchyma which has been atrophic may later regenerate. When such a regeneration occurs in previously markedly atrophic epithelium, it is usually only along one side of an acinus. In this situation there is a marked increase in the number of cells which, however, as a rule, do not show any considerable increase in size (hypertrophy), but tend to remain embryonic or cuboidal in shape. There is also a much greater tendency to form small embryonic acini than exists in the primary hyperplasia which has occurred on normal epithelium. These acini, while still small, are filled with colloid secretion, usually quite dense in character. It is probable that a reduced vascularity of the acinar walls is responsible not only for the relatively small size of the parenchymal cells, but also for the failure of absorption of the secretion and its consequent retention within the acini. It is sometimes, though not frequently, impossible to distinguish advanced regeneration from advanced regression in a primary parenchymatous hypertrophy and hyperplasia. As a rule, however, the general condition of the gland and the absence of columnar cells and of remains of papillæ will serve to differentiate the two.

Regenerations are characteristic of clinical cases presenting a history of long-standing enlargement of the thyroid with subsequent slowly developing toxic symptoms. Eleven per cent. of our cases which were sufficiently toxic to warrant placing them on the "exophthalmic goiter" list as previously explained were pathologically of this type.

Adenomata and Adenomatoses (See Figs. 5, 6, and 7).—Definitely encapsulated tumors within the body of the thyroid are frequently met with They occurred in ten per cent. of the thyroids from our cases on the "exophthalmic goiter" list and in forty-four per cent. of our cases on the "simple goiter" list. While the significance of these tumors is still undetermined, for the present we should sharply differentiate them pathologically from the so-called adenomatoses. The connective tissue of the thyroid is not evenly distributed normally. Any local increase of the stroma tends to segregate groups of acini, and these may at the same time multiply. But I believe, however, we should not apply the term adenoma to these conditions unless there is a distinct encapsulation of the mass.

Colloid Thyroid (see Fig. 8).—The thyroid gland in which the parenchyma consists of atrophic epithelium and in whose acini there is a large amount of thick colloid secretion is ordinarily spoken of as a "colloid thyroid," providing it does not present the appearance of an encapsulated tumor. Less than one per cent. of our cases on the "exophthalmic goiter" list were of this type, while forty-four per cent. of our cases on the "simple goiter" list are so classified pathologically.

The table on page 378 gives the grouping of the cases studied for purposes of this report.

In the interpretation of the data contained in this table, the following points are of interest:

1. During the years 1911 and 1912 all patients diagnosed clinically as true exophthalmic goiter on whom thyroidectomy was done were found to have glands which histologically were classed as A, B, or C (see Figs. 1, 2, and 3), that is, as containing some degree of development of primary parenchymatous hypertrophy and hyperplasia. At the same time, during the year 1912, but four cases, less than one per cent. of those on the "simple goiter" list, showed hypertrophy and hyperplasia, and three of these were children.

Fig. 8.—Photomicrograph of section of thyroid x 120 diam. Type H. "Colloid thyroid." From case of clinical non-toxic goiter.

2. So far as can now be determined by a review

TABLE II.—PATHOLOGICAL CLASSIFICATION OF THYROIDS FROM PATIENTS ON "EXOPHTHALMIC GOITER" LIST FROM JANUARY 1 1905, TO JANUARY 1, 1913, AND OF THYROIDS FROM PATIENTS ON "SIMPLE GOITER" LIST FOR 1912

Group		"EXOPHTHALMIC GOITER" LIST, YEARS									"SIMPLE GOITER" LIST	
		1905	1906	1907	1908	1909	1910	1911	1912	Totals	1912	List in
A	Early primary parenchymatous hypertrophy and hyperplasia		1	4	2	1	3	15	6	32 3%	.....	A
B	Advanced primary parenchymatous hypertrophy and hyperplasia	4	26	35	41	44	68	108	89	415 34%	1	B
C	Regressing primary parenchymatous hypertrophy and hyperplasia	7	21	44	55	46	78	107	140	498 41%	3	C
	Total hypertrophy and hyperplasia (A+B+C)	11 69%	48 83%	83 68%	98 69%	91 71%	149 77%	230 81%	235 89%	945 79%	4	
D	Secondary regeneration of atrophic parenchyma of "colloid" goiter	1 6%	3 5%	24 20%	24 17%	17 13%	30 15%	20 7%	14 5%	133 11%	50 9%	D
E	Foetal adenomas	1	3	7	17	8	2	12	2	52 4%	35	E
F	Degenerating foetal adenomas	3	3	5	3	5	12	21	10	62 5%	101	F
G	Adult ("colloid") adenomas	...	1	1	.....	6	1	.....	3	12 1%	128	G
	Total adenomas (E+F+G)	4 25%	7 15%	13 11%	20 14%	19 15%	15 7%	33 12%	15 6%	126 10%	264 44%	
H	Atrophic parenchyma ("colloid") thyroids, "adenomatoses," etc	...	....	1	.....	1	2	.....	.....	4	259 44%	H
	Malignant tumors	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 1½%	
	Total number of thyroids	16	58	121	142	128	196	283	264	1208	585	

of the clinical data, none of the 133 patients with toxic symptoms but with glands showing only secondary regeneration of trophic parenchyma (see Fig. 4) and none of the 126 patients with toxic symptoms showing some type of adenoma (see Figs. 5, 6, and 7) would now be classed as true exophthalmic goiter by the clinicians in the Mayo Clinic, though they were markedly toxic.

3. Of the patients on the "simple goiter" list for 1912 ninety-seven per cent. had glands which showed only regeneration, adenomata or "colloid thyroid." Seventeen per cent. of this group were aberrantly toxic, but non-exophthalmic.

Estimation of the Stage and Severity of Toxic Clinical Symptoms.—In estimating from the pathologic data alone the stage of the toxic clinical symptoms, the age of the patient, weight of the portion of gland removed, character of the blood vessels, amount of stroma, size and shape of the acini, amount of hypertrophy and hyperplasia of the parenchyma cells, and the amount and density of the secretion contained within the acini were all considered. Estimates made from the above data have in our series agreed with the clinical description of the stage of the disease in about eighty per cent. of all the cases examined. The same data were also considered in estimating the severity of the toxic symptoms in the cases of true exophthalmic goiter. Such an estimate made on 542 of the cases in our series agreed with the clinical diagnosis in seventy-five per cent. of the cases.

SUMMARY.

1. A detailed pathologic study of fixed tissue preparations of the thyroids removed from adults and the finding thereby of marked primary parenchymatous hypertrophy and hyperplasia permits the pathologist to diagnose exophthalmic goiter with above ninety-five per cent. of accuracy. At the same time, a consideration of the data above mentioned will permit him to estimate the stage of the disease in about eighty per cent. of the cases and the severity of the disease in about seventy-five per cent. of the cases.

2. A similar study of thyroids from adult patients and the finding thereby of no marked hypertrophy, hyperplasia, or regeneration of parenchyma will permit the pathologist to diagnose non-toxic goiter with about seventy-five per cent. of accuracy.

3. The most difficult cases to diagnose pathologically are those of the clinical toxic non-exophthalmic type. While these are not hyperplastic, they may fall into any of the other above-mentioned groups. Our knowledge of these cases is still too incomplete to permit us to draw conclusions concerning the details of their pathology.

4. On the whole, it would appear that the pathologist has quite as much data for the estimation of the clinical symptoms of exophthalmic goiter from the pathologic data to be obtained from a study of the thyroid as he has to estimate the clinical symptoms of Bright's disease from the pathologic data to be obtained from the study of the kidney.

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RESULTS OF INTRAVENOUS INJECTIONS OF EXTRACTS OF GOITER ON BLOOD PRESSURE IN THE DOG.*

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AND

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During a rather extensive and still uncompleted study of the effects of intravenous injections of extracts of normal and pathologic organs the au-

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thors have made use of many typical exophthalmic and simple goiters. The action of these extracts of goiters has been of interest on account of certain additions to the previous results obtained by Schönborn[1] and Gley[2] who have performed similar experiments.

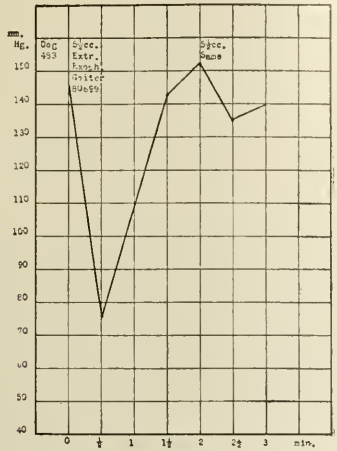

Fig. I.—Dog 483. Drop due to injection of extract of exophthalmic goiter (hyperplastic thyroid). Dose ½ gm. per kg. Second dose the same. No. drop.

Schönborn reports that he was unable to determine any essential difference between the action of intravenous injections of extracts of exophthalmic and simple goiter except that extracts of exophthalmic goiter caused in general a more marked fall in blood pressure. Gley repeated Schönborn's work with the same results. Their material was limited, each having but six exophthalmic goiters. Neither author did more than record changes in pulse and blood pressure, and no records were published showing the mechanism of the fall in blood pressure.

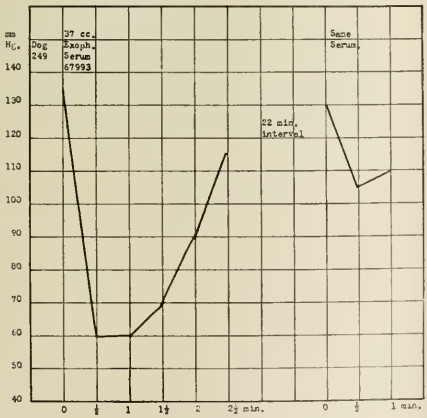

Fig. II.—Dog 249. Typical drop in blood pressure due to injection of serum from a patient suffering from the acute intoxication of exophthalmic goiter.

Neither was any record made of the gross or microscopic findings in the glands used.

Much confusion exists regarding the typical gland in exophthalmic goiter. We have used only fresh glands having a parenchymatous hypertrophy and hyperplasia of cuboidal to columnar epithelium and with little or no stainable colloid material (low iodine content). When adenomas occurred in such glands they were dissected out and extracted separately. All goiters, immediately after removal, were macerated with sand for 1 to 3 hours in equal weight of normal salt solution. All extracts considered as fresh were injected within 5 hours of removal and many in less time. Forty-six exophthalmic goiters and nearly as many simple goiters have been thus extracted and injected.

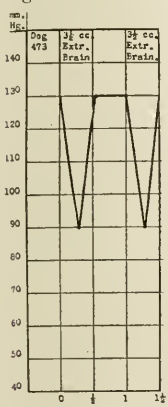

Fig. III.—Dog 473 Drop in blood pressure due to injections of extract of brain. Dose ½ gm. per kg. There is no tolerance produced to the second injection typical of cholin.

The action of extracts of exophthalmic goiters shows itself as follows in dosage equivalent to ½ gm. goiter per kg. dog weight: from ¼ to ½ minute following the primary injection there is a sudden fall in blood pressure with slowing of the pulse and with diminished amplitude. The extent of the drop averages about 60 mm., a greater drop than that caused by any other extract of organs. The recovery is rapid as a rule (2 to 3 minutes), though in some instances much slower (15 minutes). A subsequent injection of the same material into the same dog in the same experiment gives little or no effect, provided the extract be fresh. We have made the second injection at intervals varying from 2 to 44 minutes after the first injection.

The fall in blood pressure is accompanied by a marked dilatation of the splanchnic vessels, preceded by a somewhat diminished cardiac output. Respiration is quickened during the vascular change. Atropin blockage of the vagus does not alter the kymographic picture.

In three instances we secured exophthalmic goiters which contained sufficiently large adenomas to permit of separate extraction. With the extracts of the adenomatous portions we obtained tracings similar to those recorded on injections of extracts of simple goiters. The hyperplastic portions yielded extracts containing a much larger amount of depressor substance.

We have classified as simple goiters those glands removed on account of tumors in the gland (adenomas) and those showing old cystic changes in colloid goiters, sometimes considered as an "adenomatosis." Such extracts in dosage equivalent to ½ gm. tissue per kg. dog weight gives little effect and in some instances no demonstrable effect whatever in blood pressure. By giving a much larger dose, up to 5 gm. per kg. dog weight, a more considerable drop in blood pressure occurs, but we have been unable to obtain any such marked effect even with this high dosage as on injections of doses of ½ gm. per kg. dog weight of exophthalmic extracts. We have not observed the "aktionspulse" of Cyon, described by Schönborn and Gley.

The supposition that the depressor action of the extracts of exophthalmic goiters is a matter of dosage and common to all tissues does not seem to us justifiable. The injection of normal thyroid tissue in much larger dosage gives only a moderate cardiovascular depression, not more than can be obtained by the injection of extracts of most cellular organs in large doses. No extracts of other organs exam-

ined give as marked or prolonged a depressor action as the extract of exophthalmic goiters.

These fresh extracts of hyperplastic thyroids are not dependent on cholin for their effect, since atropinization does not alter their action on the blood pressure. Also heating the extracts to 70° C.

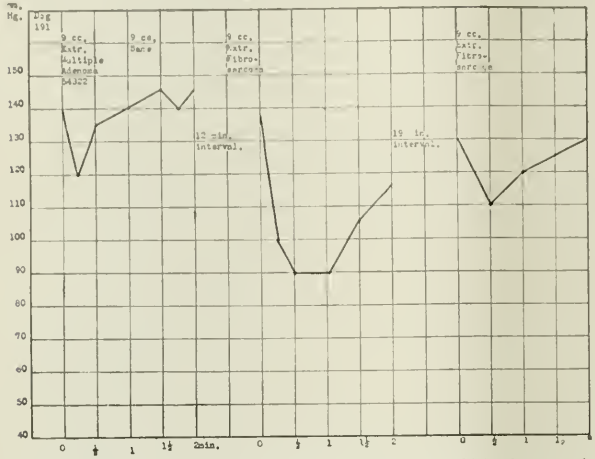

Fig. IV.—Dog 191. First and second injections of extract of multiple adenomata of thyroid, dose ½ gm. per kg.; 20 mm. drop and tolerance. This was followed by the same size dose of extract of fibrosarcoma; 48 mm. drop, and tolerance to second injection.

in attempts at keeping them have destroyed their depressor action. This would not have occurred had the depressor action been due to cholin.

If the extracts are not fresh (*i.e.* from 8 to 12 hours) the action is different. Atropin lessens or abolishes the depressor action. Also no tolerance to secondary injections is established by the initial dose. Not infrequently a rise instead of a fall in pressure comes with each injection.

In conjunction with our experiments on extracts of glands, we have injected the sera of patients suffering from exophthalmic goiter at various stages of their intoxication, and as controls have used

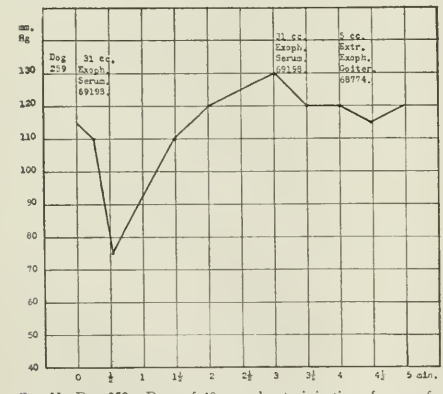

Fig. V—Dog 259. Drop of 40 mm. due to injection of serum from patient having exophthalmic goiter. Tolerance to second injection of the same serum and also to a fresh extract of hyperplastic thyroid.

normal serum and serum from patients having simple goiters. Further details on this phase of our work will be reported elsewhere. Suffice to say that there is a powerful depressor substance demonstrable in the blood of a patient affected with exophthalmic goiter at the height of the intoxication. Moreover, from the crossed tolerance between extracts of hyperplastic thyroids and sera of patients having exophthalmic goiter it would seem that the cardiovascular effect is due to the same depressor substance in each.

The tolerance of a first injection of peptone to subsequent injections of the same depressor does not protect the dog against the action of the extracts of exophthalmic goiters or patient's sera.

In conclusion we may say that

1. A powerful depressor substance exists in exophthalmic goiters.
2. A primary injection establishes tolerance to the action of further injection.
3. Atropin does not inhibit its action.
4. The substance does not behave physiologically like cholin.
5. The action is chiefly through peripheral dilatation aided by some diminution in cardiac output.
6. Irritability of the vagus is not decreased.
7. The existence of a crossed tolerance between the depressor action of extracts of exophthalmic goiters and of serum from patients, with exophthalmic goiter suggests that the two substances are the same.

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VARIATIONS OF THE UREA CONTENT OF THE BLOOD, WITH A PRACTICAL METHOD FOR ITS DETERMINATION.

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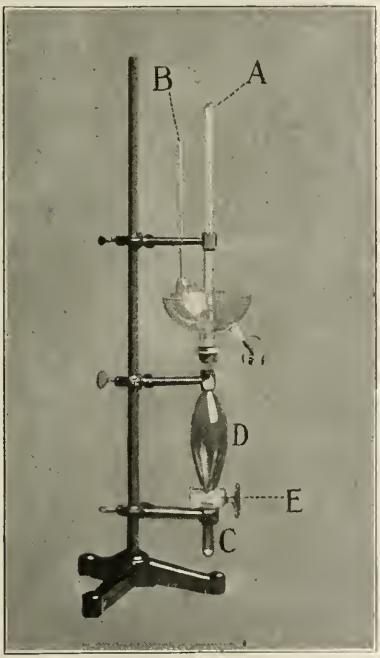
Recent work on the pathology of renal disease, especially that done in France, emphasizes the perfectly obvious fact that the final index of renal function should really be sought for in the blood rather than in the urine. If depuration of the blood in so far as it depends upon the kidneys is complete, the physicochemical constitution of the urine in its bearing upon the functional capacity of the kidneys becomes of minor importance. It may, of course, indicate a serious renal pathology and be prognostic of future trouble, but means little for the present. Unfortunately we are confronted by difficulties so great as to make the full realization of this ideal impossible for the present, and even doubtful for the future. The abstraction of blood for the purpose of analysis is, of course, a somewhat unpleasant procedure, but this should have but little weight if an important clinical question could thus be settled. The real difficulty lies in our very nearly complete ignorance of the nature and identity of the toxins responsible for the syndrome of Bright's disease. Until this information is at hand the question can be attacked only indirectly. One of the most difficult problems has heretofore been to find a clinically applicable method for the deter-

mination of urinary antecedents in the blood. The importance of this determination, while perhaps not as widely appreciated as it should be, could not be doubted. The investigations of Widal and other French clinicians have given us some well-grounded data on which to base our clinical studies. The high normal limit, for instance, of urea in the blood has been placed at about .05 per cent.; mild urea retention from .05 to .1 per cent.; moderately severe grades at .1 to say .3 per cent., while the graver types, found only in the later stages of renal disease, range from .3 to .5 per cent. or even higher. Von Jaksch records one case with .58 per cent.

In order, however, to attach any definite value to these figures, especially the lower ones, the protein intake must be constantly kept in mind as a vital



The author's modification of Hüffner's urea apparatus for estimation of urea in the blood. A, standard eudiometer in position for use; B, special eudiometer as described in text; C, receptacle for fluid to be tested; D, receptacle for hypobromite solution; E, perforated cock for mixing hypobromite solution with fluid, when ready. The technique is precisely the same as for urine, after making the final aqueous solution of urea, and is easily within the reach of anyone at all familiar with laboratory methods.

factor. Widal says, for instance, that .1 per cent. would not be excessive with a proteid intake of 100 grams, while it "would mean accentuated retention" with an intake of 30. It is perfectly plain, therefore, that advanced renal disease might exist with a urea content of blood that would be quite within the normal range, provided that the proteid intake is sufficiently small. Of course, with progressive organic disease of the kidneys a stage of functional incapacity would finally be reached in which the smallest quantity of proteid with which nitrogen equilibrium could be established would exceed their capacity, and would result in an abnormally high percentage of urea, etc., in the blood.

It is, of course, taken for granted that the urea is itself not the principal toxic agent removed by the kidneys. It is, at least quantitatively, the principal end-product of nitrogenous catabolism, but at present can be regarded only as the index of associated nitrogenous products which are themselves the real toxic agents. I have, for instance, repeatedly given 30 grams of urea to patients for diagnostic purposes into whose blood it would be rapidly absorbed without the slightest appreciable toxic effect. These patients had often been excreting less than one-third of this quantity of urea in twenty-four hours. Much larger quantities of pure urea have been given with similar result. If, however, there was added to the urea the excretory products commonly associated with it the symptoms of intoxication might be serious, and, with sufficiently large doses, fatal.

The determination of the urea content of the blood, *considered in its relation to the protein intake,* is an important clinical problem because it probably represents more nearly than anything else the toxic urinary antecedents in the blood. After a careful review of the literature and a trial of several methods we decided to isolate the urea by a modification of the method described by Herter. As finally worked out the technique is as follows:

Five cubic centimeters of blood are taken from an elbow vein by a syringe and poured directly into 60 c.c. of absolute alcohol contained in a suitable flask at the bedside. This is allowed to stand twenty-four hours, when it is filtered and the precipitate washed with *hot* distilled water. This is evaporated to dryness at moderate temperature, after which the residue, which with proper technique contains practically all of the urea, is redissolved in 5 c.c. of distilled water.

The urea is then determined with a modified Hüffner apparatus by the hypobromite method. The ordinary gas-collecting tube or eudiometer for urine, which measures about 13 mm. in diameter, is much too large to measure the gas from the minute quantities of urea found in the blood, so that I had a special tube made about 4 mm. inside diameter and graduated in .01 c.c. One cubic centimeter of gas forms a column about 10 cm. long, representing .056 (1/18 per cent.) of urea. This is about the high normal limit, but .01 c.c. of gas can be measured and this would be equal to about .00056 per cent. The total length of the tube is such that percentages up to .5 could be determined, and such relatively large quantities of urea in the blood are very rare.

The estimation of urea in the blood rests for its clinical value upon the evidence which it furnishes of renal impermeability to urea, which, it can be plausibly assumed, means a corresponding impermeability to the associated toxic nitrogenous bodies, which presumably are eliminated by identical renal structures. This assumption is strictly in accord with clinical observation.

In studying these problems clinically the extreme fluctuations incident to irregularities of diet should be eliminated. The exogenous urea, as well as small quantities of exogenous creatin, purins, etc., obtained from ingested food, can be converted into constants instead of variants by a fixed protein intake, and when this is done they will no longer disturb our study of renal function, from either the side of the blood or urine, or the simultaneous study of both.

As a routine procedure I have been placing hospital patients, in whom investigations of this character seem indicated, on 50 grams of protein and

2 grams of salt daily, in order that both urea and chloride determinations may be made on a constant basis. Later, if indicated, this protein intake is perhaps doubled, and the urea content of both blood and urine again studied.

With perfectly normal kidneys the maximum quantity of urea in the blood, while varying somewhat with the protein intake, is probably always very small, ranging around .01 per cent. Assuming 3,000 grams of blood in an average individual, this would mean only 300 milligrams of urea contained in the blood at one time. In some recent observations on forced urea elimination, published elsewhere, after ingestion of 30 grams of urea, one of my patients with healthy kidneys excreted 10 grams in the first two hours, equal to a daily output of 120 grams. There is no reason to suppose that the extreme limit of functional capacity had been reached in this case. After excreting 10 grams in two hours, it dropped to 4½ in the next two hours, although at this time, with good gastric motility and presumably good absorption from the intestines, a relatively large amount of urea must still have been present in the blood. This diminished output of urea is exactly what one would expect in accordance with Ambard's law, according to which the urea content of the urine is approximately 15 times that of the blood at any given moment.* The actual output which was very large was simply an expression of the large reserve functional capacity which is possessed by most organs, and notably by the kidneys. In view of all these facts, it may be safely affirmed that under ordinary dietetic conditions a persistent rise of the percentage of the urea in the blood very much above the physiological limit means at least the temporary loss not only of all the surplus function, but a certain part of the ordinary functional capacity required to maintain that equilibrium which we call health.

In the present state of our knowledge no great clinical importance can be attached to slight variations in the urea content of the blood. If the quantity does not exceed .05 per cent., no marked nitrogenous renal insufficiency exists, although a percentage constantly as high as this would certainly mean a somewhat low functional capacity, and just as a feeble glycolytic function, as shown by a glycosuria resulting from the ingestion of 75 or 100 grams of dextrose indicates a restricted carbohydrate diet, so this would indicate a moderately restricted protein intake. If the quantity of urea reaches and is maintained at .1 per cent., it means positive nitrogen retention of a definitely morbid type. The renal failure may be due to primary structural disease of the kidneys, circulatory disturbances resulting from cardiac or other causes, or possibly toxic depression or nervous inhibition. These questions, here as in every other type and degree of renal failure, must be decided by collateral evidence and on general clinical grounds. With .4 or .5 per cent. of urea in the blood the degree of renal failure may be regarded as serious, without any reference to protein intake or other factors.

In conclusion I wish to emphasize the clinical importance of the differentiation, as complete as our present diagnostic methods will permit, of the various types of renal inadequacy because, among other reasons, the dietetic treatment, which is by far the most important factor in the therapeutics of chronic renal disease, can be scientifically based only on such information.

I am greatly indebted to my laboratory assistant, Dr. B. M. Edlavitch, for his cooperation in this work.

*For a more complete study of kidney function by the forced elimination of large quantities of preformed urea, see "The Functional Diagnosis of Kidney Disease," by the author, in the Cincinnati *Lancet-Clinic*, for August 16, 1913. A more elaborate article dealing exclusively with this particular investigation will be published soon.

CLINICAL INTERPRETATION OF CHRONIC ABDOMINAL ENLARGEMENT IN CHILDREN, WITH ESPECIAL REFERENCE TO A NEW DIFFERENTIAL SIGN BETWEEN RACHITIS AND TUBERCULOUS PERITONITIS.

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Chronic abdominal enlargement in children is of common occurrence and in the majority of instances is due to rachitis and protracted intestinal indigestion. Occasionally, however, it is the result of certain grave intraabdominal pathological conditions.

The liver, occupying as it does a wide area of the upper abdominal cavity, is very prone to cause considerable abdominal enlargement even when slightly exceeding its normal boundaries, as in slight downward displacement or enlargement. Displacement of the liver, which, by the way, is often mistaken for enlargement, is usually the result of rachitic deformity of the chest, but may occasionally be met with in consequence of large pleuritic effusions, emphysema, and pneumothorax. In rachitic displacement the diagnosis can readily be made by percussion, when it is found that the liver dullness, instead of beginning on a level with the sixth rib, starts anywhere below this upper normal boundary. The same holds true with displacement accompanying emphysema or pneumothorax, but here we have in addition the clinical signs of these affections to go by, especially barrel-shaped chest and exaggerated resonance on percussion in the former, and the acute onset and tympanitic percussion sounds in the latter. The diagnosis of hepatic displacement secondary to pleurisy with effusion is often difficult owing to the difficulty of distinguishing the dullness of the liver from that of the pleuritic effusion, but the diagnosis can ordinarily be cleared up by exploratory puncture. Enlargement of the liver sufficient to produce marked abdominal enlargement is usually observed in connection with syphilis, neoplasms, abscess, hepatic cyst, and congenital obliteration of the bile duct, or secondary to pronounced heart or spleen affections. In older children we must think also of pericardial pseudocirrhosis (Pick's disease) which is associated with rheumatic or tuberculous obliteration of the pericardium and is manifested by enlargement of the spleen and liver and by ascites. In older children also we occasionally meet with abdominal enlargement due to ascites associated with atropic cirrhosis of the liver owing to abuse of alcoholic beverages.

A case in point came under my observation about three years ago:

Case.—The boy, six years of age, was of healthy German parents. When barely a few months old he was frequently given a taste of beer, as it were, to initiate him in the national custom. He liked it immensely from the start and as he grew older this beverage served very handily as a prompt pacifier to subdue his ungovernable temper. He was breast-fed up to twenty months, and when he was weaned he stubbornly refused to drink cow's

milk. Beer again proved the most alluring substitute. It was given to him either cold, mixed with the yolk of an egg, or in the form of "Beer-Suppe," *i.e.*, boiled beer with small squares of toasted rye bread. The boy did exceedingly well for several years. At last he began to suffer from frequent attacks of indigestion. Every article of

Fig. 1.

food was blamed for his upset stomach except the beer, and, indeed, as upon the advice of the family physician his diet was restricted to the limit barely to sustain his life, beer again faithfully stood by him in the time of distress. When I saw him he was greatly emaciated. His abdomen was immensely enlarged, very tense and traversed by large tortuous veins, and revealed the presence of a large quantity of fluid. It was utterly impossible to palpate the intraabdominal organs. I withdrew about three pints of clear, yellowish fluid and was then enabled to determine the absence of any growth or tumefaction in any portion of the abdominal cavity, and the great reduction in the size of the liver.

In examining the spleen we should bear in mind that any spleen that is palpable is either diseased or displaced. The displacement may be either congenital, the so-called "wandering spleen," or acquired as a result of prolonged and severe coughing, e.g., in pertussis. A displaced spleen is rarely the cause of marked abdominal enlargement, and the same is true of a slightly enlarged spleen, unless it be associated with rachitis. The spleens large enough independently greatly to influence the abdominal contour of children are ordinarily encountered with anemia pseudoleukemica infantum, leukemia, syphilis, neoplasms or primary splenohepatomegaly, more especially with the latter affection. This highly interesting disease, as yet etiologically obscure, has been first described by Dr. Gaucher about thirty years ago. It is not as rare as it was first supposed to be. I have had occasion to report two cases about two years ago* and have since seen an eight-months-old child suffering from it whose brother succumbed to the same disease at the age of eleven months. It occurs in several members of the same family, but is usually overlooked in early infancy. When noted, it is generally attributed to rachitis, pseudoleukemia, or syphilis, but the blood examination shows no definite pathological picture, and the Wassermann and tuberculin reactions are negative. As the child grows older the spleen and liver assume extraordinarily large dimensions, often occupying the entire abdominal cavity. The patients suffer also from anemia, occasional hemorrhages from the nose and throat, pigmentation of the skin and enlargement of lymphnodes. As several successful splenectomies have been performed apparently with favorable results, when the operation had been undertaken early, it is essential to diagnose these cases at a very early stage. Without an operation this affection proceeds a chronic course and in the great majority of instances ends fatally in from three to ten years as a result of passive congestion of the adjacent organs which are displaced and pressed upon by the ever-growing spleen and liver. Finally, on very rare occasions abdominal enlargement is found to be due to so-called Banti's disease, which is characterized by splenomegaly, anemia, cirrhosis of the liver, ascites, and hemorrhages.

The usual kidney affections are not productive of abdominal enlargement except in their late stages as a result of dropsical effusions within the abdominal cavity, or of secondary involvement of other organs. In such cases the diagnosis is obvious. As we palpate the kidneys, which procedure is readily accomplished especially when they are enlarged, we should be watchful for hydronephrosis and neoplasms. Hydronephrosis, in order materially to change the outline of the child's abdomen, is usually large enough readily to be felt as an immovable, fluctuating mass in the lumbar region, but considerable difficulty is experienced in differentiating unilateral hydronephrosis from a cystic tumor of the kidney. As hydronephrosis is due either to congenital atresia or acquired occlusion of the ureter, its differentiation from cystic kidney can be

Fig. 2.

made only by a careful ureteroscopic examination or puncture of the mass (showing the presence of urine) through the abdominal wall. Ordinarily one would rarely err in diagnosticating a kidney neoplasm rather than hydronephrosis, since the former

*Medical Record, November 4, 1911.

is by far more common than the latter. This is true, especially of sarcoma. In my own rather limited experience I have had occasion to report* five cases of this kind and have observed four more cases since. Hard tumors of the kidney are best diagnosed by palpation, if need be under anesthesia, although some diagnostic help is also obtained from the *x*-rays. No great reliance should be placed upon hematuria as a characteristic sign of renal neoplasm, since blood in the urine is frequently found in renal tuberculosis, hemorrhagic nephritis, purpura, and other diseased conditions, and is often absent in kidney tumors when large enough to obstruct the ureter so that no urine is excreted from the affected side.

Next to rachitis tuberculosis of the peritoneum or intestines forms the most frequent cause of abdominal enlargement in children. But while we meet these cases almost daily in hospital, dispensary, and private practice the diagnosis is not always as easy as some of our text-books wish us to believe. It is often especially difficult to detect tuberculosis of the intestines. The tuberculous lesions are usually located in the lower portions of the ileum, ileocecal region, and colon, but owing to the accompanying intense meteorism, the intestinal tumefaction is beyond reach of palpation, particularly during the early stages. However, as the diagnosis can frequently be established by the demonstration of tubercle bacilli in the stools, these should always be subjected to minute bacteriological examination whenever stubborn diarrhea and rapid emaciation prevail. Less difficulty, as a rule, is experienced in the diagnosis of tuberculous peritonitis, because the tuberculous peritoneal masses are more superficial and hence more readily palpable, and also because of the presence of fluid in the abdominal cavity. A positive tuberculin reaction, of course, is corroborative of the diagnosis. It should be borne in mind, however, that a negative result by no means proves the absence of tuberculosis. This point is deserving of special emphasis. I desire to call particular attention to a physical sign which proved very helpful to me in differentiating abdominal enlargement associated with rachitis from that of tuberculous peritonitis. Whereas in rachitis (Fig. 1) the greatest prominence of the abdomen is manifested at the epigastrium, in tuberculous peritonitis (Fig. 2) the abdominal circumference is largest at or below the umbilicus (hypogastrium). This differential physical sign can best be elicited by careful measurements of the abdominal circumference by means of a tape measure, but can readily be determined also by mere inspection. This sign can be explained by the fact that in tuberculous peritonitis the inflammatory exudate accumulates at the bottom of the abdominal cavity and thus distends the surrounding abdominal wall. To make correct use, however, of this sign we must be sure to exclude large dermoid cysts of the ovary and an overdistended bladder, both of which conditions are apt to lead to diagnostic errors.

There is one other intestinal abnormality which often gives rise to an enormous abdominal enlargement in children, and that is, congenital or acquired hypertrophy and dilatation of the colon, the so-called Hirschsprung's disease. While originally it was thought to be a congenital affection only, it has lately been shown to develop gradually also after birth. In these cases particularly the diagnosis is often very difficult, but nowadays, with the help of the *x*-rays, the diagnosis can readily be made, even if the usual symptoms of the disease fail to disclose the pathologic condition.

Considering the large array of intraabdominal diseases not rarely encountered in children with chronic abdominal enlargement, and the fact that suitable and prompt treatment effects a cure in some cases and marked improvement in a great many more, the subject in question is deserving of more than passing attention.

127 West Eighty-seventh Street.

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THE RÖNTGEN TREATMENT OF ECZEMA.*

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Probably the most frequently encountered of all skin diseases and one comparatively easy to diagnose is eczema, yet it is very often one of the most difficult to treat. Any further addition to the already enormous number of remedies suggested for the relief of this condition should be deprecated unless positive results from the employment of such measures can be assured. I have had such pronounced success in treating eczema by means of the *x*-rays as to afford for this method of treatment a valuable place in its therapeutics. However, this would not have sufficed as an apology for the presentation of a paper on this subject, as numerous operators have repeatedly pointed out the value of the rays in this condition, if an extended search through the Index Medicus and the Catalogue of the Surgeon-General Library had not failed to disclose a single monograph written in the English language on the treatment of eczema by the Röntgen rays.

A few typical cases are herewith reported, as the course of the disease and progress under treatment do not vary to such a pronounced extent as to justify an extended history of a large number of cases.

Case I.—C. E. æt. 53; manufacturer; has had for twelve years the typical eczema hiemalis mentioned by Corlett; affecting both hands, the wrists and the lower portion of the forearm; with the coming of cool weather, usually about the middle of October each year, he has had a periodical return of the eruption, this assuming the characteristics of a severe dermatitis, with weeping, deep fissuring of the skin and pronounced itching; until *x*-ray treatment was instituted three years ago, the condition would persist, despite all forms of local and systematic medication, until the coming of warm weather in April or May, when it would spontaneously disappear. Three winters ago he was referred to me a week or two after the annual onset of the disease. He was given thirteen exposures to the rays, improvement being noted after the third treatment, and by the first of December the skin was devoid of all traces of the disease, and so continued throughout the winter months. Each October since then there has been a return of the eczema, and he has returned to me for treatment, the eruption yielding in both instances to less than a dozen exposures. Although there is still the tendency to recurrence, which in all likelihood will persist, this man has been able to cut down materially the period from six months to one month in which he annually suffers from the disease.

Case II.—Mrs. H. K.; æt. 37; housework; a diffuse patch of squamous eczema covering practically the middle third of the anterior surface of the leg; here the condition had been present without material change for three years,

*Paper read before the Philadelphia Clinical Society April 7, 1913.

the patient's chief complaint being the intolerable itching, so severe that she complained that she was unable to rest comfortably at night. Three exposures were sufficient to relieve this symptom, and a half dozen more to cause a disappearance of the eruption. On two different occasions since then the patient has returned to me for a single treatment to relieve what was an apparent tendency to return, and which a couple of exposures to the *x*-rays was sufficient to hold in check.

Case III.—Mr. J. K.; æt. 62; retired; had a patch of eczema on his wrist, bright red in color, circumscribed, of three months' duration, unattended by scaling or weeping, but decidedly itchy. Nine exposures to the rays sufficed to entirely clear up this eruption. There has been no recurrence.

Case IV.—Miss M. M.; æt. 28; nurse; acute fissured eczema, attended with a marked inflammatory reaction of the surrounding skin; present on both hands and the neck; caused considerable distress, both of a mental and physical nature; it was remarkable to note the relief afforded by only one application, and the eruption, which had been present for five weeks before röntgenization was instituted, practically disappeared after four exposures were made at an interval of one day between treatments.

Case V.—A. S. K.: æt. 31; physician; has had at intervals extending over a period of six years a mild attack of fissured eczema of the fingers of both hands, the lesions being present in the shape of minute crack in the skin surrounded by a slightly inflammatory base; this appears every three or four months; one treatment by the *x*-rays is invariably sufficient to clear it up for another period of several months.

Case VI.—Mrs. R. B.; æt. 46; housework; at no time during the past four years has she been entirely free from eczema; every few months there being a return of the erythematous form, attended with weeping and crust formation, the skin in the intervals between these attacks being dry, fissured, slightly scaly and always itchy. This patient, whom I have just discharged from treatment, after having received twenty-one exposures to the rays was referred to me for treatment during the height of one of the acute outbursts of the dermatitis. The skin is now absolutely devoid of any eczematous lesion whatsoever.

These six reported cases are selected from a series of sixty-two cases of eczema which I have treated by means of the *x*-ray and observed in hospital and private practice. Being typical of the usually met with types of the disease, the history of each has been briefly detailed. Of the remaining fifty-six cases in the series forty-seven had, after cessation of treatment, an entire disappearance of the eruption, of which number eighteen have since returned after a period of five weeks to sixteen months for treatment for recurrences. These in every instance, save three patients who are at the present time still pursuing treatment, yielded to a few exposures, invariably fewer in number than were originally given at the first series of exposures. Of the remaining nine cases six were benefited as far as itching and decrease in virulence were concerned, while the remaining three were not benefited at all.

The employment of the rays requires a tube of very low penetration, and a minimum amount of current, only sufficient to illuminate the tube slightly and with scarcely any penetrating power. To some extent here we must be governed by the character of the lesion, whether acutely inflammatory or chronically thickened and scaly. To quote Sir Malcolm Morris, "the fundamental principle which should guide the practitioner in the treatment of eczema is to soothe when the inflammatory process is acute and stimulate when it is chronic," applies very well here. In the former instance only the mildest sort of treatment is permissible, the tube at some distance from the part treated, eighteen to twenty-four inches, and the seance of only short duration, five to six minutes. Where the lesion is more chronic, or of a squamous character, a stronger light in the bulb is desirable, the part treated is brought closer to the tube and a longer exposure required, ranging from ten to fifteen minutes.

The effect of the rays as a remedial agent in eczema is most probably due to the low vitality of the diseased cells, which are destroyed by the action of the rays, while the normal healthy cells of the part are midly stimulated. No *x*-ray dermatitis should result from the application of the rays in the treatment of eczema. Personally I find that better results are secured if treatment is given frequently, every other day, this exposure to be of short duration, rather than giving longer treatments at wider intervals. I have had no experience in the treatment of the infantile form of the disease on account of the difficulty of holding a child quiet sufficiently long to apply the rays. In occupational eczema permanent cure cannot be assured unless the patient is removed from the source of the irritation, although in my clinic at the Stetson Hospital I have had quite a number of cases of eczema among the dyers who work in the Stetson hat factory, and who could not give up their means of livelihood to rid themselves of the disease. The rays in these men proved decidedly beneficial, diminishing materially the virulence of the attack, but as long as they continued at their work they were never totally free from eczematous patches.

It will be noted that in a large number of these reported cases there has been a tendency to recurrence. Yet no other recommended method of treatment of eczema can assure the patient that he will never have a return of the disease. Dr. George T. Jackson, reporting a number of successful cases treated by the *x*-ray, comments as follows: "We can give assurance of curing eczema as far as the attack with which the patient comes to us is concerned. We can give no positive assurance that the disease will not return. . . . There are some cases that are exceedingly rebellious. We have to accept the fact that some people are eczematous, and that they cannot be permanently cured unless they are regenerated."

It must not be understood that constitutional treatment is to be neglected if the Röntgen treatment is to be carried out. How much this may be regarded as a metabolic disease is questionable, but hygienic measures, if necessary, proper regulation of the diet, if indicated, and the removal of any form of local irritation are all necessary adjuncts to the local methods of treatment. However, this series of cases is practically all among patients who had been under treatment by other measures before receiving *x*-ray treatment, and were referred for the reason that persistent drug medication had proven of no avail. The fact that improvement was noted simultaneously with the beginning of röntgenization would point to this agent as the potent facor in securing the favorable result. The field of the radiologist is somewhat limited, and, no doubt, as good results might be secured by other means. However, limited although my experience may be, the fact that dermatologists and radiologists of the skill and experience of Hahn, Williams, Albers-Shönberg, Van Harlingen, Sequira, Hyde and Montgomery, Pusey, Caldwell, Hardaway and Grundon, and numerous others, attest to the good results secured by the *x*-ray after failure to benefit by other methods, is confirmative proof that in

the Rontgen ray we have at our command a decidedly valuable agent in the treatment of a disease that, as Stelwagon says, "stands first in frequency among skin diseases for which advice is sought."

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CONGENITAL STENOSIS OF THE PYLORUS.

By AUGUST STRAUCH, M.D.,

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Case.—Alfred Sch., second child. Parents Germans, healthy, as is also the three-year-old brother. Patient was born at full term on April 20, 1912, and weighed nine lbs. He vomited from the first day. The vomiting was aggravated the following days and was persistent, occurring either immediately or one-half to one hour after every breast feeding. The vomiting was expulsive and violent, but never brought forth green bile. From the beginning there existed very obstinate constipation; only in the middle of the first week were the stools yellowish; after that time they were always dark green, gelatinous and voided only after castor-oil or an enema once a day in very small quantity. Not only the breast milk, but also water, and camomile tea, administered in teaspoonful doses, and medicines prescribed by the physician were vomited. The child lost in weight, was restless, screamed much, was always hungry and suckled with avidity. The urine was very scanty and voided only once a day. The status præsens on May 17, 1912, when I saw the baby for the first time, was as follows: Baby three weeks old, emaciated; weight 7¾ pounds. The skin has lost its elasticity, is dried out. Icterus sclerarum et cutis. The lower part of the abdomen is sunken in, the gastric region is prominent. Immediately after undressing the baby spasmodic contractions of the stomach could easily be observed through the thin abdominal walls. There was a general peristaltic stiffening of the whole stomach, which bulged out prominently and felt like an inflated rubber balloon to palpation. After a short time very strong peristaltic waves in the shape of one, two, or occasionally three bulgings, separated by depressions, passed across the epigastric region from underneath the left arch of ribs to the right side, crossing the median line as far as the right mammillary line. The lower border of these peristaltic waves reached two-thirds of the distance of the umbilicus from the xiphoid process. During the whole observation, which lasted about fifteen minutes, such contractions came and disappeared almost constantly whilst the child was apparently not disturbed. Vomiting occurred, whereby great masses of somewhat curdled milk were violently expelled. Feces green, thin, meconium-like, without any particles of milk stool (starvation stool). Urine once in twenty-four hours, scanty. I ordered breast milk to be given day and night every half to one hour in teaspoonful doses, and saline solution into the rectum, to be administered repeatedly.

May 18. After a pause of almost twenty-four hours, vomiting occurred again. The skin has assumed a normal turgor and the child looks much better after the administrations of water per rectum. Urination twice in small quantity. Ventricular peristalsis always very violent. May 19. Two defecations with some particles of milk stool. Urine once in greater quantity. Vomiting in the morning less violent and frequent. After a few feedings of two to three teaspoonfuls of mother's milk every hour, very persistent vomiting commenced. Reduced to one teaspoonful doses, given every half hour, the milk was borne well. May 20. Persistent vomiting, after each feeding, even of teaspoonful doses. Enemata are no longer retained. Urination once. The spasmodic contractions of the stomach were present all this time and often very intense. Body weight 8¾ pounds. Rectal feeding failed, though tried repeatedly, the milk being expelled soon. May 21. Vomiting a few times. The child less restless. The examination in narcosis revealed indistinctly a tumor of about one centimeter diameter below the xiphoid process in the depth of the epigastrium to the right of the median line. Urination twice. In the evening and during the night every feeding was expelled. This aggravation was perhaps due to the narcosis and the thorough palpation of the stomach, which was rather difficult. May 22. Urination once. Child sleeps well. In the afternoon vomiting several times, though some feedings in teaspoonful or tablespoonful doses every hour are kept down well. Irrigation of the stomach, however, yielded a very great quantity of coagulated, somewhat rancid milk. So far the movements of the bowls have taken place only after enemata, once a day; have been always green, meconium-like and contained only very few particles of yellow milk stool. Further treatment by lavage was refused by the mother. May 23. Since the administration of only small quantities of milk at short intervals gave no satisfactory results, the mother has begun to nurse the baby ad libitum about every two hours with an improvement, inasmuch as the vomiting after the breast feeding as a rule occurred only after one hour. May 24. Urine passed four times within twenty-four hours. In the stool, which was brought about by an enema, there appeared more yellowish particles than before. Vomiting less. May 26. Urinated repeatedly, stool only after enema, in small amount. Vomiting several times. Child is nursed ad libitum. May 27. In the forenoon vomited twice, later until six o'clock p. m. no vomiting. Urination four times, stool after enema is still green, meconium-like, containing some yellow particles. May 29. Vomitus of acrid, sour odor. Most feedings are kept down well. Ventricular peristalsis still noticeable, occasionally even very violent. The first spontaneous defecation, liquid, with yellowish masses in small quantity. May 30. Vomiting several times. Stool in very small quantity, but yellowish. In June the child was not under my observation, but was seen by several physicians, who all urged an immediate operation, since the child continued vomiting. An operation was refused by the parents. June 15 the child was admitted to a hospital, where no improvement took place.

I again saw the child on July 6. Body weighed 7 pounds, 14 ounces. Two spontaneous yellow stools. Vomited three times. Child gets the breast every two hours; sleeps well. Ventricular peristalsis less intense, only occasionally, especially after vomiting. There is an inguinal hernia on the left side; icterus much diminished. July 11, the baby swallowed half a peanut, put into his mouth by the little brother. The peanut, somewhat digested, was passed on July 17 with the stool. July 18. During the last days very frequent and violent vomiting again of sour, cheesy masses. Stool every second day after enema. July 21. Since the evening of July 19 no more vomiting has occurred. A spontaneous, yellow stool daily. The child gets the breast every two to two and one-half hours. Vomiting did not occur even when the mother (experimenti causa) had given the breast three times in close succession. The child has a good color, is good-natured, his skin is elastic; the lower region of the abdomen is filled up; two stools of a yellow, normal appearance occurred after castor oil. Urine almost every hour. Peristalsis of the stomach of a slight degree. July 24, weight 8 pounds, 2 ounces. July 28, baby restless, stools hard, in larger masses. The child had Nestlé's food and certified milk these last days in addition to mother's breast, which is insufficient in quantity. Diarrhea set in after that. August 1, five liquid stools. Child gets only breast and ricewater. Body weight 8 pounds, 6 ounces. August 9. Last days still diarrhea and again vomiting. Body weight, 9½ pounds. Peristalsis of stomach again lively. Breast and ricewater. August 23, body weight 10½ pounds. For about two weeks the child has done very well; he again gets, in addition to the breast, cow's milk (100 c.c. milk), 200 c.c. water and one teaspoonful of Imperial Granum daily. Vomiting occurs very rarely. Stools always spontaneous and of normal appearance, but with a tendency toward constipation. The peristalsis of the stomach is of very slight degree and only very rarely to be observed. September 2, body weight 10½ pounds. Since a week ago no vomiting. September 16, diarrhea of a moderate degree this last week. No vomiting. Peristalsis still present, but very rarely and insignificant. September 24, no vomiting. Child very healthy looking, with a well developed panniculus adiposus. He is able to keep the head erect. No more ventricular peristalsis can be observed through the thick abdominal walls. Stools daily, spontaneous and of normal appearance. The mother of her own initiative gives the child cow's milk, Nestlé's food, and oatmeal in addition to the breast. November 3, baby very healthy, weighs 21 pounds. No vomiting. December 20, child weighs 23 pounds, has two teeth; normal stools, no vomiting.

That this case represents a congenital stenosis of the pylorus there can be no doubt; the case is typical and characterized by a complete symptom complex: the very persistent vomiting, with the

absence of bile in the vomitus; the obstinate constipation, with starvation stools; the scanty urine, and the loss of weight, resulting from the impossibility of the stomach contents passing into the intestines, and finally the plainly visible contractions of the stomach. That the stenosis was of a functional character due to spasm, *i.e.*, of the more common variety, and not of organic nature, appears more than probable from the frequent changes in the intensity of the symptoms, especially the vomiting and the contraction of the stomach, from the relatively moderate emaciation and the queer incident of a half a peanut having been able to pass the pylorus. The palpability of a pyloric tumor in narcosis does not speak against the diagnosis of pylorospasm, especially since it seemed as if it could be palpated only during certain moments (contractions and relaxations). An improvement took place on May 23, expressing itself in an increase of the diuresis, which, of course, indicated a better resorption of the liquid food. The complete cure after a period of interrupted improvement established itself on July 19, rather suddenly, as is not infrequently the case.

The symptoms of improvement and cure in such cases are as follows: The vomiting lessens, and finally ceases; the stools occur spontaneously, lose their meconium-like character, and become of normal appearance; the peristaltic contractions of the stomach are less marked, less strong, and disappear gradually, though their complete disappearance may not be noted until after several weeks or months; the discomfort, pain, and whining cease. The nutrition improves, slowly at first; the color and the whole appearance of the child become healthy, and finally no symptom of the former condition of misery and suffering is found. The recurrence in our case of the vomiting in combination with diarrhea about August 8 was due to improper and especially excessive feeding. This was not to be wondered at, as evidently the intestines, which had been out of use for a long period of time, and therefore were unprepared for the reception of greater quantities of food, would be prone to respond to such alimentary overtaxations and irritations with diarrhea. It is likewise plain that under such conditions the quantity of food ought to be immediately restricted to avert disastrous results, giving the intestinal tract time for adjustment and accommodation. Overfeeding must be emphatically warned against. The child developed an inguinal hernia, lasting for two months, during the course of the disease, due most probably to the strain upon the abdominal walls in violent vomiting and screaming. This complication seems not to be very common, but is recorded by a few clinicians as by Thomson,[1] Schotten,[2] Ibrahim,[3] Sutherland,[4] and Fuhrmann.[5]

The case offers no etiological explanation. Yet I wish to recall that the baby is of German parentage. The father, a German, born in Argentina, has been in the United States for seven years; the mother is a native of Germany, and has likewise lived here seven years. This fact deserves to be mentioned because of the assumption, based upon much material, that the Germanic races have a special predisposition for this disease, a view particularly maintained by Pfaundler.[6] Until 1908 Ibrahim could not find a single case reported from Italy, and only in recent years are observations from France on record. The Italian literature after 1908, as far as accessible to me, reports only one case by O. Cozzolino[7] (*Pediatria*, Naples, 1910, 725-742, VIII). The greatest number had been reported in Germany, England, and other northern parts of Europe, and in the past few years cases have been reported from North America. It would be an interesting task in a survey of the American literature to see whether or not the above assumption of a special racial predisposition holds true by sifting and arranging the recorded cases according to the nationalities. However, little or no attention is given to the nationality of the cases here.

As to therapy, my case during my observation at least never seemed to me to present an indication for surgical interference, though several physicians urged an immediate operation as the only means of saving the child. The case recovered completely, though under very unfavorable conditions of expectant treatment, for the mother would disregard medical advice and act a great deal either on her own initiative or on the advice of well-meaning neighbors.

This is not the place to discuss the pros and cons of the various principles of treatment, whether surgical or medical. The diagnosis may not be secure enough in the initial stage of the disease; dyspeptic disturbance with vomiting being perhaps suspected at first, and only later will the diagnosis of spasm of the pylorus or hypertrophic stenosis be obtained, when no improvement takes place and the characteristic symptoms supervene. As the discrimination between these last two possibilities proves almost impossible in the beginning, and as in the latter condition also spasms play an important rôle, measures have to be directed first of all against the spasms in all such cases. Heubner[8] does not advocate a very active therapy, since he has convinced himself time and again of a spontaneous recovery from this disease. The result of recovery in most cases militates against the assumption of a real organic stenosis of the pylorus, and rather argues strongly in favor of the mere functional, spasmodic character of the stenosis, originating reflexly in the great majority of the cases. The existence of a palpable pyloric tumor does not preclude this. A number of authors advocate an early operation, while others, as Heubner and Babinski are opposed to this radical attitude. Heubner, guided by his very extensive personal experience, maintains a most conservative standpoint. Also Ibrahim demands that in no case should the internal treatment be left untried. His assertion that operation is indicated whenever there is no early visible result is contradicted by Heubner, who points to the high mortality (54.3 per cent.) of the operated cases, collected by Ibrahim, as against the low mortality (9.5 per cent.) of his own, treated expectantly. His own observations, which he published in 1906 in *Die Therapie der Gegenwart*, deter him from lightly advising an operation apart from exceptional cases. The principle of his method in treating pylorospasm is to spare the abnormally irritated mucous lining of the stomach to the greatest possible extent; therefore, feeding the infant at long intervals. The babies are to be nursed regularly every three hours at the breast, if possible, and are allowed to suckle ad libitum, without regard to whether they vomit much or little afterward. Part at least of the ingested food enters the intestines, and in the interval the stomach can rest. However insufficient these quantities may be for weeks, the babies nevertheless are protected against

starvation. There are a few days now and then when they retain more food and either gradually or suddenly improvement takes place. In addition to this he applies, as do also others, warm cataplasms to the abdomen three times daily for two hours, and he gives a high infusion of warm water into the rectum once a day, in order to administer water and perhaps to alleviate by heat the spasms. Stomach irrigations, as they are recommended by various authors, as Pfaundler and Ibrahim, are not used by Heubner, who could observe no decided benefit from them. As an antispasmodic he administers a few drops of tincture of valerian with minimal amounts of tincture of opium several times a day. He continues this treatment for weeks and months without being disquieted by the ups and downs of symptoms. He cites in his textbook the history of a case which demonstrates the fact that one can wait even until the infant has reached the minimum of Quest's figure, one-third of the initial body weight, without losing the hope of recovery by expectant treatment.

However, L. F. Meyer[9] and others have observed cases in which the babies succumbed with the picture of Finkelstein's alimentary intoxication with glycosuria, following an increase of the food after the vomiting had ceased. Similar experiences followed after successful operations in which a free passage for food into the intestines was created suddenly. The prolonged state of inanition renders evidently the proper assimilation of greater amounts of food impossible. Even a short starvation, as is known, lessens in nurslings the tolerance for sugar, and similar conditions have been found experimentally in animals. Hungering animals show a decreased tolerance for sugar and frequently die in the first days after readministration of food. In serious cases, of course, it may be difficult to decide at what moment this conservative standpoint should be abandoned and operative measures resorted to. Heubner considers the moment to have arrived when the first symptoms of tetany make their appearance. As mentioned before, Heubner, with his conservative therapeutic method, tried in a very great number of cases, has seen a lethal outcome very seldom. Surveying the total material he judges that the great majority of the cases offer in spite of the hopeless aspect a good prognosis with expectant treatment, especially in private practice. Even patients with extreme emaciation, which make a fatal issue seem imminent, recover. Not only cases of simple pyloric spasm, but also cases of undoubted organic stenosis have been improved by conservative measures. By a number of good observations (Ibrahim collected twenty-nine cases) it is proved that cases in which a pyloric tumor could be repeatedly palpated have been cured by expectant treatment. Therefore the palpability of a tumor is no indication for operation. Some authors (Pfaundler, Ibrahim, and others) recommend small quantities of breast milk (10 to 30 grams) ten to twelve times a day, to be administered especially after vomiting. The quantity tolerated without vomiting has to be determined and slowly increased. In the case above described this principle was tried but failed. In one case, published in the MEDICAL RECORD, May 30, 1907, I succeeded with buttermilk.[10]

Prolonged warm baths are of benefit and rectal feeding may be resorted to. Fuhrmann reports a very successful attempt at feeding breast milk per rectum. The baby got daily from 480 to 530 grams of breast milk per rectum with the almost complete exclusion of feeding *per os* for seven weeks, and showed even a small gain in weight during this period.

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4557 EVANSTON AVE.

A CASE OF SACCHAROMYCETE INFECTION OF THE LUNGS.*

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THAT a saccharomycete may be the cause of a persistent lung condition closely resembling tuberculosis is unfortunately too little recognized, in spite of the fact that a number of excellent articles on this subject have been published. Of especial interest is the paper by Breed on "Some Clinical and Experimental Observations with a Saccharomycete" (*Archives of Internal Medicine*, August 15, 1912), in which he gives a brief review of the literature and calls attention to the possible significance of yeast organisms in the sputum of doubtful lung cases, and the necessity of a further careful study of new cases both clinically and anatomically.

The following case is of interest because of the fact that the clinical signs all pointed to the diagnosis of pulmonary tuberculosis. The absence of tubercle bacilli in the sputum after prolonged search and repeated examinations was baffling until culture gave almost a pure saccharomycete growth.

The patient, M. W., was admitted to the Lebanon Hospital, on the medical service of Dr. A. Mayer, January 11, 1913. The family history was negative. In the previous history of significance was the fact that for the past five or six years she had suffered every winter from periodical attacks of bronchitis.

Nine days prior to admission the patient caught a cold, had chills and fever, coughed and expectorated a thin, slimy material, occasionally streaked with blood. Has headaches, cramps in the legs, and a soreness in the chest, especially on deep breathing and coughing. Is well developed and well nourished, and does not appear to be acutely ill.

Examination of the head, eyes, nose, throat, larynx, neck, skin, and glands shows nothing abnormal. Inspection of the chest shows an equal and fair expansion on both sides. The signs elicited on palpation and percussion are normal. Auscultation shows anteriorly on the right side numerous crackling rales. The heart and abdominal organs are normal. Temperature ranged between 98° and 101°; pulse between 84 and 110; respirations between 20 and 28.

*From the Pathological Laboratory of the Lebanon Hospital.

Clinical Pathology.—The von Pirquet test was twice negative. Blood pressure estimation gave a systolic of 120 mm., and a diastolic of 80 mm. of mercury.

Blood counts showed a leucocytosis which varied between 20,000 and 60,000, and a differential averaging: Polynuclear, 84 per cent.; lymphocytes, 15 per cent.; eosinophiles, 1 per cent. The red blood count was 4,800,000 and the hemoglobin, 80 per cent.

The urine, except for a faint trace of albumin, was negative.

The sputum.—Twelve examinations for tubercle bacilli were all negative.

Cultures from the sputum on January 11, 13, 16, and 25 all showed almost a pure culture of colonies which gave a luxuriant grayish-white, moist, smooth, and pasty growth on serum-glucose-agar plates, with a doughy fermentation odor, and occasional gas production in the depth of the medium. The morphology of the organism showed it to be a Gram positive, oval body, highly refractive and somewhat larger in size than a red blood corpuscle. It was not acid fast. Subcultures proved it to be a typical yeast organism. The patient was discharged February 28, 1913, as cured. The culture one day before discharge failed to give a growth of yeast colonies on several serum-agar and serum-glucose-agar plates.

The treatment as strongly advocated for this condition is iodine, but in our case the cure was obtained by the use of creosote, guaiacol carbonate, and urotropin.

LEBANON HOSPITAL.

Medicolegal Notes.

Compensation for Professional Services.—In an action by a physician against a firm for professional services rendered to one of the firm's employés who had met with an accident, it appeared that some one unconnected with the defendants called the plaintiff, who responded and furnished medical and surgical aid, procured temporary hospital quarters and engaged a nurse. The injuries were of a serious character, requiring amputation of the left leg and right arm, and including serious injuries to other parts of the body. Some five days after the accident one of the partners of the firm appeared and, according to the plaintiff, made an arrangement for the injured man's future care. The plaintiff continued his treatment until the patient left the hospital, rendering bills to the defendants for his services, a small part only of which were paid. The plaintiff sued for his services for the entire period of service. He was awarded judgment for the value of his services subsequent to the time of the alleged hiring by the member of the defendant firms, and for the nurse's services subsequent to that time. It was objected that a charge made for a second operation on the patient's broken leg was not within the terms of the contract proven. It was held that it was, the contract being general. It was to furnish the injured man with such medical and surgical treatment as, in the plaintiff's judgment, was necessary for his recovery. If the plaintiff found it necessary to perform another operation upon the leg, he had the same right to perform and recover for that service as he had for any other medical or surgical service rendered by him.—Hood v. Garrick, Washington Supreme Court, 125 Pac. 956.

Qualification as Expert on Neurasthenia.—In an action for injuries exception was taken to the qualification of a medical man as an expert witness on nervous troubles. The doctor had testified that he had had 14 years' experience as a general practitioner, and had a year's teaching under an eminent specialist on nervous troubles; that in his general practice he had many cases of purely nervous diseases, and had much experience and knowledge as to neurasthenia, the disease in question. It was held that it was not an improper exercise of the trial court's discretion to permit the witness to testify as an expert on neurasthenia.—Baltimore, C. & A. Ry. Co. v. Moon, Maryland Court of Appeals, 84 Atl. 536.

Testifying from X-Ray Plates.—In an action for injuries, *x*-ray plates of the injured joint were submitted to the jury, and the testimony of the *x*-ray experts for the plaintiff and the defendant conflicted in their interpretation of the plates. It was held to be competent for a medical expert who had made a physical examination of the plaintiff and had also examined the plates to testify, from such examinations, what was his diagnosis of the plaintiff's condition. He was also qualified, both as an expert and as a physician, to testify as to the probable duration of the injury, and whether it would be permanent or not, as a basis from which the jury could estimate the damages.—United Rys. & Electric Co. v. Dean, Maryland Court of Appeals, 84 Atl. 75.

Prescribing Intoxicating Liquors.—In a prosecution for a violation of the Missouri Rev. St. 1909, §5784, providing that a physician issuing a prescription for intoxicating liquors "to be used otherwise than for medicinal purposes" shall be guilty of a misdemeanor, the offense is sufficiently charged in an indictment which charges the prescribing of intoxicating liquors "not to be used for medicinal purposes." But it was held that it is essential to the statutory offense that the physician shall have known that the liquor was to be so used.—State v. Pomeroy (Mo.), 147 S. W. 144.

Expert Testimony as to Mental Capacity.—While medical experts may properly answer whether, in their opinion, from the conditions shown by a proper hypothetical question, a person was of unsound mind, it is not competent for them to give an opinion as to whether such person had sufficient mental capacity to make a deed in controversy. Capacity to make a deed is a mixed question of law and fact for the jury to determine on proper evidence and instruction and not for witnesses to decide.—Coblentz v. Putifer, Kansas Supreme Court, 125 Pac. 30.

Expert Evidence.—A physician was asked, in a homicide case, what was his opinion on the day he examined the deceased, when she was found dead, as to what caused the wounds. It was held that this was properly excluded, as the inquiry should have been as to the witness's opinion at the time he was testifying and not at the time he examined the body. He testified that it was possible that in a fall, and striking against a dresser which was in the room, the wounds he found on her could have been inflicted; but as to whether it was probable, he would hate to say. It was held that his evidence was competent and relevant, and should have been submitted to the jury.—Costello v. State, Alabama Supreme Court, 58 So. 204.

Relation of Physician and Patient.—In an action for unskilful treatment of a fracture of the tibia bone of a boy's leg one of the defenses was that the defendant was called by a third person to make an examination of the boy's leg, and that it was in such a swollen condition that it was impossible to discover the nature of the injury. A judgment of nonsuit was reversed, it being held that the defendant's examination of the boy, his prescribing for him and giving directions to his mother regarding his treatment, constituted the relation of physician and patient, and the question whether he had used ordinary care and skill in his diagnosis and treatment was for the jury.—Coss v. Spaulding, Utah Supreme Court, 125 Pac. 468.

Photographing Dead Bodies—Right of Privacy.—The wife of one Stokes gave birth to twin children which were joined from the shoulders down to the end of their bodies. They had one set of bowels, and breast bone, but were otherwise twins. They died, and after they were dead Stokes employed a photographer to take a photograph of the corpse in a nude condition, it being agreed that only 12 photographs were to be made. Contrary to the agreement, the photographer made other photographs from the negative and obtained a copyright. Stokes and his wife sued him for damages and obtained a verdict and judgment for $2,500, which judgment was affirmed on appeal.—Douglas v. Stokes, Kentucky Court of Appeals, 149 S. W. 849.

Practice Without a License—Vermont.—The Vermont Acts 1904, No. 133, § 10, provide that a person who, "not being a physician, as aforesaid, shall advertise or hold himself out to the public as a physician or surgeon," shall be fined. The offense under this existing statute is, it is held, complete when any unlicensed person advertises or holds himself out to the public as a physician or surgeon. Actual practice is not necessary to bring a person within the penalized class. What amounts to advertising or holding out is not specified by the statute.—State v. Lindsay, Vermont Supreme Court, 84 Atl. 612.

MEDICAL RECORD.

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CONGENITAL SYPHILIS IN RELATION TO INFANT MORTALITY.

THE prevention or, at any rate, partial prevention of venereal diseases is a question that bulks large among all civilized people. Up to recent times little progress has been made in this direction by the English-speaking races because of the objection to speaking plainly on the matter. The subject has been politely ignored and the consequence has been that venereal diseases have spread with little let or hindrance. Within the past few years, however, the attitude of the medical profession and public has changed and now, especially in America, discussion is frequent with regard to the best methods to be taken to check and control this most deadly infection. In Great Britain, too, the medical profession and persons of all classes are becoming alive to the menace to the race of allowing things to continue as they are. Striking evidence of this change of view was afforded by a paper read before the English-speaking Conference on Infant Mortality held in London on August 4 and 5, by Dr. F. W. Mott, Physician to Charing Cross Hospital and Pathologist to the London County Asylum. Mott emphasized the fact that the essential cause of general paralysis of the insane is syphilis, congenital or acquired, and stated that there is considerable evidence to show that a large number of infants, apparently healthy, are really infected with the poison of syphilis and should be treated to prevent them from suffering later in life. That this is so is proved by the Wassermann test. Consequently Mott argues that, as proof has been afforded that the late sequelæ of syphilis, tabes, and general paralysis of the insane, formerly regarded as parasyphilis, are true syphilitic diseases, the time has come for medical science to deal with this problem of national importance.

In Mott's paper the incidence of syphilis in the population and its relation to nervous and mental diseases, especially general paralysis of the insane, is dealt with and the conclusion is come to that when the chances of syphilitic infection are equal for the sexes, as they necessarily must be in congenital syphilis, the incidence of general paralysis is equal in the two sexes and that therefore it may be assumed that acquired syphilis among a population bears a ratio to the incidence of general paralysis in the two sexes. Further, if the assumption be granted that general paralysis is an index of syphilitic infection of the two sexes, then for every one woman infected there are seven men. But although the majority of the women infected are prostitutes, no law would be tolerated that did not give equal rights to both sexes whatever their social status. As men spread the disease as much as women, any measure that did not prevent men as well as women from infecting healthy people would be unjust. Proper treatment in the early stages would, as a rule, be effective. Yet Mott points out the obvious truth that the duty of the State is first to prevent disease; failing that, to cure disease, prolong life, and relieve suffering, and he suggests that as 15,000,000 persons in Great Britain will now be receiving medical benefits under the insurance act, the time has come for seriously grappling with the problem of syphilis. He draws attention to the fact that after all syphilis is a more insidiously deadly disease than tuberculosis and for this reason the government should pay as much attention to its prevention and cure as it is paying to tuberculosis.

The preventive measures which he suggested were: That the evil should not be covered up from motives of false prudery. That the public conscience should be educated to the necessity of seriously dealing with the question from a preventive as well as a curative point of view. That a fruitful commencement could be made by examining by the Wassermann test the blood of all suspected mothers and children. That all those mothers with a positive reaction, even if apparently healthy, should be treated with a view to their bearing living children. That all children born of suspected parents, even apparently healthy, but who give a positive reaction, should be treated until the reaction is negative, with a view to the prevention of disease later in life. That government or municipal laboratories employed for this purpose would not only thereby perform an important service to public health, but prove of great economic value by diminishing greatly the infantile mortality, and the prevention of incurable diseases occurring at all ages. And lastly, Mott maintained it is desirable that a royal commission be appointed to inquire into the best means to be adopted for the prevention of the spread of syphilis and other venereal diseases.

At the meeting of the Canadian Medical Association held recently in London, Ont., the subject of venereal diseases was keenly discussed and a committee suggested that syphilis should be made a notifiable disease. In this country both the profession and the public have been most outspoken on the matter. Moreover at the International Congress just held in London there was a practical unanimity that more efficient measures must be taken for the prevention of venereal diseases. It only remains now to act; that is, to decide upon measures best calculated to prevent the spread of those diseases. The suggestions made in Mott's paper, while open to objection in certain particulars, might receive consideration as a possible basis for action.

THE TYRANNY OF MEDIOCRITY.

There are certain elements in the practice of medicine which not only pave the way for mediocrity but actually tend to foster this quality of mind and action. An art whose boundaries are ill-defined and whose foundations are none too secure cannot expect of its votaries a constant search for truth and a spirit which forgets self in the enthusiasm of a noble cause. The high standards which are demanded by public opinion, by examining boards, by legal responsibility, and above all by the stress of competition, eliminate actual ignorance and incompetence, so that there remain two classes of physicians—those who may be regarded as the leaders, the elect, and the expert; and those who belong to the rank and file of ordinary ability.

What are the causes of medical mediocrity? This term is not a derisive one, signifying neither good nor bad but of middling quality. The large bulk of work in the practice of medicine requires no extraordinary degree of mental ability or technical skill. The ease with which expert assistance can be obtained, the professional codes which require and the public opinion which demands the calling of consultants, frequently relieve the city physician of that burden of responsibility which, more than anything else, can develop the best that is in him. It is remarkable with what complacency the patient's friends, particularly among the poorer classes, submit to the request on the part of the medical attendant that a consultant be called. This is particularly noticeable in tenement house and lodge practice. The physician, confronted with a difficulty which he has neither the time nor the inclination to solve, takes refuge in the consultation. This by no means always solves the diagnostic problem; in fact it sometimes increases the difficulty. The original medical attendant, relying upon the superior wisdom of the consultant, pursues a line of treatment which may be inferior to that which his own mind might have evolved, had he given it a chance. In other words, the ease with which consultations may be had, the responsibility being thereby divided, actually places a premium on mediocrity.

This quality of mind is also fostered by routine. The law of habit is at once a beneficent ruler and an inexorable tyrant. Unconsciously, and by slight degrees, the physician may acquire a short way of doing things, and he may be wont to stick to his old methods even though he may be shown the new and better way of accomplishing certain results He will tactfully explain away his mental inertia by saying he is old-fashioned, but this is neither an excuse nor a justification.

When the medical man has established a lucrative practice, when his reputation has been made, when the demands upon his time are such that he is left little opportunity for study and reflection, then it is that mediocrity attains its widest scope. Under these circumstances the practice of medicine becomes a business. The physician has a ready market for his wares and is under no special incentive to improve their quality. Endowed with a shrewd knowledge of human nature, a discretion whose silence wears the mask of wisdom, a disposition to discover and cater to the whims of his patients, an urbanity and poise that reassure the timid and inspire confidence in the disheartened—all these are qualities that belong more to the art than to the science of medicine. They are almost indispensable to success, but success that is worldly and not eternal. They are the faithful handmaids of mediocrity.

With the tendency of modern medicine to divide into specialties, the practitioner is afforded the opportunity of developing his skill in a particular phase of work. The narrower the field the greater are the exactions. In the surgical specialties the tangible and patent character of the work and of the results cause the elimination of the unfit and the survival of those who are really expert. But the specialist confining his gaze to the narrow compartment in which he works is often too apt to become myopic to the broader aspects of disease and to the demands of the patient as a whole. This also opens the door to mediocrity.

BEER AND TOBACCO AND THE ARMY CANTEEN.

The officers of the United States Army, chaplains, and surgeons, line and staff, are, with a few notable exceptions, practically unanimous in urging the restoration of beer selling in the army canteens. The argument in favor of this restoration appeals almost irresistibly to the man who does not regard as a crime, moral or hygienic, the very moderate use of alcoholic beverages; and even to the moralist who believes in persuasion rather than force, in making men better if one cannot make them perfect, the permission to drink a definite quantity of a very mild intoxicant within the limits of the army post seems preferable to driving the convivially disposed soldier outside the post to dives where unlimited indulgence in whiskey is possible and where temptations to venery abound. But, says the uncompromising and impractical moralist, the soldier should not be permitted to taste intoxicants within or without the limits of the post; some of the railways and large corporations forbid their employees to drink and the army should do the same. It does not seem to occur to them that men seek employment on railways and in industrial establishments, but it is the army that seeks recruits, and it is with difficulty that it finds enough of them for its needs.

A more serious objection to the army canteen, as it formerly was, is that it encouraged the moderate use of beer, which is regarded by many as one of the most objectionable forms of alcoholic drinks, and the immoderate use of tobacco, which, when smoked in excess, is more injurious to the average man than is alcohol. To the layman, and even to many medical men, these statements may cause surprise, but there is not wanting abundant evidence to support them. It is the fashion now to credit alcohol with most of the ills of modern life, but there are none so illogical as the professional anti-alcoholists. Every evil, mental, moral, or physical, that befalls one who drinks moderately or immoderately is laid to alcohol, with no discrimination as to the kind of alcoholic beverage indulged in and with

no recognition of the fact that most of the men who drink also smoke, often intemperately. Intestinal autointoxication may not be the cause of all the ills with which it is credited, but there is no doubt it contributes to the production of some and the aggravation of more, and it is recognized that beer of all the alcoholics is the most apt to aid intestinal putrefaction, to say nothing of the injury to the heart that habitual excess in this indulgence is known to cause. That tobacco is a heart poison is freely admitted, but the injury it causes is lightly spoken of as functional and few seem to realize that the extreme cardiac arrhythmia which the drug may cause is but a step removed from cardiac failure.

Whether habitual beer drinking at the canteen, with the excess in smoking which is liable to accompany it, causes more physical injury than an occasional excess in whiskey drinking outside the post is a question which calls for more careful study than it has received. Concerning the relative morality of the two there can be no question.

Corneal Lesions After Narcosis.

Erosions of the cornea are very commonly seen after blunt violence from a great variety of causes. Any pointed object like a child's finger nail may graze the cornea. These slight, irregular lesions are extremely painful and accompanied by photophobia and lacrymation. After healing relapse is not uncommon. One would therefore imagine that clumsy attempts to touch the cornea in order to determine whether anesthesia is complete would now and then result in scratching that structure. Schnaudigel, chief of the eye clinic at Frankfort says that he has only recently seen this condition, but as often happens, he saw two cases within a short period. It was known that immediately after the narcosis both patients developed lacrymation and photophobia. The author does not believe that the nail scratched the organ for a roughened finger pulp could have caused the lesion. In another maneuver the palpebral fissure is opened slightly by the thumb and middle finger and the conjunctiva of the sclera is lightly brushed with the tip of the index finger. This might readily injure the cornea. All the data pointed to the finger theory first mentioned. The seat and shape of the lesions were such as could be made in this way. The action of ether or chloroform vapor could be excluded.

Recovery After Puerperal Tetanus.

Until recently the mortality of this affection was 100 per cent. This fact was usually explained by the frequency of tetanus after abortion or induced labor in which septic instruments were used, the anaërobic bacilli having an excellent opportunity for developing in the uterine cavity. Finally a recovered case has been reported, and not improbably there have been more unreported. At least Werner at a recent session of the Northeastern German Gynecological Society (*Deutsche medizinische Wochenschrift*, July 24) does not seem to regard as very extraordinary a case of recovery occurring in his practice. The woman was confined in a room adjoining a stable. The forceps was used and a perineal rupture led to the transfer of the woman to the Provincial Clinic of Posen. The wound was found to be so unclean that suture was abstained from. Ten days later typical puerperal tetanus developed, severe in type. Treatment with antitoxin was at once begun and in two and one-half weeks the patient was quite recovered.

News of the Week.

City Death Rate.—For the week ending August 16 the death rate in New York City was 12.14 per thousand, as compared with 13.75 for the corresponding week of last year, the total number of deaths being 1,250, against 1,362. As compared with the preceding week, also, there was a decrease of 140 deaths. There was a considerable decline in the mortality of infants under one year of age.

New Hospital to Open.—The new Flushing Hospital at Flushing, L. I., is to be opened on September 15, and the women of the town are planning to give a linen shower for the benefit of the hospital and to form a women's auxiliary to aid in raising funds for its maintenance.

Tuberculosis Sanatorium.—The Brooklyn, N. Y., Bureau of Charities has recently established a sanatorium for the treatment of tuberculosis at Coram, L. I., and sixteen children are now under treatment there. Because of fear of opposition from the neighbors, it is said, the greatest secrecy was observed in preparing the grounds and buildings. The property consists of sixty-five acres of land, on which are a main building and two large wings forming the dormitories. The buildings are said to have cost about $20,000, and are intended to house children selected from the clinics and schools of Brooklyn.

The Fourth International Congress of School Hygiene was held during the past week in Buffalo, N. Y., under the presidency of Dr. Charles W. Eliot, President Emeritus of Harvard University. At the opening session, held in Elmwood Music Hall on Monday, addresses of welcome were delivered by Secretary of Labor William B. Wilson on behalf of the Federal Government, Dr. John H. Finley of the Department of Education on behalf of New York State, and Mayor Louis P. Fuhrmann on behalf of the City of Buffalo. Over 2,000 educators, physicians, and hygienists were registered as members of the Congress.

American Mine Safety Association.—The annual meeting of the American Mine Safety Association will be held in Pittsburgh, Pa., on September 22 to 24, 1913. This is a national organization, less than a year old, which has for its purpose the promotion of the safety of underground workers by recommending the establishment of proper safeguards against accidents and the adoption of approved appliances and methods of procedure, in safety inspection, mine rescue work, and first-aid treatment, by encouraging the miners themselves to consider their own personal safety and that of their fellow workers by the creation of a National First Aid Corps and of a National Mine Rescue Corps, etc. The chairman of the executive committee of the Association states that during the year 1911 there were 2,719 persons killed in the coal mines alone, while 9,106 were seriously, and 22,228 slightly injured. Nearly an equal number of men were injured in metal mines and quarries.

Vital Statistics of New York State.—During the month of June, 1913, according to the Bulletin

of the New York State Department of Health, 17,727 births and 10,865 deaths occurred throughout the State, the number of deaths being 1,400 less than during the preceding month. Of these deaths nearly 800 were due to accidents, 146 to drowning, 86 to burns, and 145 to railway accidents. The suicides numbered 116, and 44 persons were murdered.

American Federation for Sex Hygiene.—Following a symposium on the teaching of sex hygiene, which occupied the attention of the International Congress on School Hygiene on Wednesday of this week, a consolidation was effected of the above named society and the American Vigilance Association. The united organization elected officers as follows: *President,* Dr. Charles W. Eliot, President Emeritus of Harvard University. *Vice-Presidents,* Dr. David Starr Jordan, Leland Stanford University; William T. Foster, Portland, Ore.; Felix Warburg, New York, and W. T. Sumner, Chicago. *Secretary,* Dr. Donald R. Hooker, Baltimore; *Treasurer,* Henry L. Higginson, Boston. *Directors,* Dr. Hugh Cabot, Boston; Robert W. Hebbard, Albany; Dr. D. R. Hooker, Baltimore; Dr. Ed. Y. Keyes, Jr., New York, and Wirt W. Hellam, Chicago.

Poliomyelitis in Texas.—An outbreak of 143 cases of this disease has recently been reported by the Public Health Service from Texarcana, Texas, and its vicinity. The occurrence of this epidemic in early summer, rather than late summer and fall is quite unusual. One hundred and twenty-four of the cases had their onset between May 20 and June 18. In one instance there were three cases in one family and in three instances there were two cases in one family.

Civil Service Examinations.—The United States Civil Service Commission announces an open competitive examination, for men only, for professor of pharmacology. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Hygienic Laboratory, Public Health Service, Washington, at a salary of about $4,500 a year, and vacancies as they may occur in positions requiring similar qualifications. The specific position mentioned is one of much responsibility, and it is desired to secure the services of a man who has had broad training and extensive practical experience in various branches of pharmacology, physiology, physiological and pharmaceutical chemistry, chemotherapy, etc., as they relate to medicine and the public health, and who is well qualified to undertake a work along these lines of a research, cooperative, and supervisory character. Applicants should have had practical experience in the study of metabolism as well as in experimental pharmacology; they should have had some experience in clinical medicine and be familiar with its methods. Especial weight will be given to original publications. The examination is open to all men who are citizens of the United States, less than forty-five years of age, and with sufficient education and training. Persons who meet the requirements and desire the examination should at once apply for Form 1312 to the United States Civil Service Commission, Washington, D. C.

The Illinois State Civil Service Commission will hold an examination on September 6, 1913, for the position of physician, general, in Class A, Grade III, at a salary of $75 to $125, with maintenance. The examination is open to men and women from twenty-one to fifty years of age. The scope and weights of the examination are: Training and experience, 3; special subjects, including general medicine and surgery, 7. The examination is open to non-residents of Illinois.

The Essex County Milk Supply.—At a special meeting of the Essex County (N. J.) Medical Society, called to hear the report of the Milk Committee, presented by Dr. J. M. W. Kitchen, Chairman, the following propositions were discussed, approved and adopted:

1. That the Governmental publications warning the public as to the probable and possible dangers to health of infected dairy products are so alarming as to call for energetic and widespread counteractive measures.

2. That such action should be on the part of the National and State Governments, local health boards, milk commissions, individual and co-active influence of the medical profession, and by the consumers themselves.

3. That inspection alone has not been sufficiently effective as a preventive measure, and probably will never be adequately effective.

4. That outside of a very limited amount of inspected and certified milk, all market milk should be heated at a temperature destructive to pathogenic germs.

5. That the pasteurization and other handling of milk should be under sufficiently intelligent direction, closely observed by Health Inspectors acting under stringent municipal direction.

6. That the idea of interesting the consuming public in the commercial purveying of the public's milk supply is an added safeguard to the public in connection with the character of that supply.

7. That increased protective action on the part of both governmental and State authorities, as well as local Health Boards, should be earnestly sought.

8. That this Society should have a permanent committee having power to act in promoting governmental activities in this connection.

Personals.—Dr. Milton B. Hartzell, professor of dermatology at the University of Pennsylvania, has been appointed assistant diagnostician and consultant in the Philadelphia Bureau of Health, succeeding Dr. Jay F. Schamberg, resigned.

Dr. Charles Francini of the Military Hospital at Buenos Aires arrived in New York recently as a representative of the Argentine Government to make a study of hospital conditions here.

Dr. Howard C. Taylor of this city was shot on Friday of last week by a woman upon whom he had operated for appendicitis at Roosevelt Hospital some months ago. The woman had continued in poor health and attributed her illness to the operation. Fortunately the bullet went wide of its mark, and the would-be assassin was arrested.

Gifts to Charities.—By the will of the late Emily Bailey of Langhorne, Pa., the sum of $5,000 is bequeathed to the Philadelphia Home for Incurables for the endowment of a free bed in the cancer division, and the sum of $1,000 to the Seashore Home for Invalid Children at Atlantic City, N. J.

By the will of the late Mrs. James Muir of Pottsville, Pa., the sum of $30,000 is bequeathed to the Pottsville Hospital.

Obituary Notes.—Dr. John Crannell Minor of New York, a graduate of the College of Physicians and Surgeons, New York, in 1865, a fellow of the Royal College of Physicians and Surgeons of

Great Britain, died at his summer home in Waterford, Conn., on August 16, aged seventy years.

Dr. Theodore Schaepkem Van Riempst of New York City was drowned on August 21, while fishing on upper Saranac Lake. The boat was capsized by the swell of a passing launch and his legs becoming entangled in the fishline, he sank at once. Dr. Van Riempst obtained his medical degree in Belgium, in 1900, and served for a time on the house staff of the Massachusetts General Hospital, Boston, before taking up practice in New York.

Dr. George Porterfield Morison of Martinsburg, W. Va., a graduate of the New York University Medical College in 1881, died at his home after a long illness, on July 24, aged 59 years.

Dr. William Basilio Mackie of Boston, a graduate of the Harvard Medical School, Boston, in 1862, a member of the Massachusetts State and Suffolk County Medical Societies, and vice-consul at Boston of the Venezuelan Government, died at the home of his son in Brookline, on August 8, aged 79 years.

Dr. C. C. Garnett of Lithia Springs, Ga., a graduate of the Atlanta Medical College in 1872, and for sixteen years chairman of the Board of Education of Douglas County, died at his home on August 5.

Dr. Frank A. Nevers of Houlton, Maine, a graduate of the Missouri Medical College, St. Louis, in 1874, and a charter member of the New Brunswick Medical Society, died at his home, after a long illness, on August 3, aged 63 years.

Dr. Charles Benjamin Heintzman of Metamora, Ill., a graduate of the Rush Medical College, Chicago, in 1890, and a member of the Illinois State and Woodford County Medical Societies, who was injured in an automobile accident a few days before, died at the Mercy Hospital, Des Moines, on July 31, aged 66 years.

Dr. James E. Overstreet of Baxley, Ga., died at his home from Bright's disease, after a long illness, on August 2, aged 40 years.

Dr. Lingard I. Whiteford, a graduate of the College of Physicians and Surgeons, Baltimore, in 1897, died at his home in Parkville, Md., on August 4, aged 35 years.

Dr. James Pendleton Carter of Gerrardstown, W. Va., a graduate of the University of Maryland School of Medicine, Baltimore, in 1852, died at his home on August 4, aged 83 years.

Dr. Thomas W. Bailey of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, in 1902, died at his home from typhoid fever on August 1, aged 34 years.

Dr. John Windle of Hamorton, Penn., a graduate of the University of Pennsylvania, Department of Medicine, in 1854, died at his home on August 6, aged 88 years.

Dr. Henry Cushman Turner of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1867, and one of the founders of and consulting physician to the Norwegian Hospital, died from Bright's disease, on August 16, at Washington, Conn., aged sixty-eight years.

Dr. William Ely Jones of Cincinnati, O., a graduate of Miami College, Cincinnati, in 1890, died at his home on August 11, after a long illness, aged forty-four years.

Dr. William L. Abernethy of Hickory, N. C., a graduate of the Louisville Medical College, Louisville, Ky., in 1877, and a member of the North Carolina State and Catawba County Medical Societies, died suddenly at his home on August 11, aged sixty-two years.

Dr. Emerson Pullen McGeorge, of Woodstown, N. J., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1894, a member of the New Jersey State and Salem County Medical Societies, and at one time coroner of Salem County, died suddenly at his home on August 13, aged forty-two years.

Dr. Emily Wells, of Binghamton, N. Y., a graduate of the Woman's Medical College of the New York Infirmary for Women and Children, New York, in 1873, a member of the New York State and Brown County Medical Societies, and said to have been the first woman physician in this State, died at her home on August 21, aged seventy-two years.

Dr. Calvin Ingram Fletcher, of Indianapolis, Ind., a graduate of the Medical College of Indiana, in 1880, and a member of the American Medical Association, and the Indiana State and Marion County Medical Societies, was instantly killed on August 19 by a fall while ascending Blackfoot Glacier in Glacier National Park, Mont.

Dr. James E. M. Lordly of New York, a graduate of the College of Physicians and Surgeons, New York, in 1868, and a member of the Alumni Association of the College, died recently at his summer home in Chester, Nova Scotia, aged sixty-seven years.

Dr. Clinton C. Miller, of St. Paul, Minn., a graduate of the New York University Medical College in 1877, died recently at his home, aged fifty-nine years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CONFERENCES AND REPORTS — ANTI-TUBERCULOUS CAMPAIGN; DEBATES ON (A) TUBERCULIN—(B) ON COORDINATIONS OF EFFORT—COUNTY COUNCIL ANNOUNCEMENT—DENTAL ASSOCIATION—KING AT SUSSEX HOSPITAL—BALY MEDAL AND MURCHISON SCHOLARSHIP.

London, August 9, 1913.

Conferences, meetings, and reports of many organizations connected more or less closely with medicine have been crowded into this week, as indeed they were into the last, and promise to be into the next. Precedence is of course due to the International Congress of Medicine as the most important which to a large extent has monopolized our conversation. But as you will have your own reports of the Congress, I may pass over it for other matters which deserve some attention, merely remarking that America and all the other countries have sent us delegates and numerous independent observers have also come. For these we have provided entertainments and social engagements on a large scale. Many of us have had a houseful of foreign friends who have of course claimed our first attention. Others who had not such accommodation have combined to give breakfasts, luncheons, dinners, etc., to groups of mutual friends, thus supplementing the more public functions of the State, the corporation, colleges, hospitals, and other institutions.

The opening of the Congress by Prince Arthur of

Connaught did not take place until Wednesday, and, with the remark that it was a most brilliant affair, I turn to notice some of the other organizations mentioned above. Of these the Fifth Annual Conference of the Association for Preventing Consumption had the advantage of being opened by the Premier who said at the outset he had not come to deliver an address but simply to express good wishes for the practical success of their deliberations. He then remarked on the great decrease in the number of deaths due to this scourge of humanity and gave a few figures to this effect which, of course, had been supplied to him.

Here came the discussion on Tuberculin which had been looked forward to by many. It was opened by Dr. H. W. G. Mackenzie of the Brompton Hospital. He admitted that the unquestionable value of tuberculin for diagnosis in cattle had proved of the greatest value but it was not so great in man. The test did not distinguish latent or arrested from active disease. He therefore deprecated its indiscriminate use as a means of diagnosis. As a curative agent after the early rejection it met with it had again been brought forward but no one had shown that guinea pigs had been cured by it. It was the only thing with any claim to be specific brought forward during the last quarter of a century. It was still on its trial. So far the results were not convincing. There had been abundant theorizing but practical proof was wanting.

Dr. Sims Woodhead confessed we must not deceive ourselves into a belief that tuberculin however administered had up to the present time induced anything like immunity against virulent bacilli. The fact that tuberculin was produced by the bacillus showed that it was a powerful ally in some conditions and a dangerous enemy in others.

Dr. Rubinowitsch-Kempner (Berlin) said experiments in laboratories were needed rather than patients should play the part of experimental animals. Cures had been advertised but the patients had not been produced to speak—could not—for, in fact, they were dead.

Dr. Sahli (Berne) joined in the condemnation for diagnosis. In treatment it was free from danger if the obvious reactions were avoided. It was good in incipient cases. All localized tuberculosis might be treated with it, if the patient's system were not already loaded with it. Well dilated it was a real therapeutic advance.

Dr. Nathan Rau (Liverpool) after treating about 1,000 patients with injections of tuberculin believed it to be of the greatest value; particularly in the early stage and when the deposit was localized—but when disseminated or complicated with secondary infections it could not avail much. He advised open-air life, preferably in a sanatorium, abundant nutriment, gentle exercise followed by rest and a course of tuberculin under a careful physician.

Prof. Charles White (Pittsburgh) drew attention to the need of a standard tuberculin and further to the differences among those employing it. He quoted a case of a patient who had bought a proprietary tuberculin and was taking it under sanction of his physician according to directions on the bottle and in progressively increasing doses. Results, the worst possible. He believed, however, in tuberculin as a valuable aid to other treatment. He was himself tuberculous and had taken it in some form, every two weeks, for seven years. Probably some other factors must be added to tuberculin before we can talk of a specific.

Dr. Halliday Sutherland held that tuberculin was an invaluable adjunct to other treatment and the experimental evidence of its value for prevention was clear. Cattle treated with it could resist a 1,000 times the usual dose. He would inject it into the children of tuberculous parents.

Dr. Bardswell said the results in King Edward VII. Sanatorium showed that when bacilli were not found in the sputum the cases did equally well under sanatorium treatment alone or when tuberculin was added. It would not convert an unfavorable into a favorable case. More often than not it did harm.

Sir J. K. Fowler said its use was in no case free from danger. It was inadmissible in cases where any degree of pyrexia existed, for focal reactions enhanced the danger. Sir R. Phillip coincided and said given by rule of thumb the results were apt to be unfortunate or even disastrous.

The Conversazione was held in the evening and the conference continued next day when Sir R. W Philip (Edinburgh) opened a discussion on the need for coordination of effort in our anti-tuberculosis measures. The moment it was decided to be an infective disease the way was open to its control and eradication and they could recast with success their methods. This decision as to infection was followed by a recognition of its endemic character and its spread on account of social conditions. If the disease followed a definite course like most infective processes it would be a matter of diagnosis and sending the patient to hospital for a certain time. But clinically scarcely two cases were alike. The insidious, tenacious, illusive character of the malady demanded more specialized procedure than other fevers. He related how the idea of the dispensary system occurred to him in Edinburgh and concluded that the unity with extraordinary variety which created the need at the same time pointed the way.

Dr. A. Neal (Sheffield) urged the need for cooperation with medical officer of health, school medical officer, veterinary staff, university or school (for bacteriological work) hospital staff and poor law infirmaries—in fact all institutions and officials concerned in a district.

Dr. H. Biggs (U. S.) declared preventive and curative efforts must be futile so long as advanced cases remained in overcrowded homes under insanitary conditions. The New York Board of Health utilized all existing agencies and never undertook to do what any organization was doing well.

Dr. W. C. White (Pittsburgh) said some central clearing office was needed in every district with correlated agencies for handling all types and classes of cases and all branches of curative and preventive as was first shown by Sir R. Philip. He declared, too, that the system of teaching was defective for the cases were excluded from general hospitals.

Dr. E. Rist (Paris) said the need of systematized coordination was hardly realized in his country. A permanent commission had been appointed years ago but so far had achieved nothing. It had no contact with or control over any institutions that existed to fight the malady. But lately it decided in favor of compulsory notification though it was not certain the government would follow the advice of the academy for a minority were agitating against this as every kind of compulsion.

Sir Clifford Allbutt then contributed a few wise words on the clinical side of the individual patient. Tuberculosis was an abstraction. What they had to do with was a vast number of individuals. If

clinical work was put second to that of the M.O.H. there was risk of retrogression. It was all very well to say deal with phthisis as with scarlet fever. But one took eight weeks to deal with, the other might take a lifetime and it was very serious to break up a family and plant a person 60 or 70 miles off all home associations. If it is true that the germ implanted itself in the first year of life, then what many called the first stage meant advanced phthisis. He was amazed at the figures of Dr. Biggs. He cordially agreed with Sir R. Philip about dispensaries and out-patients.

Prof. Saugmann (Denmark) said cooperation of the State was necessary for complete success. In Denmark the State had done more in this campaign than any country. By two acts (April, 1905) it advanced into the first line of battle, 15 sanatoria were at work with 1,195 beds, 26 hospitals and special wards with 748 beds equal to 1 bed for about 1,400 inhabitants. Every public school teacher affected was dismissed with a retiring allowance of two-thirds of his salary.

Sir William Thompson, Registrar General for Ireland, submitted statistics showing a fall from 1864. Dr. Biggon of the Irish L. G. B., collaborated these with emigration and Professor Thompson (Dublin) maintained that Ireland was now in a fair way to meet the ravages of tuberculosis.

At the conclusion of this conference came an announcement of the highest importance. Mr. L. C. Courtauld, a member of the London County Council, came and told the assembly that, on the invitation of the L. G. B. the County Council had prepared a scheme for the prevention and treatment of tuberculosis which is now before the board and is on the line of utilizing all existing agencies—hospitals, dispensaries, public health authorities, and general practitioners. The council felt it a duty to secure the cooperation of all for success of the scheme must depend on the good will of all.

Lord Glenconner, who had presided, then closed the conference with a few words of thanks to the audience, especially those who attended from the United States and the Continent. A vote of thanks was heartily accorded.

Cambridge gave a civic and university welcome to the British Dental Association for its annual meeting. The President, Mr. N. A. Rhodes, in his address, said no more beneficial innovation had been made of late than the dental examinations of school children. It seemed to be dawning slowly on the nation that prevention was the best ideal to strive for. Malnutrition followed defective teeth as a matter of course. Dental disease was a rapidly progressive one. The law in effect permitted anyone to practice—a state of affairs which was a scandal as well as a danger to the public. The proposal for a public dental service was to be submitted at the meeting and considering how profoundly dental diseases affect the public health it was felt that the services of qualified dental surgeons should be within the reach of those entitled to the medical benefits of the Insurance Act. It was thought probable the government might approach the profession with a view of making some such arrangement, in which case the association would give most cordial support. A motion was then made and seconded approving such a scheme and instructing the board to submit it to the profession with a view of it being carried out. Regret was expressed that greater interest was not taken in it, the time being favorable, but there was a feeling that it was too great and would affect thirteen millions of insured persons. Others objected that there would not be a sufficient staff, only about 5,000 dentists being potentially prepared to deal with the public as it should not be forgotten that the thirteen millions insured did not include many women and none of the children. To this another speaker held it would be better to extend power to the board to deal with the question as occasion arose and according to the demands of the government, the public, and the profession. It was really only a subject of public insurance and should be voluntary, not compulsory. We coud not admit there were not dentists enough to undertake all the dental work required. After further discussion, the principal of a public dental service was approved and the Representative Board instructed to submit the matter to the profession and to appoint a committee to promote or assist in establishing such a service throughout the country.

The King visited Chichester on the 2nd inst. and opened the reconstructed West Sussex Hospital, which has been to a great extent rebuilt and renovated at a cost of £16,000 as a memorial to Edward VII. The late Mr. W. James contributed £10,000 to the cost and the King in reply to one address referred to this and expressed pleasure that the citizens had dedicated the building to the memory of his father and acceeding to the request it should in future be known as the Royal West Sussex Hospital. He then spent half an hour inspecting the various departments.

The Royal College of Physicians has awarded the Baly medal to Dr. John Scott Reader in Physiology at the University of Oxford. The Murchison scholarship, which is awarded alternately by the College and the University, has this year been awarded by the University to Dr. Alan William Stuart Sichel.

THE INTERNATIONAL ASSOCIATION OF THE MEDICAL PRESS.

(From Our Special Correspondent.)

The meeting of the International Association of the Medical Press took place on Tuesday, August 5, the day before the opening of the Medical Congress. Representatives of this association to the number of fifty or thereabouts met in the Jehangir Hall of the Imperial Institute, a building in close proximity to the Albert Hall, the headquarters of the Congress. Members of several nationalities were present. The morning session commenced at eleven o'clock with Dr. Squire Sprigge, editor of the *Lancet*, president of the British section, in the chair.

Dr. Lucas Championnière, president of the association, made the opening speech in which he welcomed the representatives and remarked that it was a matter for regret that they did not meet more frequently as there was much useful work to be done. Former congresses had been badly reported but great improvements in this respect had been effected.

Dr. Sprigge, on behalf of the British branch of the association, spoke first in French, and continuing in English, said in part, that for longer than a year and a half the British medical press had been involved in political action to an extent never known before. That the intervention of the medical press had been accepted as useful and necessary by the public and the great lay organs of the press was to be considered a remarkable advance in the position

of medicine and the medical press. It was immediately recognized that the efficacy and the virtue of a great modern attempt at social legislation revolved round the question as to whether or not the medical profession would and could meet the responsibilities which the Insurance Act threw upon them. He did not propose to discuss the Act at all, but only to mention the part which the doctors had played during its passage through Parliament. It was seen throughout that the whole working of the Act depended on the medical profession, which alone could give the medical benefits assured to their fellow citizens, and the medical press insisted that good service could only be obtained if good terms were given. Dr. Dawson Williams and the *British Medical Journal* had admirably voiced the official views of the medical profession. The other medical journals, including the *Lancet,* were able to criticize both the act and the profession in a way which the organ of the British Medical Association was precluded from doing, but they all fell into line in demanding a drastic revision of the first proposals made. The lay press recognized the leadership of the medical journals. Considerable improvements in the proposed law were thus brought about. Thus medicine had become a real force in the politics of the country, while at the same time the ordinary scientific work of medical journalism had not been neglected.

Dr. Raoul Blondel, general secretary of the association, then read his report in which he passed in review the happenings since the last meeting of the Congress in Budapest in 1909.

Soon after the reading of this report Dr. Blondel read a paper on medical terminology, a most important contribution to a matter essentially a question of the times, and which is deserving of a more extended consideration than is possible in the space at disposal.

On the conclusion of Dr. Blondel's paper an adjournment was made to the Hyde Park Hotel to partake of a luncheon given by the editor of the *Lancet* to members of the Congress. The luncheon was a most enjoyable affair, all present fraternizing in the most cordial manner. Among those present was Dr. Kenneth Millican, now on the staff of the *Lancet,* but who was for some years connected with some of the principal medical journals of America, and after luncheon Dr. Sprigge, in a few well chosen words gave the usual toasts, coupling that of the association with the names of Dr. Lucas-Championnière, its president, and Dr. Raoul Blondel, its secretary.

In responding Dr. Lucas-Championnière made a peculiarly happy speech in which he said that he had been long accustomed to British hospitality. That quality was an old and esteemed friend. To-day they were the guests of the *Lancet,* a huge paper that carried medical news to all countries, but he had not been aware that it was also able to provide a menu so complete as to render speech difficult. It had been an extraordinarily laborious fear for the British medical press, and they must congratulate all those concerned on the good work accomplished. To some extent they had to defend the medical profession against the whole country, for the real questions at issue were not well understood. Doctors were sometimes reproached for pursuing a money-grubbing policy. In reality this was a policy of honesty, for we could not expect honesty from those who were exploited and underpaid.

Dr. Blondel made a very brief speech in which he remarked that the only thing he would say could be said in one word, *merci,* and Dr. Sprigge capped this by confessing that although he could not be quite so brief as Dr. Blondel, he would express his sentiments in two words, *merci beaucoup.* The after-dinner or rather after luncheon speaking ended with a really eloquent and apt speech in French by Mr. Adolphe Smith. All the members thoroughly appreciated the hospitality of the editor of the *Lancet* and doubtless thereby were stimulated to resume their deliberations with renewed vigor. At the afternoon session of the Congress, Dr. La Torre (Italy) and others discussed Dr. Blondel's paper on medical terminology.

Professor Posner, editor of the *Berliner klinische Wochenschrift,* presented a report on the responsibility of medical journals with respect to advertisements. This report failed, however, to provoke much discussion important as the subject undoubtedly is. Dr. Dejace, of Belgium, was elected president of the Association on the resignation of Professor Lucas-Championnière and Dr. R. Blondel and Dr. Dawson Williams were reelected as general secretary and treasurer respectively. The Congress will meet again in Munich at the same time as the next International Congress of Medicine.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 14, 1913.

1. Sphincteric Atrophy: Causes, Consequences and Treatment. R. W. Jackson.
2. The Rôle of "Family Clusters" in the Prevalence of Pulmonary Tuberculosis. C. C. MacCorison and N. B. Burns.
3. Diagnosis of Typhoid Fever on Admission to a Hospital. G. C. Shattuck and C. H. Lawrence.
4. Experimental Scorbutus and the Roentgen-Ray Diagnosis of Scorbutus. F. B. Talbot, W. J. Dodd and H. O. Peterson.

1. Sphincteric Atrophy.—R. W. Jackson discusses the causes, prevention, and treatment of atrophy of the sphincter ani. He states that sphincteric weakness is often a part of general muscular debility. It is quite commonly seen in poorly nourished infants and improves along with the general gain in muscular strength and adipose tissue. The traumatic causes of sphincteric degeneration are either operative or non-operative, and chiefly proctological or obstetrical, or due to overstretching. The perfectly legitimate procedure of incision of the external sphincters for fissure, or possibly of the internal as well for fistula, is performed but with disastrous results on account of the faulty method of after-care. The severed ends are not properly approximated because the fibers have been cut obliquely instead or radially; or, in place of being united by a well-developed wedge of granulation tissue filling the cut, they are kept apart by a sulcus resulting from one of two causes: either the hemorrhoidal overhang, which occurs on each side of any incision through the sphincters, has not been trimmed off, but has been allowed to dip down into the cut; or the mucosa from the edges has been permitted to follow its certain tendency to proliferate faster than the granulations from the bottom. In such cases the muscles contract inefficiently, fall into partial disuse, and in time the consequent atrophy is only too apparent. Similar and more marked and extensive structural changes result from common obstetrical injuries. Rarely overdivulsion at operations has produced permanent sphincteric injury and impairment of function; but, however rare, the author believes that undue stress is generally laid on the necessity for vigorous divulsion in all anal surgery. His rule is to do this to an extent directly proportionate to the amount of muscular tonicity ascertained by digital ex-

amination before the anesthesia. Divulsion might well be omitted entirely in many cases where it is done.

2. **"Family Clusters" in the Prevalence of Pulmonary Tuberculosis.**—C. C. MacMorison and N. B. Burns, in reviewing the records of 1,300 admissions to a sanatorium, made a study of the data relating to the pedigrees of certain cases. In 134 distinct examples there occurred the incidence of at least three cases of pulmonary tuberculosis in a single family. These groups of infected people are designated as "family clusters." A study of these family groups leads the author to believe that the domiciliary distribution of tuberculosis may be due wholly or in part to the establishment of foci of infection following carelessness of individuals, usually adult open cases with the disease. The swiftest channels for spread of disease and for furtherance of its activity are through the family lines. Some authorities hold that tuberculosis is not, as a rule, contracted in adult life and that the infection is contracted in childhood, remains latent, and becomes manifest as the responsibilities of adult life wear down the resistance.

3. **Diagnosis of Typhoid Fever.**—G. C. Shattuck and C. H. Lawrence report that in their series of 100 non-typhoid patients of fourteen years of age or older in which typhoid fever was suspected, bronchitis, bronchopneumonia, and influenza represent 29 per cent. or nearly one-third of the whole, undiagnosed fevers 15 per cent., and gastroenteritis, diarrhea, and colitis 12 per cent. The importance of these diseases in the differential diagnosis from typhoid has not been fully appreciated. Absence of rose-spots at the first examination has little weight for diagnosis. The same is true of splenic enlargement when not demonstrable by palpation, and of the Widal test when negative. A positive Widal test is of the greatest importance. Typical rose-spots are very important and a palpable spleen is a valuable indication of typhoid, but is common in various conditions simulating typhoid. Atypical rose-spots are valueless for diagnosis. Absence of leucocytosis in a febrile disease strongly suggests typhoid. A white-count below 5,000 is a valuable indication of typhoid fever, and is unusual in conditions simulating typhoid. A white-count above 9,000 is presumptive evidence against typhoid. Bronchitis has no weight *per se* either for or against the diagnosis of typhoid fever. Congestion of the bases of the lungs, when present in a febrile disease uncomplicated by cardiac insufficiency, points to typhoid. The temperature in typhoid fever is seldom below 101°, whereas in other conditions simulating typhoid the temperature is commonly below 101°. In typhoid, the pulse-rate is more apt to be low in proportion to the temperature than in other diseases.

4. **Experimental Scorbutus.**—F. B. Talbot, W. J. Dodd, and H. O. Peterson state that the "white line" on the radiograph is a constant sign in infantile scorbutus. It may persist many months after there is a complete clinical cure, suggesting that the pathological changes in the bones are not repaired for many months and that the repair is very slow. Scorbutus may be produced experimentally in the guinea-pig and in the monkey. The "white line" can be produced experimentally in both the guinea-pig and the monkey; this line is seen under the microscope as a localized area of increased density.

New York Medical Journal.

August 16, 1913.

1. The Prevention of Deafness. G. Hudson-Makuen.
2. The Importance of Serological Analysis in Neurology. D. M. Kaplan.
3. Safety Pin Removed from Larynx of Child by Direct Laryngoscopy. H. Smith.
4. The Etiology and Treatment of Hypertrichosis. P. E. Bechet.
5. Secretin as a Remedy in Gastrointestinal Disorders. H. R. Harrower.
6. Importance of Early Operation for the Radical Cure of Hernia. H. W. Austin.
7. The Use of Phosphorus in Diseases of the Lungs. F. Lemon.
8. Stanford University, California. Notes on the Response of Veins to Epinephrin. A. C. Crawford and M. M. Twombly.
9. So-Called Latent Syphilities, or Paretics and Tabetics: A Water Suggestion. J. C. Minor.
10. Typhoid Fever from Uncooked Vegetables. C. Pixley.

1. **The Prevention of Deafness.**—G. Hudson Makuen states that the prevention of deafness is the work of the eugenist, the hygienist, and the legislator. It is the function of the eugenist to see that children are well born; of the hygienist to see that the mother is cared for during pregnancy, and the child immediately thereafter; and it is the function of the legislator to enact such laws with reference to deafness as the eugenist and hygienist find to be desirable and practicable. Moreover, in these days of progressive medicine, the physician himself should be a eugenist, as well as a hygienist, and should take a leading part also in the adoption of the laws which make for health and happiness.

5. **Therapeutic Value of Secretin.**—H. R. Harrower concludes that secretin is a specific excitant of all the important digestive juices—pancreatic, gastric, hepatic, and intestinal. It may be secured just as are other animal extracts, and it has the advantage of being a definite, stable preparation. It may be given by mouth with good results in the large class of gastrohepatointestinal disorders described under the general head of "digestive insufficiencies." Such medication is physiological, as in certain cases it seems that secretin is a necessary substance which the body is not supplying in its normal amount. Secretin is not a digestant, having no influence whatever comparable with that of pepsin or pancreatin, but its fundamental value is superior to these ferments, as well as to other forms of stimulation, such as strychnine, ginger, etc. The administration of secretin is quite harmless, causes no habit, and does not interfere with other orthodox treatment, and its administration may with advantage be associated with that of digestants, tonics, etc.

7. **Phosphorus in the Treatment of Pulmonary Diseases.**—F. Lemon states that he has employed phosphorus successfully in all classes of cases of lung disease during the past eleven years. He is convinced that this drug has a direct action upon the lung tissue—which perhaps accounts for its rapid effects in acute bronchitis and pneumonia. Not only does the pulmonary condition improve, but the whole bodily condition shows greater vigor. The author suggests that the tendency to tuberculosis is brought about by a lack of phosphorus in the nervous and other tissues of the patients.

Journal of the American Medical Association.

August 16, 1913.

1. The Local Specific Therapy of Infections. 1.—The Biological Basis. S. Flexner.
2. Overresponse to Affective Stimuli from Stationary Cortical Lesions. With Report of a Case. G. W. Robinson.
3. Cloudy Swelling. E. T. Bell.
4. Experimental Cirrhosis of the Liver. A. L. Grover.
5. Attempts to Transmit Poliomyelitis by Means of the Stable-Fly (*Stomoxys calcitrans*). W. A. Sawyer and W. B. Herms.
6. Rest and Repair in Pulmonary Tuberculosis. J. W. Flinn.
7. Epididymotomy. The Radical Operative Treatment of Epididymitis. L. L. Eckels.
8. Mental Deficiency and Delinquency. O. Bridgman.
9. Further Observations with a Saccharomyces. L. M. Breed.
10. Symptomatology of Multiple Sclerosis. L. H. Mettler.
11. The Remote Effects of Lesions of the Prostate and Deep Urethra. T. McCrae.
12. Some Nervous Symptoms of Pernicious Anemia. C. E. Riggs.
13. The Serodiagnosis of Pregnancy. H. Schwarz.
14. Duration of Immunity Following Small-Pox Vaccination. A. W. Lescobier.
15. A Simplified Method of Direct Blood Transfusion with Self-Retaining Tubes. L. H. Landon.
16. An Adjustable Bed-Frame. E. V. Keller.
19. Illuminated Ear Speculum. F. A. Kiehle.
18. A Coin-Catcher for Removing Coins from the Esophagus. J. R. Gilbert.

1. **Local Specific Therapy of Infections.**—S. Flexner states that the solution of the problem of specific treatment of disease is bound up in no small way with the problem of the segregation of the parasitic causes of infection in relatively inaccessible portions of the body.

Hence, he recommends a more direct mode of attack on the local processes of infection that are not readily, or at all, to be reached by the introduction of curative agents into the blood. It is patent that a method enabling the healing substances to be delivered in and about the seat of disease and made to exercise their effects on the parasites, not through a diluted lymph secretion, but in such a state of concentration and combination as experiment and experience proves in given instances to be useful, offers high hopes of success. So far as the surfaces of the body are concerned the method of local treatment, generally considered, is time-honored; but even with the infections of these surfaces it has been too little practiced.

3. **Cloudy Swelling.**—E. T. Bell points out that the gross features of cloudy swelling may be present in the absence of the classical microscopical picture and vice versa. Edema and fatty metamorphosis play an important part in the production of the gross picture. The microscopical appearances are best judged in fresh unstained preparations not treated with any fluid. The Altmann granules and granules stained by *intravitam* methods are not identical to any considerable extent with those of cloudy swelling. The albuminous granules seen in experimentally produced cloudy swelling in the kidney of the rabbit are much larger than those commonly described in human tissues. As the lesion in this instance becomes more advanced the number of dark tubules increases—some always remaining clear. The characteristic microscopical appearances are not seen in frozen sections or fixed material. Cloudy swelling is not a definite pathological condition. It is suggested that the term be employed only in gross description and that a qualifying phrase be added to indicate the associated microscopical changes.

4. **Experimental Cirrhosis of the Liver.**—A. L. Grover presents a brief review of former experimental work on cirrhosis of the liver and notes that, in accordance with Mallory's classification of the disease, the pigmentary and the syphilitic, the toxic and the infectious types have been fairly well worked out from an etiological point of view. The author's investigation has in a limited way confirmed the results as to the toxic, particularly as to the infectious and the so-called obstructive biliary types of the disease. The author believes that he has obtained a method by which the alcoholic types may be reproduced experimentally.

5. **Transmission of Poliomyelitis.**—W. H. Sawyer and W. B. Herms conclude that in a series of seven experiments in which the conditions were varied they were unable to transmit poliomyelitis from monkey to monkey through the agency of the stable-fly. Further experimentation may reveal conditions under which the stable-fly can readily transfer poliomyelitis, but the negative results of the authors' work and of the second set of experiments of Anderson and Frost lead the authors to doubt that the fly is the usual agent in spreading the disease in nature. On the basis of the evidence now at hand one should continue to isolate persons sick with poliomyelitis or convalescent, and one should attempt to limit the formation of human carriers and to detect and control them. The screening of sick-rooms against the stable-fly and other flying insects is a precaution which should be added to those directed against contact infection, but not substituted for them. The measures used in suppressing the house-fly are not applicable to the control of the stable-fly, owing to its different breeding habits and food supply. Methods should be devised for diminishing the numbers of stable-flies as they are a great annoyance to cattle and, in all probability are capable of transferring and inoculating a number of the diseases of animals.

6. **Rest and Repair in Pulmonary Tuberculosis.**—By J. W. Flinn. (See MEDICAL RECORD, June 21, 1913.)

7. **Epididymotomy.**—L. S. Eckels believes that epididymotomy should be the treatment of choice in all cases of epididymitis, whether caused by traumatism or by infection with either the gonococcus or other organism. Every case from the mildest to the most severe should be operated on as: the relief from pain is instantaneous; internal administration of sedatives and opiates and loathsome external applications are unnecessary; the abatement of fever takes place in from twenty-four to forty-eight hours; pus and abscess formation is prevented; swelling, tenderness, and other symptoms rapidly disappear; there is no tendency to relapse; the operation insures a minimum of time lost from usual activities; there is probably a smaller percentage of sterility following the disease.

11. **Remote Effects of Lesions of the Prostate and Deep Urethra.**—By T. McCrae. (See MEDICAL RECORD, June 21, 1913, page 1147.)

The Lancet.

August 9, 1913.

1. Presidential Address Delivered before the Seventeenth International Congress of Medicine on Aug. 6, 1913. Sir Thomas Barlow.
2. Medical Prognosis: Its Methods, Its Evolution, Its Limitations. A. Chauffard.
3. Realignments in Greater Medicine: Their Effect upon Surgery and the Influence of Surgery upon them. H. Cushing.
4. The Value of Tuberculin in Pulmonary Tuberculosis. Sir James K. Fowler.
5. The Place of Tuberculin in Treatment in Relation to Other Methods. W. C. White.
6. Theses on Tuberculin Treatment. Professor Dr. Sahli.
7. The Technique of Electrocardiography for Clinical Purposes. A. D. Waller.
8. The Albumin Reaction in Sputum: Its Significance and Causation. P. B. Ridge and H. A. Treadgold.
9. Basophile Patches in the Protoplasm of the Neutrophile Polymorphs. A. Roemmele and R. Sweet.
10. Syphilitic Infection Followed by Landry's Syndrome and Later by Tabes Dorsalis. E. D. Macnamara.
11. An Investigation of the "Chronic Irritation" Caused by Fumes and Dust Produced in the Process of Manufacturing Tinplates. H. C. Ross and J. W. Cropper.
12. A Case of Volvulus of the Small Intestine Complicating General Peritonitis Recovery. By C. W. Cunnington.
13. The Prevalence of Chronic Gastric Disease in Spain: Notes on Medical and Surgical Treatment. W. A. Mackay and I. Macdonald.
14. Etude Préparatoire à un Projet de Révision Internationale de la Terminologie Médicale. R. Blondel.

1. **Presidential Address Before the International Medical Congress.**—By Sir Thomas Barlow. (See MEDICAL RECORD, August 23, 1913, page 359.)

2. **Address in Medicine: Medical Prognosis.**—By A. Chauffard. (See MEDICAL RECORD, August 23, 1913, page 360.)

3. **Address in Surgery: Realignments in Greater Medicine.**—By Harvey Cushing. (See MEDICAL RECORD, August 23, 1913, page 361.)

4. **Value of Tuberculin.**—Sir James K. Fowler emphasizes the fact that the use of tuberculin in any form in the treatment of pulmonary tuberculosis is not free from danger. Even with exceedingly small initial doses which are gradually increased the limit of tolerance may be suddenly reached and a reaction may occur. Its use is absolutely inadmissible in any case in which there is fever. Fever is the guide to the activity of the disease; therefore, the rôle of any remedial agent which can only be employed in afebrile cases is necessarily very limited. General reactions should be avoided. If one occurs the treatment should at once cease. To continue tuberculin injections with increasing doses in spite of reactions is unjustifiable and dangerous to the life of the patient. Focal reactions are also dangerous, as they cannot be controlled. They may occur in the neighborhood of obsolete lesions, such as it is the object of all treatment to produce. Calcareous particles are "sleeping dogs" which should not be disturbed. The treatment likely to be attended by the best results should follow the lines of rest and exercise originated by Otto Walther at Nordrach, and further developed by Marcus Paterson at the Frimley Sanatorium of the Brompton Hospital.

8. **The Albumin Reaction in Sputum.**—P. B. Ridge and H. A. Treadgold conclude that in practically all cases

of active pulmonary tuberculosis there is albumin in the sputum. A negative examination for albumin on three successive occasions where tubercle bacilli are also absent, is strong evidence against active tuberculosis. The presence of albumin in doubtful early cases of pulmonary tuberculosis helps to support this diagnosis. The test is of considerable value in cases of chronic tuberculosis and emphysema as evidence of active disease.

11. **Chronic Irritation in the Tin-Plate Industry.**—H. C. Ross and J. W. Cropper note that recent researches into the causation of warts and ulceration which predispose to epithelioma in the patent fuel (briquette) industry have shown that these conditions are probably due to substances known as auxetics and kinetics. Auxetics are chemical agents which give rise to cell-proliferation, and kinetics are agents which excite ameboid movements. Both of them are found in some forms of coal, tar, and pitch; and experimentally there is reason to believe that together they are the cause of the pathological changes which predispose to malignant proliferation. This has led to a similar investigation being made in connection with the tin-plate industry. In the process of tinning fumes are given off which have a powerful irritating effect on the mucous membrane, and it is with a view to finding out whether these fumes contain auxetics and kinetics that the authors' research was undertaken. At the pitch works the pathological lesions are confined to the eyes and skin, but in the tin-plate works the skin remains unaffected, and it is only in the nasopharyngeal and alimentary passages that the irritation is felt.

British Medical Journal.

August 9, 1913.

1. President's Address. Sir Thomas Barlow.
2. Medical Prognosis: Its Methods, Its Evolution, Its Limitations. Professor A. Chauffard.
3. Realinements in Greater Medicine: Their Effect upon Surgery and the Influence of Surgery upon them. H. Cushing.
4. Pellagra in Great Britain. Notes of Some Further Cases. L. W. Sambon.
5. Abscess due to *Streptothrix eppingeris* (*Actinomyces asteroides*) Resembling a Staphylococcal Infection. W. Broughton-Alcock.
6. The Treatment of Chronic Progressive Diseases of the Spinal Cord by *X*-Rays. With an Account of Two Cases. F. Hernaman-Johnson.

1. **President's Address.**—By Sir Thomas Barlow. (See MEDICAL RECORD, August 23, 1913, page 359.)

2. **Address in Medicine.**—By A. Chauffard. (See MEDICAL RECORD, August 23, 1913, page 360.)

3. **Realignments in Greater Medicine.**—By Harvey Cushing. (See MEDICAL RECORD, August 23, 1913, page 361.)

5. **Abscess Due to Streptothrix Eppingeris.**—W. Broughton-Alcock reports the case of a maniac, aged forty-eight, who was placed in a cell on November 23, 1912, because of his agitated condition. In his cell there was a loose bedding of straw, which he was constantly throwing about. On December 2, 1912, the house surgeon noticed edema and lymphangitis around an abrasion on the right thigh below the great trochanter. Unrelieved by palliative measures, it was incised on December 9, and half a pint of blood-stained dark yellow, nonsmelling pus was evacuated. This showed on microscopical examination débris, degenerated leucocytes, and Gram-positive cocci. The appearance of a few colonies of staphylococci on the agar tubes after eighteen hours led the author to presume a staphylococcal infection; the clinical signs and progress supported this view. The patient had had a temperature of 39° C. to 39.5° C. during the previous four days, and was very ill. The author administered a vaccine of 30 million living sensitized staphylococci. There was neither local reaction nor reduction of temperature. The patient continued to sink, and died on December 14, 1912. Five days after sowing the cultures the author noticed on the gelatine isolation plates numbers of non-liquefying pale yellow colonies, which microscopically showed non-motile short filaments and cocci; both retained the Gram stain. The organism was identified as the *Streptothrix eppingeris* (*Actinomyces asteroides.*)

6. **X-Ray Treatment of Spinal Cord Diseases.**—F. Hernaman-Johnson states that the use of *x*-rays in certain types of spinal cord diseases appears to be clinically justified. Radiotherapy combined with the persistent local application of electricity is at present the only treatment which holds out any hope of amelioration; and any patient, once a diagnosis of progressive idiopathic degeneration is established, should be told of its possibilities. *X*-ray treatment, for whatever purpose applied, usually seems to have a general good effect upon the body functions, comparable with that of electricity or medicinal tonics. Apart from this, its action on cord diseases, as in cancer, is a purely local one. As to permanence of effect, while it is easy to inhibit the growth of embryonic cells, it is difficult to kill them outright. For example, the permanent sterilization of a healthy young woman by means of *x*-rays is almost impossible. Where one has to deal with intravertebral disease, it is probably not feasible to do more than hold the degeneration in check. In other words, the patient must lead an "*x*-ray life" comparable with a "thyroid life" in cases of myxedema. Although, even apart from question of expense, this may seem a poor prospect, it must be remembered that the prolongation by even a few years of business or professional activity may be a matter of the utmost importance.

Berliner klinische Wochenschrift.

August 4, 1913.

Treatment of the Cardiovascular Symptoms of Coma and Precoma.—Ehrmann refers to the occasional death of diabetics from acute cardiac failure, which has been termed diabetic collapse. Von Noorden has seen 7 such cases in 160 deaths. In coma and even precoma there is also a great fall of blood pressure, supposedly due to the direct action of the substances present in acidosis upon the vasomotor center. Therefore it may be said that the entire cardiovascular system is menaced in diabetes. This weakness is perceptible long before coma in certain cases; or in other words precoma may persist for days. This furnishes an indication for early treatment of this weakness, in association with the specific treatment of acidosis. Large doses of sodium carbonate may be used over long periods of time for the latter condition. It is not necessary to give it by the veins. To rouse the cardiovascular system specialists rely upon brandy in very large doses—because alcohol also prevents the formation of the deadly fatty acids—camphor, ratriobenzoate of caffein, and digitalis given together.

Experimental Transference of Tumor Cells.—Strauch announces that he has successfully inoculated a colloid cancer of the human breast in a rhesus ape. He injected 0.4 c.c. undiluted cancer pulp, and four weeks later the beast showed an unfiltrated mass the size of a pigeon's egg. He refers to similar work by others. Thus in 1904 Dagonet and Mauclair successfully inoculated a rat with human rectal cancer. Lewin inoculated a dog with human ovarian cancer and Werner a dog with human cancer of the upper jaw. The present author has also inoculated mice with human metastatic tumors.

Sunlight and X-Ray Treatment of Surgical Tuberculosis.—Several articles appear upon this subject. Oppenheim's article is made up chiefly of cases, and the necessary Röntgen technic which is the sole resource employed by him. The number of erythema doses required for a cure varied greatly, showing the necessity of persistence. Glaessner is an adherent of the sun and fresh air management. He is convinced that solar light can cure these cases unaided, but not in Germany, where it will

be found necessary to employ auxiliary measures. Alkan discusses heliotherapy in large cities. The only indication is bone and joint disease. At present the expense is considerable and must be reduced. Berlin roofs are not flat, as is the case in some cities, although there are more level surfaces than one commonly supposes. Suburban resorts in which these cases are treated fall far short of accommodating all the sufferers. Balconies may be utilized and special resting cots devised. The author cites the progress made in the United States in heliotherapy. Thus far no one has shown the rationale of its success.

Münchener medizinische Wochenschrift.

August 5, 1913.

"Pyemides."—Under this term Werther describes the cutaneous metastases of pyemia. Not many years ago but few such conditions were recognized and these were relatively unimportant, as the subjects were badly infected. To establish the diagnosis it is necessary to demonstrate the causative bacterium in the blood and cutaneous lesions. The author relates four cases, which presented a common type. The exanthem was made up of erythema, exudation, and hemorrhage; and bore a considerable resemblance to erythema exudativum multiforme, a condition merely symptomatic of some blood state. Hence we may term the pyemic exanthem "dermatitis multiforme pyemica" or simply "pyemide." The rationale appears to be injury to the blood vessels by bacteria or their toxins. Of the four cases cited, one ended in recovery. This patient developed a pyemic rash on the face, ears, hands, and feet. She was found to have nephritis and there was a purulent discharge from the nose, which came from the sphenoidal sinuses. The latter were curetted away, whereupon the pyemic symptoms all subsided. Later she went through a facial erysipelas successfully. She was discharged relatively well. No further mention of the nephritis.

Changing Viewpoints in Regard to Prostatic Hypertrophy.—Kielleuthner states that these changes begin with etiology and pathogenesis. Thus Guyon elected the arteriosclerotic theory, meaning that prostatic hypertrophy was simply a co-phenomenon of senile or involuntary changes. This view was sustained for a time by Casper, but at present nearly all regarded the affection as local and sui generis. The inflammatory theory came next, for which credit is given to Ciechanovsky and more recently to Rothschild (there is no allusion to R. H. Green of New York in this connection. The possible rôle of the gonococcus in producing hypertrophy through prostatitis is not mentioned. The author discards the inflammatory theory for the neoplastic, the latter being advocated at present by many specialists. Beyond this no one may go because we know nothing of the causes of tumors in general. There have been changes in our views of the actual pathology of this condition. Once it was believed that prostatic enlargement caused mechanically a whole train of disturbances above—in the bladder, ureters and kidneys. Tandler has studied many cadavers to determine the truth or falsity of the mechanical view. He found renal stasis present at times when there was no mechanical impediment lower down. Some other factor must then be present in addition to the mechanical one. In regard to the changes in the surgical viewpoint: After speaking of Bottini's procedure as false in principle and superseded he discusses the radical operation with almost complete adherence to the perineal method. The great work recently accomplished to-day by the suprapubic route he hardly mentions.

Deutsche medizinische Wochenschrift.

July 31, 1913.

Relationship of Anaphylatoxins to Pathology of the Eye.—Dold and Rados sum up this subject as follows: homologous serum causes no phenomena of inflammation in the eye. Bacterial suspensions and extracts produce positive results in 4 to 8 hours. If homologous serum containing anaphylatoxin in quantities of 0.1 c.c. are placed in the anterior chamber of the rabbit's eye a marked degree of inflammation is present in 15 minutes. The anaphylatoxin is not destroyed at 56° C. and its action remains in evidence after high dilution. There are traces of anaphylatoxin in the normal secretion of the eye. This is in evidence after injuries; and the deeper the latter and the greater the amount of anaphylatoxin present the more rapid and more extensive the infiltration of the lips of the wound. Such traumatisms are not of the ordinary infectious type but represent a pure anaphylatoxic inflammation. Tissue juices from a rabbit may likewise cause the same phenomena. The anaphylatoxin which is responsible has no connection with other active principles in tissue juices. It is able to give rise to the "traumatic sterile inflammations," about which as yet we know so little.

Treatment of Rachitis with Codliver Oil, Calcium and Phosphorus.—Schloss sums up this subject as follows: In three naturally nourished rachitic children it was found that the action of phosphorus and codliver oil had an unfavorable action on the calcium and phosphorus metabolism. The author's observations are not sufficient in number to prove his own thesis. Schabad has shown that lime exerts a favorable influence especially when given with codliver oil upon the calcium metabolism and to some degree likewise upon the phosphorus metabolism. In order to obtain ideal results phosphorized codliver oil must be combined with some organic phosphate of lime—an albuminous substance containing the salt. Albumin phosphorus seems especially desirable for bone defects. However, an inorganic salt, calcium phosphate, should develop a good activity in naturally nourished children. Whether this result could be obtained without codliver oil, however, is a question. The author believes that phosphorized codliver oil or codliver oil alone should be replaced by a combination of the oil with a lime-phosphorus preparation.

Perineal Suppuration in a Typhoid Carrier.—Levy cites a case which is in part as follows: A carrier who was first infected seven years before was admitted to the clinic with perineal abscess. His blood gave a positive Widal. He had been the means of infecting his sisters. Bacilli had appeared in his urine, in association with a purulent urethral dscharge. There were no gonococci present. Not until five years after infection did the perineal abscess first show itself. The pus contained typhoid bacilli in pure culture. The abscess was in direct communication with the urethra. Levy calls attention to the fact that these belated typhoid metastases play an important rôle in carriers. Thus in a case reported by Cantineau a patient with a rib fistula was the means of infecting four others.

The Nervous System in Myxedema.—R. Brun and F. W. Mott had the opportunity of making a microscopical examination of the nervous system in three cases of spontaneous myxedema. They found that the changes in the nervous system in myxedema consist in a general chromatolysis of the nerve cells of a subacute character and secondary to the disease. These changes, though general, are not of the same intensity throughout the different ganglionic structures, but they seem to affect in a particularly grave manner the autonomous bulbar-motor system (nuclei of the ninth and tenth nerves), and in second line, the cerebrospinal motor neurons and the sympathetic system. Clinically, the affection of the vago-glossopharyngeal system can lead to severe vagal attacks, or, in advanced cases, to a fatal acute bulbar paralysis.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

MEDICAL SELECTION OF RISKS.

The selection of risks is a factor of most vital importance to a life insurance company, as the mortality will fall within or without the limits set forth in the experience tables, on which the premiums are based, according to the care employed on the one hand or the exercise of too great leniency on the other. Failure to accomplish a selection favorable enough to the company would necessitate a higher cost of insurance. The methods of medical selection have improved so much in recent years that every well managed company should have no trouble in this direction and in securing an aggregate mortality lower than that expected according to the standards. This is as it ought to be in order to preserve a margin of safety sufficient to safeguard the interests of the policyholders.

The examination by the examiner forms part of the selection and the effect is supposed to last about five years. The selection at the home office takes other matters into consideration as well as the medical examination, such as family and personal history, habits, weight, etc., and its effect may extend for an indefinite period which may be estimated as about twenty years. After this period the effects of selection wear off gradually in a general way, as some of the policyholders will fall into bad health, others into indifferent health, while still others will continue to be up to the medical standard at the time of selection. The proportion of good, bad, and indifferent may ultimately become about the same as that found in a body of non-select lives.

Medical directors should not, on the other hand, permit their desire to realize a low mortality to interfere with good, broad judgment and lead to unnecessary severity in the rejection of applicants. Low mortality is one mark of successful management but it has legitimate limits and undue strictness will surely cause dissatisfaction with the agency force when the fruits of long arduous labor are unjustly denied its members for the sake of making records. No company can expect to limit its business to gilt-edged risks, even though a selection of this kind would lead to excessively large profits on mortality, for a company which failed to extend the advantages of protection to good average lives would soon find little excuse for its existence. It goes without saying that a medical director should strike a happy medium, but this is more difficult than is commonly supposed. It is a simple matter to accept good risks and reject bad ones, but wide experience and good judgment are requisite for the proper disposition of lives at or near the border line. It may be added that the deserts of under-average risks are receiving considerable recognition and, with the data on hand based on studies of these cases, there will be a wider extension of the benefits of life insurance to them.

Insurance medical men are frequently criticised for rejecting risks which are apparently good in the eyes of laymen, especially in the case of individuals who happen to be living a long time after the adverse action on their applications. It must always be remembered, however, that classes rather than individuals are considered in the business of life insurance in accordance with the great law of averages. A few individuals may live their three-score years and ten notwithstanding the existence of a cardiac lesion, but this does not disprove that persons afflicted with heart murmurs are poor risks as a class.

The history of rejected lives is interesting and furnishes ample evidence that the decisions were justified as a whole. It is difficult to keep such lives under observation, but Mr. Walter S. Nichols (Transactions of the Actuarial Society of America, Vol. III, p. 225) has succeeded in securing enough data to compare 13,042 lives declined by his company with the general death rate of the company. During the five years immediately following rejection, 1,440 deaths occurred among the declined lives, while, according to the average general death rate of the company during the same period, there would not have been more than 443 deaths. Among the declined lives, the death rate was therefore 325 per cent. of the general death rate of the company. Even in the six months immediately following rejection, the death rate was 52.1 per thousand as compared with the company's general death rate of only 17.7 per thousand. Mr. Nichols adds that such an excessive mortality immediately following upon the rejections was probably due to fraudulent efforts to select against the company by applicants who knew that their lives were uninsurable. It would seem fair, however, to assume that fraud was not attempted in a large proportion of these cases and that a considerable number of the applicants were ignorant of the impairment discovered by the medical examiner. Nevertheless, it may safely be asserted that no factors create more difficulty in estimating the value of a risk than those of moral hazard and the absence of good faith.

Position of the Medical Director.—Mr. T. W. Blackburn, Omaha, Neb., says the medical director should be as much a specialist in the line of life insurance as the physician who specializes in a particular branch of medicine. He contends that the board of directors of a life insurance company make a serious mistake if they do not provide compensation sufficient so that their medical director can afford to devote all of his time and the best of his knowledge and experience to looking after the business offered the company. If the compensation cannot be made sufficient to warrant a medical man giving his entire time to the work, a young man should be trained under a competent physician to assist, who could in time become a specialist in that branch of insurance work, and so be recognized throughout the country.—Medical Section of the American Life Convention, held in Hot Springs, February, 1913.

Second Course of Extension Study in Life Insurance.—Under the auspices of the German Verein für Versicherungs-Wissenschaft a course in insurance medicine will be given on October 13-18 on the following thirteen subjects: General introduction; choice of principles of insurance; distribution of gains; effects of selection; new American mortality experiences; insurance medicine; popular insurance; administration costs of popular insurance; technical principles of private invalid insurance; bookkeeping; principles of insuring the sick; technical principles of employees' insurance. As in the former course, all students are eligible who have had the necessary preliminary training. The place where these lectures are to be given will be announced later.

Book Reviews.

Behandlung der Angeboren und Erworberren Gehirnkrankheiten mit Hilfe des Balkenstiches. Von Prof. Dr. G. Anton, Direktor der Königl. Klinik für Geistes und Nerven-krankheiten in Halle a. S.; und Prof. F. G. v. Bramann, Direktor der Königl. Chirurg. Universitätsklinik in Halle a. S., Generalarzt d. R. Mit 44 abbildungen im text und auf 10 tafeln. Preis 10.60 M. Berlin: Verlag von S. Karger, 1913.

This purports to be based on five years of continuous observation and study. The authors treated by their special method fifty-four cases. These were, for the most part, tumors of the brain and hydrocephalus, severe cases. None died during the operation. Only one died a few days following operation and without complications. Nineteen died following further complications. The method relieves the symptoms induced by the intracranial pressure. The book seems to be written without prejudice, and the operation suggested seems of value in certain conditions unfavorable to recovery.

Private Duty Nursing. By Katharine De Witt, R. N. Grad. of Mt. Holyoke Seminary and of the Illinois School for Nurses; asst. editor *Am. Journal of Nursing.* Price $1.50. Philadelphia and London: J. B. Lippincott Company, 1913.

This is a book of advice and suggestions for young nurses —the manner of applying in the home the knowledge they have received in the hospital. There are chapters on directories, engagements and charges, clothing, equipment, etc. The detail of nursing is not gone into except to some extent in obstetrics. The book should be of great value to nurses.

Genetics. An Introduction to the Study of Heredity. By Herbert Eugene Walker, Assistant Professor of Biology, Brown University. With seventy-two figures and diagrams. Price $1.50. New York: The Macmillan Company, 1913.

This book is based on a series of lectures worked into a consequential whole. An attempt has been made to summarize for the intelligent, but initiated, reader some of the more recent phases of the question of heridity which are at present agitating the biological world. It is hoped that this summary will not only be of interest to the general reader, but that it will also be of service in college courses dealing with evolution and heredity. The subject is handled from a broad viewpoint and it is gratifying how much of it can be understood from a few hours' study The bibliography consists of about thirty books of a general nature.

Manuel de Gymnastique médicale et orthopédique Suédoise. Par le Dr. A. Wile, Professeur à l'Universite de Stockholm, Director de l'Institut gymnastique et orthopedique; traduit par le Dr. G. Falk de l'Universite de Stockholm. Price 10 m. Bruxelles: A. de Boeck, 1913.

This is a second edition appearing six years after the first. Many of the descriptions of diseases in the first edition are omitted. The Swedish gymnastics are world famed and in addition to discussions upon this subject massage and orthopedics are added. The many forms of medical gymnastics are described clearly in the first part, with a great number of figures. In the second part follow general rules for treatment by gymnastics as applied to the different diseases where indicated. The number of diseases treated is enormous, and includes many besides the usual orthopedic cases.

Veröffentlichungen aus dem Gebiete des Militär Sanitätswesens. Heft 53 Die Schussverletzungen des Schädels im Kriege. Von Otto Holbeck, s. z. Augenarzt der "Eigenen fliegenden Kolonne Ihrer Majestät der Kaiserin Maria Feodorowa. Price 12 M. Berlin: August Hirschwald, 1912.

This rather exhaustive study of the subject is the result of observations in the Russo-Japanese War, 1904-5. The author has worked up 435 cases of gunshot wounds of the skull taken from five hospitals. Theoretically and practically, gunshot wounds are the most important part of war surgery, a relatively large number of wounds being from artillery and very few from sword or bayonet. Questions as to the kind of projectile and as to distance are taken up. Symptoms are discussed, *e.g.* vomiting, paralysis, etc. The regions wounded and the results are tabulated. The differential diagnosis of fractures is discussed and finally the therapy, *e.g.* cases to drain, cases for operation primarily and secondarily, and prognosis. In the last 100 pages numerous histories are recorded with temperature charts, *x*-ray plates, and photographs. The book would be of use in war surgery, but probably not elsewhere.

Manuel pratique de Kinésithérapie. Par L. Durey, R. Hirschberg, R. Leroy, R. Mesnard, G. Rosenthal, H. Stapfer, F. Wetterwald, E. Zander, Jr. Price 25 fr. Paris: Felix Alcan, 1912.

The object of this book is to give to the French a method of diagnosis and treatment which the authors claim is less taught in France than elsewhere. It is in seven volumes, comprising, respectively: I. General ideas and diseases of circulatory system; II. Gynecology; III. Respiratory diseases; IV. Orthopedics; V. Diseases of nutrition and of the skin; VI. Trauma and its results; VII. Reeducation. The word kinésithérapie has been formed to include massage, exercise, and other forms of movement. The kinds of movement are active, active with resistance, and passive. Descriptions are given, with diagrams. The adaptations of these methods to the different branches discussed are given under each heading successively. In the last volume, under reeducation, come paralyses, tabes dorsalis, various tics, etc., with methods to be followed.

Die Entstehung der sphärischen Refraktionen des Menschlichen Auges. (Übersichtigkeit-Normalsichtigkeit-Kurzsichtigkeit.) Von Dr. Med. Adolph Steiger, Augenarzt in Zurich. Mit 15 Abbildungen im Text. Price 20 m. Berlin: Verlag von S. Karger, 1913.

In this volume of 580 pages the author presents a very exhaustive study of conditions of the eye relating to its refraction. The human eye is principally considered, but Chapter XXVI is devoted to a discussion of the refraction of animals other than man. Part one is largely devoted to a solution of the question, "What is normal refraction?" In this part voluminous statistics of the refraction in individuals of all ages, of various occupations, of civilized and uncivilized peoples, are given and analyzed. Part two is devoted to a consideration of the theories regarding and the forms of myopia as advanced by other writers, and part three to a critical consideration of these topics. The variability of the refraction is discussed exhaustively in part five and the developmental questions relating to spherical refraction in part six. Astigmatism is purposely ignored in this critical study of spherical refraction. Measures for preventing the development of high myopia are described. The work is one for the student in ophthalmology and for the hygienist desiring a broad view of conditions affecting the human eye.

Die Angiomatose der Retina (von Hippelsche Krankheit). Von A. Vossius in Giessen. Price 1 m. Halle a. S.: Carl Marhold, Verlagsbuchhandlung, 1913.

This monograph of thirty-two pages on this relatively rare affection of the retina by so able and talented an observer is timely and will be heartily welcomed by ophthalmologists. There are a number of illustrations in the text and a full bibliography.

Die Wirkungen von Arzneimitteln und Giften auf das Auge. Handbuch für die gesamte arztliche Praxis. Von Dr. L. Lewin, Professor in Berlin, und Dr. H. Guillery, Augenarzt in Cöln. Price 38 ms. 8 volumes.

The second edition of this exhaustive work, which appears eight years after the first edition, attests to its popularity. The first volume is one of 736 pages—120 pages less; the second volume 946 pages—100 pages less than in the first edition. It has been thoroughly revised and brought up to date. The physical, chemical, and physiological characters of all of the various remedies used locally or systemically to affect the eye are described at length, and a comprehensive review of the conditions indicating their use is given. The biological, chemical, and toxic effect of bacteria, fungi, and the various substances used in the arts and medicine, on the tissues of the eye, and the remedial measures required, are fully discussed. An exhaustive bibliography accompanies the text. This work is one of the most comprehensive of its kind in any language, and is heartily recommended to all who desire a reliable and full presentation of the subject.

Über Behandlung der Hauttuberkulose. By Prof. Dr. Doutrelepont in Bonn. Price 1.20 m. Halle: Carl Marhold, 1912.

In this little book of thirty pages, after a cursory description of tuberculosis propria cutis, lupus, and scrofuloderma, the author deals with therapy. General treatment is given first place and includes tuberculin. Sublimate compresses, excision, and Röntgen rays are given among local measures.

Über Herpes Iridis und Andere Seltenere Herpetische Augenerkrankungen. Von Privadotzent Dr. W. Gilbert in München. Price 1 m. Halle a. S.: Carl Marhold, Verlagsbuchhandlung, 1913.

The question of herpetic affections of the eye is one of much interest to ophthalmologists; consequently this small brochure, treating, as it does, of the rarer manifestations, will be heartily welcomed. A full bibliography is included.

Le Postpartum normal. Volume II. By Prof. Constantin Daniel, Professor in the University, corresponding member of Society of Obstetrics and Gynecology in Paris. Paris: A. Maloine, 1913.

The author emphasizes the fact that though surgery has made such rapid strides of late years, obstetrics has remained much behind. This book is written with the object of promoting reforms and improvements in obstetrical services wherever established. The first part of the book is given over to descriptions of architecture, arrangements of wards, sterilization pavilions, etc., services for septic and aseptic cases, medical section, and residence for the personnel, also technique of disinfection, etc. The second part deals with postpartum asepsis from the time of Semmelweiss, giving methods used at different periods. The general hygiene of postpartum is clearly set forth and many good points given. The book will be especially useful to those interested in hospital work.

Geburtshilfliches Vademekum. Für Studierende und Arzte, von Prof. Dr. A. Dührssen. Tenth, revised and enlarged, edition. Price, M. 5.60. Berlin: S. Karger, 1913.

This excellent work was originally written to afford both students and practitioners a concise manual of midwifery. The first edition was issued in 1800 and the present, twenty-three years later, attempts to embody all the advances which have occurred during this period. Dührssen long ago prophesied that the surgical era in obstetrics would constantly progress and assume a status of greatest importance. Perhaps one of the most noteworthy contributions to this is the author's vaginal Cesarean section, which is now included by many as one of the four classical obstetrical operations, the others being version, forceps, and abdominal Cesarean section. Dührssen also considers that the introduction of rubber gloves constitutes one of the most marked advances in obstetrical technique. The favorable reception accorded to the book among German-speaking physicians has been reflected in the English editions, a number of which have now appeared. Within its brief limits Dührssen's manual must be regarded as one of the best of its kind and thus far has not been superseded.

Die Gebärmutter des Weibes; ihre Normale Arbeit und ihre Zereissungen Während der Geburt. By Dr. J. Werboff, St. Petersburg. With 66 illustrations in the text and 10 tables. Berlin: S. Karger, 1913.

This book consists of a number of essays, the first of which deals with the question of spontaneous rupture following prolonged labor, in which attention is called to the ease with which this is possible. In the second paper are discussed the laws of peristaltic movement in the physiology of the act of labor, which consist of alternating efforts of the longitudinal and transverse muscular systems of the uterus. Both of these subjects are presented for the purpose of working out a method of rendering labor and its consequences easier. The author suggests for this purpose a special belt-like contrivance which is worn by the patient and which, being drawn tight as the pains become effective, gives the upper portion of the uterus a fixed point against which it may exert its force. The principle involved in the procedure is fully illustrated by a series of photographs. The book constitutes an interesting contribution to the subject of the physiology of labor and, according to the author, the method which he advocates does away in most instances with the necessity of administering narcotics or a resort to forceps extraction. For a more complete understanding of the subject reference must be had to the original publication.

Über den Hospitalismus der Säuglinge. A Clinical Study. By Dr. Ludwig F. Meyer, Privatdozent at the University and First Assistant at the Municipal Orphanage of the City of Berlin. With 31 charts in the text. Price, M. 7. Berlin: S. Kargar, 1913.

The author believes that the high mortality in orphanages and other asylums for children is due to several causes rather than a single cause. The principal factors include enteric infection, unsuitable diet, and insufficient care. The subject was studied with particular reference to the statistics obtained in a large asylum in Berlin. The author believes that diseases of the respiratory tract are an important factor in the high death rate, as about 65 per cent. of the children noted in his statistical study developed some lesion of the respiratory organs within the first two weeks after their admission. This, in connection with the elementary disturbances that occur so frequently among these children, demands greater attention as regards hospital equipment and also the care of the individual child. On the whole, it would appear as if conditions have greatly improved in recent years and where the health of the inmates is now affected the relation between infection and nutritional processes should always be investigated.

The book contains within its seventy-eight pages an excellent presentation of the subject which is worthy of attention of American physicians.

Clinical Laboratory Methods. A Manual of Technique and Morphology designed for the use of students and practitioners of medicine. By Roger Sylvester Morris, A.B., M.D., Associate Professor of Medicine in Washington University, St. Louis; formerly Associate in Medicine, the Johns Hopkins University; Assistant Resident Physician, the Johns Hopkins Hospital; Instructor in Medicine and Demonstrator of Clinical Medicine, the University of Michigan. Price, $3.00. New York and London: D. Appleton & Company, 1913.

In preparing the present volume it has been the author's plan to provide a book in which all the modern laboratory diagnostic methods shall be available for reference. Of the almost countless procedures which have been suggested the majority have not been found worthy of general use except by their originators; but the occasional worker and the student have not the experience necessary to enable them to make a judicious selection from the many tests and methods offered. In this book are to be found detailed working directions for carrying out all the standard procedures as well as many others which still are not widely known. Such, for example, are Benedict's method of sugar titration, Bürker's method of blood cell counting, the vital staining of blood preparations, the determination of amylase in feces, etc. The text is confined simply to a description of the technique of the method in question, without any attempt to interpret the results obtained or to discuss their clinical bearing. This makes the volume distinctly a laboratory manual, and a very excellent one it is. To the conventional directions for the different methods the author has added sufficient new matter derived from his own experience to give the work individuality and freshness, and one finds little or nothing to criticize and much to praise. Occasional inconsistencies in deciding what to include and what to omit are, of course, inevitable. For example, in the section on urine the only procedure for urea determination given is the admittedly inaccurate hypobromite method, while neither the Folin nor the Benedict method is mentioned, though these are hardly more complicated than the Folin uric acid method or the Kjeldahl nitrogen method, both of which are described. The use of the colorimeter is indicated under the heading of the phthalein test for renal efficiency, but its application in creatinin determination is not mentioned. The illustrations are rather few, though nearly always useful. Exception must be made, however, to figure 8 representing an ordinary urinary sedimenting cylinder, certainly not a very unfamiliar object, which might advantageously be replaced by a few drawings showing the structures to be found in urinary sediments, which are described but not illustrated at all.

Dreams and Myths. A Study in Race Psychology. By Karl Abraham, Berlin. Translated by William A. White, M.D., Washington. Price $1.00. New York: The Journal of Nervous and Mental Disease Publishing Company, 1913.

The German edition of "Dreams and Myths" appeared three years ago. We are glad to welcome such a good English translation. Abraham is one of Freud's firm disciples. His present work, indeed, is an application of Freud's teaching to the psychology of myths and the understanding of the sagas. Myths are compared with the phenomena of individual psychology, especially with dreams. Some of the chapter headings are as follows: children's phantasies in dreams and myths; application of the wish theory to myths; symbolism in speech, in dreams, and other phantasies; analysis of the Prometheus saga; the effect of the censor in dreams and myths; the determining forces in the psychic life of the individual and the race. The reader will find the book so fascinating he will not want to lay it down until finished.

Gynecological Operations, Including Nonoperative Treatment and Minor Gynecology. By Henri Hartmann, Professor of the Faculty of Medicine, Paris; Surgeon to the Laennec Hospital, Paris. Authorized translation under the author's supervision by Douglas W. Sibbald, M.B., Ch.B., Edinburgh; formerly Physician to the British Hospital Levallois-Perret, Paris. With 422 illustrations, a number of which are in colors. Price $7.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

This book presents an exposition largely of French gynecological methods. As a whole it does not present any particularly noteworthy features, but gives a very good general idea of gynecological operations as practiced in that country. American authors perhaps are more frequently referred to than any others. The translation is claimed to follow the French text very closely, although if the English had been subjected to revision the general result would have been happier. The chapter on physical agents is not as extensive as we might expect, considering the attention which this subject has received in France, especially as regards electrotherapy and the use of massage. The author is inclined to favor the use of electricity in both functional and organic troubles and presents in detail the indications for the same. The second part of the work, devoted to the surgery of various gynecological conditions, is quite complete, the ordinarily accepted measures being described in detail, aided by numerous very good illustrations taken from a variety of sources. Considerable space is devoted to the subject of morcellement of uterine fibromata, as this has long been a favorite operation of the French surgeons. Descriptions of plastic operations on the cervix and vagina include those usually done and the various suspensory operations on the uterus are also described. A concluding chapter on the surgery of the bladder and urinary organs is appended.

Although no great fault can be found with this book, one marvels why a translation of the same should have been undertaken, in view of the numerous and usually much more suitable works originally published in the English language.

General Paresis. By Prof. Emil Kraepelin of Munich. Authorized English Translation by J. W. Moore, M.D. Price $3. New York: The Journal of Nervous and Mental Disease Publishing Company, 1913.

A monograph on general paresis, by Professor Kraepelin, and in English, is certainly attractive to all practitioners. The subject is important and the additions to our knowledge of the disease within recent years have enabled us to make earlier and more certain diagnoses and render appropriate treatment. Fortunes have been dissipated and financial crises precipitated by paretics in the early stage of the disease. All practitioners should have a practical working knowledge of its varied manifestations, so that they may help to mitigate its dire consequences to the patient, his family, and his associates. Syphilis is now known to be the cause of general paresis in all cases. Even since this book was written, in the original German, the *Spirochetæ pallida* have been found in the brain tissue and a new direct method of treatment has been suggested. Except for these latest American discoveries, the monograph seems to contain everything of importance relating to etiology, metabolism, chemical and serological examinations, and treatment which has thus far been proven and accepted in respect to general paresis. There are seven chapters, respectively, on general symptomatology, clinical forms, post-mortem findings, etiology, nature of the disease, diagnosis, and treatment. There are forty-eight illustrations and figures. The translater has done his work satisfactorily.

Practice and Problem in Abdominal Surgery. By A. Ernest Maylard, B.S. (London), Surgeon to the Victoria Infirmary, Glasgow. With 39 illustrations. Price $3.25 net. Philadelphia: P. Blakiston's Son & Co., 1913.

It is a relief to pick up a medical work which contains so much of general interest from cover to cover. Dr. Maylard's book is not only a record of personal experiences which may serve as an aid in general surgical problems, but it is a record of a man who has had excellent opportunities to study the growth of abdominal surgery from practically its beginning. We must be thankful to him for giving expression to views which cannot but be of interest and help to his readers. His book is not intended to be a treatise and must not be regarded as anything but a record of personal work, well done and attractively recorded. It is written in such an interesting style that when once taken up it may be read from start to finish like a work of literature. After several introductory chapters on general surgical diagnosis and treatment, Dr. Maylard deals with gastric and intestinal surgery in a very satisfactory manner, taking up the symptomatology, diagnosis, and prognosis, together with the accepted methods of treatment without, however, going into technical details of the latter, except where the author's methods are described. In the chapter on abdominal gynecology the author wisely questions the ability of the average gynecologist to take up the surgery of abdominal organs not connected with the pelvis. Attention is likewise called to the necessity for an adequate knowledge of general abdominal surgery by the gynecologist. The fact must be accepted that the surgeon who makes a special profession of abdominal work is not necessarily fitted to adequately execute his pretensions unless he possess the requisite knowledge of gynecology. After discussing the operations on the kidney, in which the author describes his own methods of fixation, the book is concluded with a plea for a revised nomenclature for operations on the abdominal viscera, which is presented in tabular form, and is based on the addition of definite Greek affixes to the accepted names for various abdominal organs. The only criticism to be made of his scheme is the association between the Latin and Greek derivatives so much complained of by many of our writers.

La Neurosi Traumatica. Del. Prof. Alberto Salmon, Docente di Neuropatologia nella R. Universita di Roma. Francs, 5. Torino: Unione Tipografico-Editrice Torinese, 1913.

This is a useful monograph on a practical subject. Professor Salmon classifies the different forms of the traumatic neuroses into neurasthenic, hysteric, hysteroneurasthenic, and psychic. These forms are further subdivided as follows: the neurasthenic into cerebral, spinal, cardiac, vasomotor, gastrointestinal, genital, neuralgic, and tremor types; the hysteric into paretic, spastic, agitated, convulsive, cataleptic, anesthetic, ocular, auricular, hyperesthetic, neuralgic, articular, dysarthric, vasomotor cutaneous, respiratory, digestive, genitourinary, and other forms. Psychic forms may assume the type of obsessions, hypochrondria, melancholia, mania of different types, hysteric insanity, confusional insanity, dementia, or pseudoparesis. A number of illustrative cases are reported in the text. The chapter on diagnosis discusses simulation symptoms in addition to differential diagnosis. The chapter on pathogenesis is interesting. There is a bibliography at the end of the book.

Blood Pressure in General Practice. By Percival Nicholson, M.D. Price $1.50. Philadelphia and London: J. B. Lippincott Company.

The study of the blood-pressure and its significance is so new that its value as a diagnostic and prognostic sign and as a danger signal is not yet fully appreciated by all general practitioners. Many, indeed, regard blood-pressure estimation as a sort of fad indulged in by a few heart specialists, but of no value clinically. In the book before us Dr. Nicholson sets forth the whole matter very clearly and succinctly, explaining the methods of taking the blood pressure, discussing the significance of hypertussion and hypotussion, and demonstrating the importance of a knowledge of this new subject. A final chapter treats of blood pressure in relation to life insurance. The book can be confidently recommended to all whose ideas on blood pressure are rather hazy and who are looking for some practical explanation of the subject.

Über Traumatic Linsenluxation. Zugleich ein Beitrag zur Sphinkterrisse und der Aderhautablösung. Von Dr. Med. Hermann Davids, Augenarzt in Münster i. W. Price 1 m. Halle a. S.: Carl Marhold, Verlagsbuchhandlung, 1913.

This monograph of thirty-two pages is a review of the subject of traumatic dislocation of the lens, a report of a few cases, also a presentation of the views of the author in regard to the physics of the lesion and its appropriate treatment.

Über Laparo- und Thorakoskopie. By Dr. H. C. Jacobaeus, Privatdozent in Stockholm. Würzburg: Curt Kabitzsch, 1912.

Quite an interesting book of some 170 pages. The technique used by the author is that of the Eppendorfer Hospital, has been used in a great number of cases, and been without danger to the patient. It resembles cystoscopy, and by it many conditions otherwise undiagnosable are cleared up, *e.g.* tumors of the pleura, lues of the liver, tuberculous peritonitis, etc. Röntgen pictures, with air in the thorax and abdominal cavity, give best results and are of great aid. The work has been done to some extent by Bernheim in Johns Hopkins, but not otherwise in this country. There are a few plates appended with descriptions.

Society Reports.

Seventeenth International Medical Congress.

Held in London, August 6-12, 1913.

(Special Report to the MEDICAL RECORD.)

(Continued from page 303.)

SIR THOMAS BARLOW, BT., M.D., F.R.S., PRESIDENT.

Third Day—Friday, August 8.

Address in Pathology.—Professor PAUL EHRLICH of Frankfort delivered this address to a large audience which filled Albert Hall. After complimenting other workers in research work and especially those engaged in the study of tropical diseases, Dr. Ehrlich proceeded to give a description of chemotherapeutic work. He said that the whole domain of chemotherapy is governed by a simple, even by a natural, principle. If the law is true in chemistry that "corpora non agunt nisi liquida," then for chemotherapy the principle is true that "corpora non agunt nisi fixata." When applied to the special cases in point this means that parasites are killed only by those materials to which they have a certain relationship, by means of which they are fixed by them. He called such substances "parasitotropic." But he would immediately add that there are evident exceptions to this law. So, for instance, we are acquainted with a small series of cases in which the apparent therapeutic results are obtained, although the allied substances in question do not possess parasite-destroying qualities. That is the case in the infiltration of the subcutaneous tissues, which is caused by a kind of yeast (sporotrichosis). Here Block proved that the clinically highly therapeutic iodide of potassium first dissolved the cells of the infiltration, while the parasites, as such, were not in the first instance attacked. But in any case it is safest and best for the development of chemotherapy not to build on the basis of exceptional work, but it is better to start with such substances which produce the destruction of the parasites by fixation. Now it has been assumed in different quarters that some of the more modern remedies are incorrectly regarded as parasiticides, but in reality they are not such. Thus, for example, salvarsan and mercury salts are not intended to act directly on the parasites, but indirectly, owing to the fact that they excite the organism to the formation of specific antisubstances. This view is based mainly upon the fact that if one mixes the substances in question, such as, for instance, neosalvarsan with certain pathogenic agents, *e.g.* spirochetes, in test tubes, one cannot perceive any reduction in the mobility of the latter after observing them for hours together. From this fact, which was first discovered by Hata, the conclusion has been drawn that salvarsan or neosalvarsan as such does not in any way directly influence the spirochetes. Now it can very easily be shown that this conclusion is quite incorrect. Professor Ehrlich then described the manner in which this can be shown to be incorrect. The organism of relapsing fever, for example, when treated with mere traces of salvarsan, was no longer capable of infecting mice, showing that its virulence had been destroyed. It was necessary, however, to penetrate more deeply into the mechanism of the fixation of remedies and it was only after long-continued efforts that success had been attained in obtaining a clear conception. In order to make practical progress it appeared to be necessary not to be satisfied with the primordial idea, but to see in what manner the drugs are fixed by the parasites or, as the case may be, by the cells. Only by taking a very roundabout way has it been possible to obtain clearness with respect to these complicated relations, and in this connection it was the studies on trypanosomes, and especially the investigations of "drug-fast" stains of germs, which led to quite definite representations with regard to the process of fixation. There was no difficulty by continued treatment of experimental mice with certain definite remedies, *e.g* fuchsin, in finally obtaining a race of trypanosomes which had become immune against these remedies, *i.e.* "drug-fast," in the case mentioned above immune to fuchsin. There were especially three different classes of remedies which were very suited to this purpose: (1) The class of the arsenic compounds, in the following historical order: arsenous acid, arsenitic acid (atoxyl), arsenophenylglycin (salvarsan and neosalvarsan); (2) the class of the so-called azo-dyes (the trypan red with which Shiga and Ehrlich made experiments, and the trypan blue of Mesnil); (3) certain basic triphenylmethan dyes (fuchsin, methylviolet, etc.) When a race of trypanosomes has been rendered immune against fuchsin, then this race is immune against all the allies of fuchsin and methylviolet, but not against the two other classes. We see, therefore, that the immunity is of a specific nature, inasmuch as it is limited to a definite class of chemical substances.

From these and as the result of other investigations Ehrlich and his coworkers came to the conclusion that in the parasites there are present different specific chemoreceptors; for instance, the arsenoreceptor, which fixes the trivalent group of arsenic as such, and the aceticoreceptor, which fastens to itself the acetic acid group, an iodinereceptor; an orthoamidophenolreceptor, which conditions the fixation of salvarsan, and many others in addition. A complete exhaustive knowledge of all the different chemoreceptors of a certain definite parasite is what he would like to characterize as the therapeutic physiology of the parasite cell, and he stated that this is a *sine qua non* of any successful chemotherapeutic treatment. He emphasized the fact that many observations indicate that certain chemoreceptors are found in several different kinds of parasites—not in a single one. The knowledge of these is of special practical importance because remedies which are adjusted to these have a healing influence on a very large series of the most various pathogenic agents. The larger the number of different chemoreceptors, therefore, which can be demonstrated the greater is the possibility of a successful chemotherapy. Professor Ehrlich went on to show that a suitable specific remedy must not only bring about the fixation of the traptophores, but must also compass their destruction. This representation exactly corresponds to the views obtained long ago with respect to toxins, in which can be distinguished the presence of a traptophore group which conditions the cell fixation and also the formation of the antitoxin and a toxophore group which brings about the injurious action on the cell. In the case of the highly complicated synthetic drugs the assumption will have to be made that the traptophore group and the toxophore group are not directly connected with one another, but as separate groups are linked with a chemical molecule in the character of side-chains. In this we arrive in a natural manner to the fact that chemotherapeutic agents, built up in a complicated manner, may be compared to a poisoned arrow: the fixing group of the drug which anchors itself to the chemoreceptor of the parasite corresponds to the point of the arrow, the binding member is the shaft, and the poison group is the arrow poison fixed to the shaft of the arrow. Corresponding to this scheme in the case of salvarsan (dioxydiamidoarsenobenzol), the benzol group would correspond to the shaft, the orthoamidophenol group to the point, and the trivalent arsenic group would correspond to the arrow poison. Dr. Karrer, working with him, had succeeded in producing a triple compound, salvarsan combined with other metals, which in animals had been found to possess even greater remedial potency than salvarsan. Certain substances can and must, in a diluted form, destroy microorganisms, as in the ordinary processes of disinfection. But the task was obviously far more difficult of destroying organisms when their habitat was in the living body. It had been shown that substances which had great germicidal power in very dilute solutions completely failed in therapeutic efficacy. Such disinfectants, being very strong cell poisons, were inimical only to parasites, it is true, but they were also injurious to the organism which was the host of these parasites. The only substances of value as remedies were those which could be borne by the individual in larger dose than was sufficient to destroy the parasites.

Regarding the question of idiosyncrasy to drugs the speaker drew attention to such articles of food as strawberries and crabs, which in certain persons produced urticaria. With respect to salvarsan, instances of this kind of supersensibility were rare; in many cases sources of difficulty in the use of salvarsan had been due, not to the salvarsan itself, but to obscure causes which had been attributed to idiosyncrasy. It had been demonstrated by Wechselmann, McIntosh and Fildes, Hort and Penfold that the dead bacteria present in distilled water were capable of producing fever and other unpleasant effects. The main object aimed at by Ehrlich's radical treatment, was to free the body from microorganisms by one or at most two injections of medicine. This principle was being pursued in animal experimentation. "Strike hard and strike at once," was an old medical maxim that still held good. The longer the disease had been in progress, the larger must be the doses to subdue it.

With regard to practical results which had followed the speaker's system of treatment, these had been most fully shown in that group of diseases caused by spirilla. This method of treatment of frambœsia had been most successful, insomuch that in Surinam a hospital, which had formerly contained an average of 300 sufferers, was now closed altogether. A single injection of salvarsan had sufficed to cure in every case save two. Again in the case of Vincent's angina, local application of salvarsan to the inflamed parts had proved sufficiently efficacious, while there were a number of other diseases, in both man and animals, in which the treatment had been shown to be valuable.

The great progress made in the fight against infective diseases was referred to, and the result was essentially associated with the names of Pasteur, Koch, and Behring. With these names he coupled those of Löffler, Pfeiffer, Gaffky, Laveran, Frosch, Roux, Nocard, Theobaldt Smith, Metchnikoff, Widal, and Wassermann.

There were many valuable indications that in a series of diseases, smallpox, scarlatina, typhus fever, perhaps also yellow fever, and, above all, infectious disease caused by invisible germs, the prospects of success were brightening. But the ordinary bacterial diseases, those due to the pus cocci and to the colon bacillus, typhoid fever, dysentery, and above all tuberculosis, would still require a hard struggle. Nevertheless, here too success might be looked forward to with full confidence. During the next five years, the speaker said, there would probably be advances of the greatest importance to record in this field. Taking into consideration the enormous number of chemical combinations which are involved in a struggle with disease, it will always be chance or happy inspiration which decides whether some investigator gets on the track of the substances which provide the best materials for fighting the malady. The chances in favor of finding a cure, and so winning the prize, are multiplied with the number of those who occupy themselves with the problem. It is exactly at this point that necessity arises to gather and unite all powers, and here special force attaches to the motto, "Viribus unitis," which is the foundation of this great Congress, to which thousands have been drawn from all lands to give their testimony that in the world of science, national boundaries have disappeared.

Fifth Day—Monday, August 11.

Address in Heredity.—Professor W. Bateson of Cambridge, delivered this address to an appreciative and interested assembly in the Jehangir Hall of the Imperial Institute. He said that Francis Galton, long ago, had maintained that the aspects of physiology connected with family history must in course of time become one of the chief preoccupations of reflecting minds. But no one before the rediscovery of Mendel's work had ventured to imagine that the confusion, the paradoxes, the capricious disorder of the phenomena of descent were to a large extent capable of a simple and ready analysis. It is this knowledge which has given to genetic science a position paramount among the branches of physiology, showing that in accurate genetic analysis a means is given not merely of elucidating the interrelations of parent and offspring, but of contributing also to a right interpretation of various special problems of pathology and anthropology. One may clearly perceive the existence of rule, but we have evidence of exceptions also. This is true of the plants and animals, and also of the human phenomena, which are usually imperfectly recorded. As in every department of physiological advance we have first to trace the course of those great sweeping curves which lead to the recognition of ascertained law, and later those minor deviations, perhaps equally significant, which must hereafter be the subject of a further analysis. It may be said that Professor Bateson illustrated his facts with diagrams and pictures thrown on the screen which rendered his arguments much easier of comprehension.

Referring to the Mendelian principle, he said, in part, that the essence of the Mendelian principle is very easily explained. It is first, that in great measure the properties of organisms are due to the presence of distinct, detachable elements, separately transmitted in heredity; and, secondly, that the parent cannot pass on to offspring an element which it does not itself possess. The determination of these elements by analytical breeding is one of the main objects of genetic research. Each germ cell, ovum or sperm may contain or be lacking in any of these elements, and since all ordinary animals and plants arise by the union of two germ cells in fertilization, each resulting individual may obviously receive in fertilization similar elements from both parents or from neither. In these cases the offspring is "pure" bred for the presence of the character in question or for its absence. However, it may be formed by the union of dissimilar germs, one containing the element, the other devoid of it, and then the individual is called cross-bred or heterogeneous. A population thus consists of three classes of individuals, those pure for the presence, having received two doses, of an element; those pure for the absence of the element, having received none of it; and the cross-breeds which have received one dose only. From the physiological standpoint the positive is distinguished from the negative characteristic. But since the full effect is often produced in the organism of one dose only of a character, we are justified in regarding this positive effect as a sign that it is caused by something present. A plant, for instance, though cross-bred for tallness, is as tall as one pure-bred for tallness. Each dwarf plant, whatever its parentage, can only produce dwarf offspring. Not being possessed of tallness, it is unable to transmit that quality. But a cross-bred tall plant can, by self-fertilization, produce both tall and dwarf offspring. Again, fowls with silky feathers, if bred together, cannot have offspring with normal feathers, but two birds, normal to all appearance, can, if they be cross-bred in that respect, produce silky offspring.

Professor Bateson illustrated his text by examples of fowls and plants. Thus the organism produces germ cells representing in equal number the characteristics of the germ cells whence it arose. There is segregation between the elements introduced from the parent. The double structure of the soma is when the germ cells are found resolved into the single structure of the germ cells. If the organism is pure-bred in any respect, all its germ cells are alike in that respect. If it is cross-bred its germ cells represent in equal numbers the positive or negative elements which were brought together in fertilization. The numbers of individuals resulting from the various possible forms of union, consequently, follow regular arithmetical rules, and the proportions in which the several classes appear give us the means of tracing and identifying the various systems of descent.

With reference to hereditary diseases Professor Bateson said that research into human pedigrees has demonstrated the fact that many of the more definite hereditary diseases and malformations follow one or other of the systems with which Mendelian analysis has familiarized us. The first condition recognized was that malformation known as brachydactyly, described by Farabee in America. Congenital cataract, so admirably described by Nettleship, is another example. Both these conditions descend as dominants. With regard to human examples, individuals affected are almost always heterozygena, and hence among the children which are born to their marriages with normal persons we expect the affected and unaffected to be in equal numbers. Some of these affections which may be stated with fair confidence to descend with a considerable amount of frequency as dominants are the following: Brachydactyly, claw-shaped extremities, cartilaginous exostoses, membraneous crainocleidodysostosis, hypoplasia of the teeth, diabetes insipidus, chronic trophedema (generally). There are also the skin affections: Tylosis, epidermolysis bullosa, telangiectasis, hypotrichosis, poroperatosis, and xanthoma; certain ophthalmic diseases (see senile cataract, ectopia lentis (sometimes), coloboma (sometimes), distichiasis, night-blindness (certain forms), and retinitis pigmentosa; and nervous diseases, angioneurotic edema, hereditary tremor, Huntington's chorea, and probably several forms of spastic paralysis and of myoatrophy. As to the recessive conditions in man we have no abundant evidence. Owing to the fact that they appear only from the union of parents who are heterozygotes, though both apparently normal, their occurrence is rare and sporadic. Lundborg has shown with great probability that paralysis agitans is one of these. The constant intermarriage of families in the valleys of Sweden and Norway and in the Alps gives the best opportunity for study. American students of genetics have produced evidence that feeble-mindedness has, at least, one of the marked features of a recessive condition. When both parents are feeble-minded they have no normal children. But this condition is hardly a simple recessive, for unions of the feeble-minded with normal persons almost always produce some feeble-minded children. Among experimental families of plants and animals there are mysterious examples somewhat comparable, still the condition is as yet obscure. Other conditions which exhibit a behavior characteristic of recessives are albinism, myoclonus, epilepsy, and alcaptonuria. They may all appear in the children of normal persons, with special frequency as the result of marriages of relatives, and the conditions are due probably to the loss of some factor present in normal persons. Attention may be drawn to a remarkable group of cases in which the ap-

pearance of abnormality may be regarded as partially dependent on the conditions to which the soma is subjected. This is true in particular of some of the congenital abnormalities, such as hallux valgus and dislocation of the hip. The condition usually appears in the offspring of normal parents, but it may, in certain families, be transmitted from parent to offspring as a dominant. These phenomena may be compared with those so often witnessed in incubating eggs. When the incubators are not running uniformly many of the chickens are born with deformed feet. The liability is the thing transmitted, but without the appropriate conditions the effect is not produced. Professor Bateson dealt at some length with the limitation of sex in descent of abnormality, the most striking examples of which are those of the descent of color blindness, tracmophilia, and one form of nystagmus; and he then proceeds to discuss the presence or absence of dominant factors. Whence do the dominant factors come? In the case of animals, such as the fowl, the wild original of which we think we know, many factors exist in our domesticated breeds which are not possessed by any of the wild species. No wild species, for example, has the complicated comb that we know in our domesticated breeds. None has the white color of the Leghorn; and many other such instances might be given. How have these elements been added to the composition of the fowl? The problem is exactly parallel to that constituted by the occurrence of brachydactyly or nyctalopia. We can only trace back these peculiarities to a single individual of whose origin nothing is known. These cases may be compared with those of the origin of an infective disease, such as typhoid fever. When a medical officer of health recognizes typhoid in his district he knows that it must have come from some definite source of infection, and but for one feature in the descent of dominants we might be tempted to suggest that they also arose through the introduction of some element from without into the system. There is no impossibility in such a belief. In these dominants we know that the distribution among the germ cells is approximately symmetrical, and nothing that we know of animals and plants justifies the suggestion that a foreign element can so be treated in gametogenesis. Perverse as such a suggestion may appear, we should not close our minds to the possibility that these dominants arise by a process of loss of some inhibiting factor. The speaker pointed out that this suggestion must have an important bearing on our conceptions of evolution, and draws attention to the fact that we know little of the normal characteristics of an ordinary human population and considers that in regard to the descent of liability to infectious diseases, we may hereafter trace rules similar to those which have now been established in plants, especially by Biffen. After touching upon some new points of significance with respect to the nature of segregation, Professor Bateson referred to the shortcomings of eugenics in the following words: "The practical question denoted by the word 'eugenics' is one of which those who are engaged in the work of physiological analysis will probably do well to keep clear. The direction in which genetic research points is, indeed, not difficult to determine. Sir James Crichton-Browne has already discussed the striking increase in lunacy in recent decades; and there are persons disposed to lay the blame on the conditions of life, the severity of the modern struggle, a greater or less consumption of alcohol or other drugs and so forth; those, however, who have some knowledge of genetic physiology are aware that the whole force of modern science and legislation has hitherto been exercised in the preservation of defective strains in our midst, and will not feel serious hesitation as to the true cause of the increase. The Mental Deficiency Bill is a wise beginning of reform, but we cannot hear without disquietude of the violent measures that are being adopted in certain parts of the United States. It is one thing to check reproduction of hopeless defectives, but another to organize a wholesale tampering with the structure of the population such as will follow if any marriage not regarded by officials as eugenic is liable to prohibition. This measure, we are told, is actually proposed in certain States of America. Nothing yet ascertained by genetic science justifies such a course, and we may well wonder how genius and the arts will fare in a community constructed by legislators in this way. Philologists tell us that by an irony of development the word 'dull' comes from the same original which in Dutch has become 'dol' (mad) and it is better known to most of us in the German equivalent 'toll.' There is some prospect that we might rid our community of mania only to leave it gravely infected with dulness. In the experimental analysis of genetics we have, however, an instrument of novel and extraordinary power, and it is certain that genetic science must in the future profoundly influence the course of human thought and ultimately the conduct of society."

Sixth Day—Tuesday, August 12.

The Relationship between Medicine and the Public Health.—Mr. JOHN BURNS, President of the Local Government Board, delivered this address, the last one of the Congress, in Albert Hall. The audience was not so large as some which had been seen there during the week, but it was attentive in spite of several interruptions from male and female suffragettes, who resented the appearance of the representative of "a government which tortured woman." They were put out. Mr. Burns gave a very interesting or, perhaps, it might be termed rather instructive description of what has been effected in the past thirty years or so in the saving of life in England and Wales. In the address the relationship of medicine and health was outlined in an able manner and statistics were called into service to bring home this fact. It will be sufficient to quote the concluding sentences of the address. These were as follows: Medical knowledge in particular is cosmopolitan. Each country has brought its contribution. The names of Pasteur, and Lister, of Semmelweis and Koch, of Laveran, Manson and Ross, and others have already been mentioned. They stand out; but every great discovery has its background of smaller contributions to the common stock of knowledge without which no great achievement is secured; and every nationality has contributed its quota. So is it also with reforms. A reform in one country initiates or gives impetus toward reform in other countries; and the tendency to follow becomes almost irresistible. In some countries it has already become a duty of civilized life to prevent anxiety as to the means of subsistence in old age; and so old age pensions have been inaugurated. In every country increased attention is being paid to the need for aid, when necessary, for the widow to bring up her children; and insurance against accidents and disease is already in operation in Germany and in the United Kingdom. Every effort forward is valuable, not only to the country immediately concerned, but also to every country; even mistakes by one nation add to one common stock of wisdom. In no department of advance is cosmopolitanism so important as in regard to social reform, an important share of which consists in the development of the medical possibilities of improved health and well-being. The chief impediment to such reform is wastefulness, and one source of waste expenditure on armaments stands head and shoulders above all others. If this waste could be prevented gigantic sums would be released for the reforms waiting to be financed. The chief among these is concerned with the problem of poverty, and this problem will need to be attacked on an enlarged scale by removing the known causes of poverty, not merely by applying palliatives to its effects. It is not too much to hope that this Congress will help to hasten the period of international peace and good-will, earnestly desired by us all, in which our only rivalries will be in commerce, in progress, in science, and in the art of healthy and pure living.

Shortly after Mr. Burns had finished his address the proceedings of the closing meeting began.

The Report of the Permanent Commission of the International Congress of Medicine was read in French by the general secretary of the Congress, Dr. Burger. The commission unanimously decided to accept the invitation of the Bavarian Government and of the Mayor and University of Munich to hold the next International Congress of Medicine in that city in 1917.

Prizes.—The Congress prizes were awarded, as already announced, to Professor Charles Richet of Paris, Professor A. von Wassermann of Berlin, and Sir Almroth E. Wright of London.

Resolutions.—The following resolutions were sent up by the sections: By the combined Sections of Dermatology and Syphilography and Forensic Medicine: That sensible of the ravages wrought by syphilis in the health of the community, and deploring the inadequacy of existing facilities for checking its dissemination, the International Medical Congress calls upon the Governments of all countries here represented (1) to institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does not already obtain; (2) to make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for.

By the Section of Tropical Medicine and Hygiene: (1) The section is of the opinion that beriberi among natives who live principally on rice is brought about by the con-

tinuous and too exclusive use of rice submitted to a too complete milling, which removes the cortical and subcortical layers of the grain; (2) the section urges all authorities charged with the health of native communities to restrain by every means in their power the use of this rice in the dietary of coolies; (3) in view of the proved non-infectiousness of beriberi the section suggests that all port and sanitary authorities should abolish foreign quarantine and other restrictive measures against this disease; (4) the section resolves that the malady known hitherto under the name of "Malta fever" shall in future be named "undulant fever."

Closing Ceremonies.—The official delegates of the Governments represented bade a formal farewell to the President of the Congress, and then Sir Thomas Barlow closed the Congress in a few well-chosen words. He wished, he said, to emphasize a few points which had occurred to him in reviewing the events of the past week. It had been made very evident that medical men were becoming more and more influential. At no previous meeting of the Congress had the Government of the country in which it was held taken so warm a personal interest in its work as the British Government, and at no previous meeting had one of the addresses been delivered by a member of the Government. And the active part which the British Government had taken in the Congress was all the more remarkable because it was not usual for it to show any special interest in congresses of the kind. This showed the growth of the influence of medical men and the importance with which medicine was regarded, not only in its remedial aspects, but in the developments of its scientific research, and he believed the next generation would see an enormous advance in that respect. The commercial classes throughout Europe had done excellent work in preventing war or stopping its extension. Surely medical men, with all the influence they now possessed, should be able to do similar good work in their respective countries. They assembled in congress to discuss without regard to race or country various problems of medicine in its scientific application to the relief of the sickness and sufferings of humanity; and that being so it was inconceivable that they should go back to their different countries and make no effort to prevent the nations to which they belonged from engaging in bloody strife. Therefore his parting word was that his hearers should make their united influence felt in the promotion of blessed peace. He wished them all farewell.

AMERICAN PEDIATRIC SOCIETY.

Twenty-fifth Annual Meeting at Washington, D. C., May 5, 6, and 7, 1913.

The President, Dr. John Lovett Morse of Boston, in the Chair.

First Day—Monday, May 5.

President's Address—Whooping Cough: A Plea for More Efficient Public Regulations Relative to the Control of This Most Serious and Fatal Disease.—Dr. John Lovett Morse of Boston presented this paper. He stated that the mortality statistics compiled by the United States Census Bureau in 1906 from a registration area comprising slightly less than one-half the population of the United States there were 6,324 deaths from whooping cough among children under five years of age. The United States public health reports showed that in 1910 the death rate per 100,000 was as follows: Whooping cough, 11.4 per cent.; scarlet fever, 11.6 per cent.; measles, 12.3 per cent.; diphtheria, 3.4 per cent. Dr. Morse said that he had communicated with a large number of cities in all parts of the United States relative to the incidence and control of whooping cough and had received replies from 61. He had found that surprisingly little effort was being made to limit the spread or diminish the death rate from this dread disease. All the statistics showed that whooping cough was a serious and fatal disease. In only 29 of the 43 States answering his inquiries was whooping cough a reportable disease. Isolation was required by law in only seven States. There was almost no provision for hospital treatment of whooping cough in this country, and where there was such accommodation only cases having complications were admitted. Since Mallory's investigation had proved conclusively that the Bordet-Gengou bacillus was the cause of whooping cough and that the bacillus was present in the cilia of the epithelium lining the trachea and bronchi, it was fair to assume that the disease was transmitted by secretions of the respiratory tract and that it was contagious throughout the whole of the spasmodic stage. The isolation and recognition of cultures was too complicated a procedure for practical every day use. An agglutination reaction was present in many cases, but was not constant and was not usually very high. Its presence was proof of whooping cough; its absence did not count much against it. The frequency of the reaction increased with the duration of the disease. The complement of the fixation reaction should be of service in the recognition of abortive and atypical cases in exceptional circumstances, when such recognition was of great importance. In the presence of whooping cough there was an increase in the total number of white corpuscles with an absolute and relative increase in the number of lymphocytes in the catarrhal stage of the disease. This blood formula was a fairly constant one in whooping cough and was, therefore, of considerable diagnostic importance. It was important to prevent babies and young children from having the disease, and in order to do this it was necessary that physicians and the public in general should be convinced of the seriousness of whooping cough in infants and young children. Whooping cough should be made everywhere a reportable disease. Houses in which there were children with whooping cough should be placarded; the children should be separated from other children in the family; the sputum and vomitus should be treated in the same way as in tuberculosis. The child with whooping cough should be allowed to go outdoors, but should be made to wear an arm band of some prescribed color labelled "whooping cough" in large letters. Formal disinfection was not necessary as the vitality of the Bordet-Gengou bacillus outside of the body was slight. Other children should not be allowed to attend school unless they had already had the disease, until two weeks had elapsed since the last exposure, provided they were free from catarrhal symptoms. The community should be required to establish hospitals for children not properly isolated at home and for those who could not be properly treated in their homes. When these recommendations were carried out whooping cough would cease to be the scourge that it now is.

The Diagnosis and Treatment of Pyelitis in Infancy.—Dr. Rowland G. Freeman of New York read this paper. He said that the pyelitis of infancy, which was a fairly common disease, was generally understood by pediatricians as a disease characterized by active remitting temperature, and which was treated most successfully by the use of alkalies, while some cases might be cured by urotropian doses of one-half to two grains three times a day or every three hours. Recent experiences had led him to believe that such statements should be materially modified and that the pyelitis of infancy was a disease which was usually characterized by a high remitting temperature, but might give rise to no temperature, and that, while some cases might be cured safely by neutralization of the urine with alkalies and other cases by doses of urotropian such as those named, the most efficient treatment in difficult cases was by the use of very large doses of urotropian aided by vaccines, either commercial or autogenous.

Hexamethylenamin, while sometimes effective in doses of one-half to two grains several times a day, would not in these doses cure certain cases which could be controlled by very large doses. Hexamethylenamin should always be administered in small doses first. But the dose should be rapidly run up, the child and its urine being carefully watched for symptoms of irritation of the kidneys. Large doses of hexamethylenamin should not usually be continued for more than a week.

Dr. Walter Lester Carr of New York said that urotropin even in small doses sometimes caused a remarkable amount of irritation of the kidneys. As to the use of vaccines Dr. Carr said that he recalled one case in a child six years of age in which treatment was not started early. High irrigations were given and the temperature dropped. If the vaccines had been given the drop in the temperature would have been attributed to the vaccines. The rises in temperature in this condition were intermittent.

Dr. Thomas S. Southworth of New York said that it was well to remember that some of these cases of pyelitis could exist without a rise of temperature. It was also possible in these cases to have a continuouly high temperature and this should not mislead one.

Dr. Henry I. Bowditch of Boston said that he wished to ask whether they had tested the urine for a reaction during the administration of the urotropin. Dr. Talbot had been led to conclude that urotropin and hexamethylenamin acted only when broken up into the form of formaldehyde, and this happened in acid urine, but only to a slight extent in alkaline. The small doses, the gradual increase in dosage, and the periodicity of the treat-

ment in the cases presented were very interesting.

Dr Roland G. Freeman of New York said that he had a fear of using urotropin in children. In one case, in which he had administered it the child had cyanosis each time and he finally gave up the attempt to use it and the child was cured by alkaline treatment. He had had good results with the commercial vaccines, but had not tried the autogenous vaccines.

Cases of Pancreatic Insufficiency in Children.—Dr. Langley Porter of San Francisco, Cal., read this paper. He described this condition as characterized by indigestion of acute onset and protracted course with marked wasting occurring in the second half of infancy and in early childhood. The indigestion was revealed by bulky, pale gray, greasy evacuations which contained a great deal of wasted fat which was found as free fat, fatty acids, or as a combination of the two. The diarrheal discharges were usually not frequent; the loss in weight was not rapid; there was usually considerable flatulence, a moderate or marked fall in hemoglobin, the temperature remaining normal or sub-normal and the appetite unimpaired. There was a general consensus of opinion that if more than one-third of the fat ingested appeared in the stools unsplit, or even if such a proportion carried material quantities of fatty acids, the steapsin of the pancreas might be considered to be either insufficient or inefficient. The few cases that showed deficiency of fat splitting could be explained on the ground that there was a partial or complete blocking of the pancreatic duct by that group of glands which lay about the head of the pancreas, where inflammation or enlargement would affect the duct. It seemed also to be demonstrated that the pancreatic lipase, amylase, or alkali protease, might be diminished in quantity or power while the other two secretions were doing their work in a normal manner. After discussing the various infecting agencies and the microscopical picture presented by the pancreatic ducts Dr. Porter said that the autopsy in one of his cases and the evidences that he had brought forth made it reasonable to assume that in patients whose stools showed marked increase in free fat waste definite depression of those digestive powers usually attributed to the pancreas and the predominance of abnormal bacteria, such as were described by Herter, the ducts of Vater, and, through them, the pancreatic tissue had been invaded by these abnormal organisms, and that there had been an answering protective inflammatory reaction in the gland which had damaged its secretory power and impaired the digestive quality of its juice. The fact that many of these cases automatically recovered was not an argument against this contention. The material presented in the paper was too scanty to expect conclusions drawn from it to be accepted as final; the paper was prepared in the hope that others might consider it worth while to investigate the condition from this point of view. The question of the value of vaccines in such a condition was brought up because in one case the results following the use of a vaccine were so striking that it seemed impossible that mere coincidence would explain them. It was not suggested that one certain organism was specific for this condition; on the other hand, it seemed quite reasonable that any pathogenic bacterium, or even the colon bacillus, under abnormal intestinal conditions might become the incitor of a pancreatitis leading to a suppression or deficiency in one or other of the pancreatic ferments. Undoubtedly a large number of cases in this group were mild and transitory and would respond to such dietetic measures as made the intestines an ungrateful field for the growth of the organism pathogenic for the particular case.

A Rapid Clinical Method for the Estimation of Total Fat in Infants' Stools.—Dr. David Murray Cowie and Dr. Winfield Scott Hubbard of Ann Arbor, Mich., presented this communication, in which they stated that the ideal method for the estimation of fat in infants' stools was that which determined neutral fat, fatty acids, soaps, and total fat, as they existed in the stool before it came into contact with external agencies. Such a method did not at present exist. Clinical qualitative tests did not suffice, for all three forms of fat might normally exist in an infant's stool. On the other, there had been no truly clinical method for the estimation of total fat in stools up to the present time. Such a method they believed had a definite value, and this value would be greater if it could be applied to fresh or moist as well as pulverized stools. Their method sought first to convert all fats into fatty acids and subsequently to bring them into the graduated neck of a tube by rapid centrifugalization. They had adapted their method to glassware in common use. If a pulverized stool was examined one-quarter of a gram was used; if fresh or moist stool one-half gram. The sample was rubbed carefully with a little water in a mortar with a thin lip, using 20 c.c. water to transfer the mixture to a Babcock bottle graduated in fiftieths of a centimeter. Then 7.5 c.c. of sulphuric acid with a specific gravity 1.84 was added, and mixed thoroughly; then 1 c.c. of amyl alcohol (Kitta) was added, mixed thoroughly, and centrifugalized for three minutes at high speed. The fat column was brought into the neck of the tube with hot water. It was again centrifugalized for one minute and *read while hot*. The number of divisions on the neck of the tube occupied by the fat was multiplied by the factor 7.2 if one-quarter gram had been used, by 3.6 if one-half gram.

Is Diphtheria Frequently a Bacteriemia?—Dr. Matthias Nicoll, Jr., and Dr. H. L. Wilcox of New York presented this paper. They called attention to the fact that while diphtheria was regarded chiefly as a local disease, yet the Loeffler bacillus had frequently been isolated from the blood and organs during life. The writers of the paper said that they had sought to solve the problem of diphtheria bacteriemia by an examination of the urine of those actively ill and of convalescents. They had examined 155 patients, of which 54 had a positive urine. In six cases only were virulence tests made, all of which proved positive. Thirty-one urines were examined in the first week of the illness, 10 in the second, five in the third, and two in the fourth. One was found positive in the ninth week of convalescence. The bacteria were found in normal as well as albuminous urine, showing that they passed through healthy as well as diseased kidneys. In most cases they were very few in number. On the strength of their findings the writers of this paper made a plea for the disinfection of the urine of convalescents until by three negative cultures the urine was shown to be free from diphtheria bacilli. It seemed probable that diphtheria of the skin and mucous membrane, which showed such a predilection for the genital and anal regions, was due to direct infection from the urine. After analyzing the findings of Dr. R. Koch of Frankfort and of Walter Beyer, together with those of their own series, they concluded that diphtheria bacilli might occasionally gain access to the blood and be excreted in the urine in very severe cases of diphtheria with marked ulceration of the mucous membranes of the pharynx and tonsils. This fact was of interest theoretically, but was of little practical importance to the physician. They believed that the identification of diphtheria bacilli in the urine should not rest on morphological characteristics, but should be confirmed by isolation and animal inoculation controlled by the use of diphtheria antitoxin.

The Ammoniacal Diaper and Its Correction.—Dr. Thomas S. Southworth of New York read this paper. He said that the occurrence of a strong ammoniacal odor on an infant's diaper was not a rarity. It had usually been ascribed to decomposition of the urine after its passage. The condition seemed not to have received any general attention and no suggestions were offered for its correction in American textbooks. The writer reported five cases which seemed to permit the deduction that a noticeable ammoniacal odor to the diaper of an infant might yield either to the administration of alkalies, or to a reduction of the fat in the milk mixture, or to a combination of both measures. Keller and Czerny had concluded that ammonia did not appear in the urine in normal infants in sufficient quantities to make its presence known by the odor, but that such an odor was a concomitant of digestive disturbance, although it by no means occurred in all cases of digestive disturbance. Changes in the liver were commonly found in gastrointestinal disturbances and these changes might interfere with urea formation and lead to the excretion of large quantities of ammonia in the urine. The increase in the ammonia excretion could have another explanation, which depended upon the chemical properties of ammonia to combine with acids as an alkaline base. Under abnormal conditions there was an excess of unoxidized acids for whose neutralization the available supply of fixed alkalies did not suffice; the ammonia then took the place of the fixed alkalies and formed with the acids ammonia salts, which would be excreted in the urine. Therefore, an increased excretion of ammonia could be caused by an increased production and excretion of acids, except that the abnormal presence of acids might arise from two sources, either from an increased production during the period of metabolism, or from an increased formation and decreased absorption in the intestinal tract. This complicated the problem if the acids were present in excess, for if they were not oxidized they were neutralized either by calling upon the fixed alkalies or by calling the ammonia into requisition. Therefore, the condition of the infant and the type of food were important in determining

the amount of ammonia excretion. The fats in the food had been found to increase the ammonia excretion through the formation of fatty acids. The amount of ammonia excreted might be decreased by a variation in the amount of fats. Where there was sufficient ammonia present in the urine to reveal its presence by its odor, there was also a loss of the fixed alkalies. The less available alkalies taken into the body the greater the necessity abstraction of alkali from the tissues. The therapy of excessive ammonia excretion must therefore be directed toward two ends; first, the prevention of the improper formation of acids, and, second, the prevention of undue loss of alkalinity. The latter could be partially effected through the administration of alkalies by way of the mouth. Dr. Southworth said that a rather limited experience had led him to believe that calcium, magnesium, and perhaps potassium, were better bases for this alkaline treatment than sodium. A more fundamental measure was that of promoting a better metabolism of the fats by reducing the amount with which the organism was called upon to cope. The food should be such as to be fully digested and oxidized with the least formation of acid product. In persistent and long standing cases in which a completely fat free milk did not effect a cure they had found it advisable to use a malt soup mixture of readily absorbable carbohydrates. More attention should be paid to the ammoniacal diaper as a clinical sign than had hitherto been done. This symptom directed the attention to a disturbance of metabolism presumably traceable to an actual or relative overfeeding with the fat of cow's milk.

Dr. David Murray Cowie of Ann Arbor, Mich., said that he had been making a routine examination of the urine for acetone in cases with ammoniacal stools. Sodium chloride and acetic acid were the final tests as to the amount of ammonia present. The examination of the urine should include, not only the tests for albumen, casts, sugar, but also for the acid bodies.

Dr. Thomas S. Southworth of New York said that he only wished to emphasize the importance of noticing the ammonia in the urine. In most instances it was not necessary to use an elaborate method to test for this ammonia.

Duodenal Ulcer in Infancy.—Dr. L. Emmett Holt of New York presented this communication. He read an abstract of his paper based on the observation of four cases of duodenal ulcer which had recently come under his observation at the Babies' Hospital. After giving a brief history of the cases Dr. Holt pointed out that all of these ulcers when examined at autopsy were found in the same situation, that was, just below the pyloric ring and in the posterior wall. In size they averaged about 1 c.c. in diameter. In appearance they were all round, punched-out ulcers; there was no inflammatory reaction, and no signs of repair, the base being necrotic. Duodenal ulcers until recently had been supposed to be exceedingly rare in infancy and childhood. Since 1903 groups of cases had been published by several writers, and during the past two years the increasing number of reports indicated that the condition was not at all uncommon, but had been previously overlooked. As compared with gastric ulcers, duodenal ulcers were relatively common. In 1908, Entz of Budapest in 364 autopsies in infants found 10 cases of duodenal ulcer and only one of gastric ulcer. Helmholz, while working on various European hospitals, found 16 cases in six months. Schmidt reported in 1109 autopsies in infants in the first year, 20 cases of duodenal ulcer. The site of the ulcers was quite uniform, being in the great majority of cases just below the pyloric ring. In about one-third of the cases multiple ulcers were present, usually only two or three. The ulcers varied from two to three millimeters in diameter, were usually circular with sharply defined edges, and had the characteristic punched-out appearance. In about one-fifth of the cases reported perforation had taken place. The cause of the ulcers had been generally assumed to be a thrombosis, then necrosis, and subsequently a self-digestion of the intestine by the acid gastric juice, as it had been noted that practically all the ulcers were above the papilla. Duodenal ulcers had been found associated with melena in the first few days of life; in such cases the ulcers were usually small and multiple. The cause here was assumed to be septic thrombosis. Again a casual connection had been assumed between duodenal ulcers and marasmus and infantile atrophy. Helmholz attached much importance to this view, but Dr. Holt said that he, in common with a number of other writers, regarded this connection as an accidental one. Probably the lowered vitality of the intestinal mucosa of such children was a strong predisposing factor. It was rather interesting that in not a single one of the reported cases in infants had duodenal ulcer been associated with burns, although Perry and Shaw, in 149 autopsies upon cases of burns in adults and older children, found five with duodenal ulcer. Collins reported a frequent association of duodenal ulcer with nephritis. The various views indicated how diverse were the opinions which had been held regarding the pathological association of this condition. The probabilities were that none of these had a very close connection. The diagnosis during life was extremely difficult and was made in but a very small proportion of the cases. In Schmidt's twenty cases it was made only twice. In many instances the only symptom of peritonitis was acute collapse followed in a few hours by death. The vomiting of blood, either clear or coffee ground material, was seen in a small proportion of cases. It was noteworthy that both hemorrhage and perforation might be the cause of an acute collapse, the hemorrhage being in many cases internal. A diagnosis between these conditions was impossible. The sudden development of acute perforative peritonitis in an infant should lead one to think of duodenal ulcer. In one of his cases the passage of the duodenal catheter led to a diagnosis of the existence of duodenal ulcer, which was confirmed at autopsy. There could have been no reason for suspecting that the passage of the catheter was the cause of the ulcer. This means of diagnosis would be a valuable addition to their means of recognizing these cases. Spontaneous recovery occurred in a small number of cases, how often it was impossible to say, for only the most careful examination of the intestine would reveal the cicatrix of an ulcer. It might fairly be assumed that this condition was fatal in the great majority of cases. There was little to be said regarding treatment. With the uncertainty of diagnosis which existed at the present, surgical treatment was practically out of the question. It should be urged upon those who saw autopsies on infants to make a careful and systematic search of the duodenum with a view of determining the presence of ulcers which might readily be overlooked in a superficial examination of this part of the intestine.

Dr. F. S. Churchill of Chicago asked whether it would be advisable to pass the duodenal tube if one suspected the presence of duodenal ulcer.

Dr. J. Crozier Griffith of Philadelphia said that he had reported two cases of duodenal ulcer, and also the case of a child that died of hemorrhage and perforation about two years ago. The condition was much more frequent than was supposed, especially in the new born. It was probable that many cases of melena were due to duodenal ulcer. If they had found that it occurred more frequently in older children, it had come to their notice more often than to his. Fischer had said that gastric ulcer was extremely rare and duodenal ulcer more so.

Dr. Godfrey R. Pisek said that in reference to the condition being the result of thrombosis, he wished to cite an instance. He had made a tentative diagnosis of duodenal ulcer in a child who died suddenly and afterward he did the autopsy. The child showed the characteristic punched-out ulcer and the only conclusion that seemed reasonable was that it was caused by thrombosis, which might occur as the result of marasmus or of other causes.

Dr. Maynard Ladd of Boston said he wished to suggest the use of the bismuth meal and the *x*-ray as a diagnostic aid since it had been used so successfully in adults.

Dr. Edward E. Graham of Philadelphia related a case which had recently come under his observation in which the infant was suddenly taken ill, went into collapse, and died soon after he first saw it. The case was a coroner's case and the autopsy revealed a gastric ulcer.

Dr. H. M. McClannahan of Omaha, Neb., said he wished to add another case to the literature of gastric ulcer in infancy. He said that he had to confess that the diagnosis had been made on the post mortem table. The child died suddenly in a state of collapse from profuse hemorrhage from the bowels.

Dr. Matthias Nicoll, Jr., of New York said that it was a sad commentary on the work of the pathologist who made autopsies in the routine way and never saw any of these cases of duodenal ulcer. He wondered whether they had failed to look for this trouble or whether these ulcers were difficult to recognize that they had been passed over in this way.

Dr. L. Emmett Holt of New York, in closing the discussion, said that large ulcers were probably not overlooked by any one, but there might be a large area of mucous membrane affected, but with no hemorrhage or perforation noticeable, and this might pass unrecognized. The risks of passing the duodenal catheter were considerable. These ulcers were, in the majority of cases, situated close under the pyloric ring, and in this locality were well protected, and there was little danger.

Casein in Infant Feeding; Experiments in Exact Percentages.—Dr. Henry I. Bowditch of Boston read this paper. He said that they had taken for granted that the percentages of proteins and especially casein had been fairly

exact in milks and milk formulæ. One had merely to examine for casein and albumin in creams and milks to find that the quantity of casein varied considerably, as did the albumens. Milks made up according to the Finkelstein formulæ were examined on the Boston Floating Hospital during the summer of 1912 and they were surprised to find that the supposedly same formula of three consecutive days gave a variation of from two and one-half to four and one-half per cent. protein. The method developed by Van Slyke and A. W. Bosworth of the New York Agricultural Experiment Station at Geneva was employed. It required only ten or fifteen minutes to make the tests by this method and the results were reasonably accurate. This method was the simplest, required the most inexpensive equipment, and was eminently practical for the medical student. The total protein was determined by the method of Kjeldahl and Phouls modification as a control. Specimens of 32 per cent. cream, 16 per cent. cream, 4 per cent. cream, whole milk, fat free milk, and whcys were examined to test their uniformity. These products were taken from the same herd and handled by the same men. The casein showed the greatest variation in the creams, from 1.2 to 1.5 per cent. in 32 per cent. cream; from 1.5 to 0.7 in the 16 per cent. cream, while 4 per cent. milk and fat free milk gave a variation of only 0.1 per cent. variation. In looking at the soluble albumins they found that the higher creams had a still wider variation. The question arose as to whether this discrepancy in the daily percentage strength of proteins in 32 per cent. cream and in 16 per cent. cream affected their formulæ. The chart showed that the total protein determined in every instance varied from the protein in the formula, it being lower than they had supposedly ordered. The greater variations were seen in the high fat formulæ. These errors could be met in one of two ways: 1. The casin in the cream and milk, as well as the other ingredients necessary for the formula, could be determined and proper allowance made so that the percentage of protein would be accurate. 2. The casein percentage might be estimated in creams necessary for the formulæ and dried casein might be added to the desired amount. They found that these methods of accuracy tallied about evenly as far as intake, retention, and excretion were concerned, whether the casein was taken wet or dry and powdered, and that the dry precipitated casein could be taken without harm and was practically digested by the organism. This accurate determination of proteins might or might not be of value; this was yet to be determined. The precipitated casein was prepared from the curds of milk saved from the Walker-Gordon Laboratory and were those left from the whey used in making up the whey formulæ. The curd was then dissolved in alkali and precipitated with diluted acetic acid, the acid added being very weak. The precipitate was collected, washed, thoroughly filtered, squeezed in a cheese press, washed with alcohol to extract the water, and then the alcohol evaporated. The dry mass was then powdered and passed through a fine sieve. Analysis of this casein gave 98 per cent. casein and 0.2 per cent. salts.

The Influence of Variations of Diet upon Gastric Motility in Infants.—Dr. Maynard Ladd of Boston presented this communication. He said that radiographs of an infant's stomach, taken at regular intervals after a bismuth meal, offered a new and interesting method of studying gastric motility. By means of serial views one might obtain exact data not only of the time required for complete emptying of the stomach, but of the rate at which the food was expelled. By varying the composition of the food, an opinion might be formed as to the effect of the different milk elements upon gastric motility. Moreover if the same conditions of the experiment were maintained, they might determine differences in the effects of certain formulas in several babies of approximately the same age. In a paper which he had recently read before the Tristate Medical Association at Norfolk, Va., he had given the results of his observations of gastric motility based upon a series of fourteen infants, making a series of twenty-four experiments, in which about one hundred and twenty-four radiographs were taken. Since that time he had increased the number of observations by about one hundred; so that the ideas embodied in this paper were based upon approximately two hundred and twenty-five radiographs of infants' stomachs, showing various stages of digestion. Factors taken into account in making these observations were the age of the child, the quantity of food adminstered, the composition of the food as shown by variations in the percentages of its elements, by alteration in its reaction, by the addition of such ingredients as whey, barley water, etc., by the use of precipitated caseins instead of the natural proteins of milk—all these might be factors influencing gastric motility. Then, again, there were the individual peculiarities of the child. One of the first points observed in these radiographs was the curious lack of peristalsis to be seen in the normal infant's stomach, as compared with that of the adult. The stomach appeared to squeeze out its food by contracting as a whole upon its contents, seldom showing the marked indentations so characteristic of the peristaltic wave in the adult. In the normal case some of the food appeared in the small intestine as soon after feeding as the plate could be taken. The emptying process went on rapidly at first, the major part of the contents being expelled in from one and one-half to two and one-half hours, both in breast fed and bottle fed babies. After two hours the emptying process was relatively slow in the majority of cases, often requiring from four and one-half to five and one-half hours before all traces of bismuth had disappeared. In one case, and that a normal baby, there was a considerable residue of food after seven and one-half hours. This relative inactivity of the stomach after two hours appeared to be due in part to the character of the food and in part to the lack of sufficient distention of the stomach, which seemed to be a factor in stimulating peristalsis. If an infant was given a second bismuth feeding three hours after the first the new feeding did not mix intimately with the bismuth residue of the earlier feeding, but appeared to stimulate the contraction of the stomach as a whole, and the expulsion of the bismuth residue was accelerated by the new feeding. If the new feeding was given so soon that the stomach had not had time to get rid of a large part of the first feeding, the over-distention which resulted, produced a condition of inactivity or stasis and the emptying time of the stomach was prolonged. This interesting action of the stomach was an important factor in explaining why the results of feeding infants at short intervals, such as two and two and one-half hours, might in some babies be successful and in others not. The normal emptying time even in breast fed infants taking the same quantity of food varied within wide limits. He had not found as yet an infant whose stomach was emptied in two hours. It was an exceptional case when the stomach was emptied before three and one-half hours. The statement that the stomach of a breast fed infant was emptied in two and of a bottle fed infant in three hours was not even approximately exact. The advocates of four hour feedings, on the other hand, were mistaken in assuming that such as interval allowed the stomach one hour of complete rest between feedings. In many cases there was nearly as much residue after four as after three hours. This was particularly true if the formula contained high percentages of casein. That the bismuth alone might account for the apparent residue in these cases was disproven by careful observation. Experiments showed that in the case of the proteins, it was quite evident that the amount of casein, when it was in a coagulable form, was the most important factor in delaying the emptying time of the stomach. The suggestion was strong that the casein of cow's milk, when given in a high percentage, had a decided action in delaying the emptying of the stomach. If this casein was precipitated outside the body, the emptying time was greatly accelerated. The presence of fat had no retarding action, and, in some cases seemed to favor the exit of the stomach contents. There was reason to believe that barley or starch rendered the food more easy of exit. Dr. Ladd gave a lantern slide exhibition illustrating his paper.

Dr. Edward E. Graham of Philadelphia said that the subject of gastric motility was interesting to them all. However, one should be a little careful as to conclusions. The radiograph was likely to show the bismuth meal remaining in the stomach longer than the ordinary meal usually did. While some bismuth meals left the stomach in two and one-half hours the majority of subjects which he had tested showed a tendency to retain the meal much longer than the ordinary meal.

Dr. Godfrey R. Pisek of New York asked in what position the children were placed when the pictures were taken. He stated that he agreed with the writer of the paper on many points but there were some upon which he could not agree. Dr. Ladd's work was certainly illuminating and the possibility of error was so small that it could be easily checked up. The x-ray had the advantage over laboratory methods in that the child was untouched and in a perfectly natural condition.

Dr. Frank S. Churchill of Chicago asked when breast milk was tested how large a meal was given and how long it remained in the stomach.

Dr. J. Crozier Griffith of Philadelphia asked what the average ratio of casein to proteid was.

Dr. Henry I. Bowditch of Boston replied that the ratio

of casein to proteid was quite constant, being 2.3 or 2.4, and the albumen being 0.9. In making *Eiweiss milch* there was a great waste of material and they had experimented to see how this waste could be utilized. They had used the curds by drying and grinding them. They found that the curds from forty or fifty quarts of milk made two or three pounds of casein. In the course of a year this saving amounted to several thousand dollars. Feeding with dry casein had almost instantly cleared up gastric disturbances in some instances. Casein was soluble in alkalies, as, for instance, lime water.

Dr. Maynard Ladd of Boston, in closing the discussion, said that the children were placed on the stomach when the pictures were taken and in the intervals between exposures they rested upon their backs. In two instances five ounces were given as a test meal and in one case, a heavier baby, six ounces. The child taking the largest amount had the longest emptying time.

A Case for Diagnosis.—Dr. Samuel S. Adams of Washington, D. C., presented this case, a female child of three years. She had been in good health until February of this year when a painful rash appeared and persisted for about a week. The child continued to remain mopy, however, and about March 1 the lassitude increased. The child complained of pain in her head and of her hands and feet which were swollen and inflammed. Calomel and bromides were given, but the latter only seemed to increase her restlessness. A number of physicians had seen the case and had suggested various diagnoses, among which were anemia and tuberculous meningitis. Dr. Adams said that he was now confident that the child had pellagra. The temperature was normal with a tendency to subnormal. She cried out when her hands were touched and for a time kept them elevated over her head. The hands became red to the wrists when exposed to the cold and the same was true of her feet upon which there were deep red spots looking like threatened gangrene. He had thought of angioneurotic edema and of erythromelalgia. Phenic acid had been given. He had a man in the Georgetown hospital with pellagra but the symptons were not similar. The petechial spots still remained. The child, however, had improved considerably.

Dr. Thompson S. Wescott of Philadelphia said that if the trouble was pellagra unless a radical change was made in the diet it would return next year at about the same period that it had appeared this year. Constipation might be quite as characteristic of pellagra as diarrhea. He asked if corn flour was the cause of the condition.

Dr. Lawrence R. DeBuys of New Orleans said that the diarrheal symptons were wanting and also the discoloration so frequently found, but it looked to him like a mild case of pellagra. The child had probably passed the crisis of the disease.

Dr. Adams said the child had had no corn flour foods and was much better than she had been.

Acute Infectious Jaundice in Children.—Dr. Charles Herrman of New York read this paper. He said that this form of jaundice had all the forms of an acute infectious disease. The infectious material seemed to have an affinity for the bile passages just as the typhoid bacilli had for the follicular structures. The present report was based on 98 cases seen during a period of six years chiefly at the Vanderbilt Clinic and The Lebanon Hospital Dispensary. No cases had been reported under one year of age. The disease was most common between the ages of three and six years. Acute infectious jaundice had a seasonal incidence, over one-half the cases occurring in October, November, and December. Dr. Herrman said that he believed that this was a strong argument in favor of the infectious nature of the disease. None of the cases showed gross indiscretions in diet immediately before the onset of the jaundice but there were usually histories of a few attacks of indigestion. The initial vomiting was probably toxic. There was a possibility that the examination of blood cultures and duodenal contents might throw some light on the etiology. Infection probably occurred through the intestinal tract but this was not conclusively proven. Because of the seasonal incidence of the disease infection might take place through the naso-pharynx. The symptons were headache, lassitude, anorexia with vomiting, and rise in temperature. In three cases, however, there was no fever at the onset. A high fever was usually associated with a rapid pulse. Ten of twenty-five cases complained of pain in the abdomen. In two of the cases the urine became darker on the first day and in others on the following early days of the disease. The color of the urine was the most convenient index for determining the degree of improvement of the patient. Dr. Herrman said that his method of testing the color of the urine was by having five or more bottles containing fluid for different shades of yellow from a pale yellow to a very deep orange. The middle bottle or vial contained a yellow fluid the color of normal urine. By comparison of the urine of the patient with these yellows one could measure the degree of improvement of the patient. The clay colored stools were characteristic of the condition and were seen from the first to the sixth day of the disease. The appetite was poor in almost all cases but was inclined to improve after the initial stage. In twelve of the cases the bowels were regular, in four there was diarrhea, and in eight constipation. There was itching in those in whom the jaundice was the most profound. In three or four months the liver and spleen were no longer palpable. The spleen was palpable in ten and not palpable in fifteen of the cases, and returned to the normal more rapidly than the liver. All but one of the cases recovered. There were no points of difference between the fatal case and those that recovered except a difference in the severity of the condition. As to the treatment, in many cases it was only necessary to restrict the fat and to give soup, lean meat, vegetables, skimmed milk, and bread. Cholegogues had little or no cholegogic effect; any apparent effect of that nature was due to increased peristalsis. In prescribing the diet one should not increase the secretion of bile, and small frequent meals were a means toward this end.

Dr. Frederick Forscheimer of Cincinnati asked whether blood examinations had been made and whether there were any bacteria present in the blood. There was no difficulty in palpating, especially in a child, but it should be borne in mind that inflammation in the gallbladder wall brought about changes which resulted in the ordinary tissue being replaced by connective tissue and it was dangerous to use palpation. Work of this kind in the dark was apt to be followed by rupture of the gallbladder, collapse, and death.

Dr. Charles Herrman of New York said that he had never advocated such a procedure as Dr. Forscheimer had referred to, but had merely said that palpation was difficult to carry out.

A Case of Hirschsprung's Disease with Operation and Recovery.—Dr. H. C. Machell of Toronto, Canada, reported this case. He said that he saw the child, a boy of three years, on June 10, 1912. The boy was poorly nourished, had a sallow, muddy complexion, and walked in a feeble way. The abdomen was large tense, and shiny, even in the flanks. Coils of intestine could be seen and an intestinal peristaltic wave was plainly visible at times running from the right upper abdominal to the left inguinal region. A diagnosis of Hirschsprung's disease was made and the child advised in regard to feeding and outdoor life until Fall when it was intended to do an operation. In November Dr. Arbuthnot Lane of London, Eng., performed the operation. The pelvic colon and the ileum were divided, the latter at a point close to the cecum, and an anastomosis established between them. The mesentery was drawn together, closing the space in the pelvis with a purse string suture, and the fluid end of the pelvic colon fixed to it. At the time of the operation nothing was found to account for the dilatation. The patient made an uninterrupted recovery.

Dr. Edward E. Graham of Philadelphia asked how much of the colon was removed. Dr. Lane had achieved wonderful results in operating upon children when he had only one death in sixteen operations. Dr. Graham asked if any other surgeon had secured results in any way comparable with these. He had had such a case and it was planned to do a two stage operation, but the child died after the first stage. It was important to decide regarding the mortality of operation in these cases, for if others could get the results that Lane had attained operation would be justifiable.

Dr. J. Crozier Griffith of Philadelphia said that Dr. Machell was to be congratulated on the results in his case. He himself had had a case and had made a study of the literature on this subject. He had found only twenty-four cases that really came under the category of Hirschsprung's disease. The condition must be congenital and idiopathic or else it could not be classified in this category. Many cases had kinks, etc., and then they were not cases of Hirschsprung's disease. The condition must be dependent upon an innate tendency to dilatation and not on stenosis. Cases had been reported long before Hirschsprung wrote on the subject and the condition should not bear his name. Of the twenty-four cases that he had collected eighteen had died. Only two were known to have recovered. In another case in which the abdomen of the patient was enormously distended in infancy, the condition improved so that at the present time, when the child

was four years of age, he had no symptoms and seemed perfectly healthy. An operation in this case would have been a mistake. Operation was indicated only when the condition was congenital and idiopathic.

Dr. H. T. Machell of Toronto, Canada, said that in his case the small intestine was taken off about three inches above the appendix. An interesting point in the operation was the purse string suture looped toward the pelvis so that no kinks could occur. There was not a drop of pus and the wound healed perfectly.

The Relation of the Physician to Social Service.—Dr. J. C. Gittings of Philadelphia read this paper. He asked why, since the disturbances of health were such important factors in the etiology of social ills and since hospitals had expended their function so as to embrace as many problems of health as circumstances would allow, physicians as a class were not assuming greater responsibility in directing the social work of the hospitals instead of leaving it in the hands of lay workers. Was it because the physician had failed to grasp the basic value of this work and its direct relation to medicine, or were they convinced that the work was chiefly a sociological measure and therefore had left to layworkers its organization, development, and management? In order that he might answer these questions the writer had sent out a set of questions to the members of the American Pediatric Society, and he had found that social service departments had been established in one or more hospitals in eleven out of eighteen cities. In every instance the physicians approved of social work, a few stipulating that proper management was essential. The evidence showed that the hospitals were slow to take up the work, that physicians considered it a social adjunct rather than an integral part of medicine. Partly on this account and partly for lack of opportunity, and for unknown reasons, they had often failed to assume responsibility for directing it. In the work there were sociological functions and functions which a trained nurse could best perform which he called medical functions. Among the medical functions he classed the prevention of contagion, the discovery of cases in the homes, advice and guidance in the plan and place of treatment, nutrition and hygiene of the person and home, and home nursing. The writer cited evidence coming from institutions where social service operations had reached a high degree of development showing that, broadly speaking, the chief function of social service in general hospitals was medical. The social work was especially applicable in the case of children. It was useful in the conservation of resources, finding or changing employment, renewing confidence, moral suasion, and instruction. The last two were purely sociological. In this work the personal factor was the first consideration and the lay woman who had had educational advantages was better fitted to do the work than the trained nurse of the average type. Granted the necessary personal and educational equipment, it seemed that the training of the trained nurse in a large general hospital supplemented by sociological training must furnish the best preparation for medical social work. A social service department should be directed by representatives of the medical staff, board of managers, and, if desirable, of the ladies' committees, together with the head worker. The preventive principles of medicine must be expended so as to include, not only the assault on contagion but the less spectacular but equally dangerous undermining of health occasioned by faulty habits and environment. Between the prevention of disease and the preservation of health there was no essential difference, and surely the physician and not the sociologist should become the logical arbiter of all problems relating to health. In the medical school the new physician should devote more time to hygiene, psychology, and eugenics than at present.

Dr. Fritz B. Talbot of Boston told of the social service department of the Massachusetts General Hospital. They had solved the problem by having one of the social service organizations move into the hospital building. Medical results were quite different when there was an efficient social service department. They were trying the plan of giving two nurses a six months' training in social service as a part of their two years' course.

Dr. F. S. Churchill of Chicago said that he was glad that physicians were beginning to realize the importance of social work; they should have taken the lead in this direction before. Social work was preventive medicine on a broad scale. Since they had a well-organized social service department in the Children's Memorial Hospital the results were quite different. They co-operated with other agencies in the city and their department was a school of civics and philanthropy, and was of broad educational value to the nurse.

(To be continued.)

Therapeutic Hints.

Atropine in Ulcer of the Stomach.—A. Mathieu and A. L. Girault report good results from the use of the following formula of Pouchet in the treatment of the pain resulting from gastric ulcer:

℞ Neutral sulphate of atropine, 0.01 gram.
Glycerin (28° Baumé), 3 c.c.
Distilled water, 1.5 c.c.
Alcohol (95 per cent.), ad 10 c.c.

Fifteen drops of this solution contain one milligram of atropine. The dose is ten drops gradually increased to twenty drops three times a day. The treatment is kept up for about one week.—*Bulletin Général de Thérapeutique.*

Local Applications in Epididymitis.—M. T. Schnirer presents the following list of formulæ, all of which have been employed for a long time in the treatment of this condition.

℞ Tincture of iodine,
Tincture of nutgalls, āā 10 grams.

This is to be painted on the scrotum.

℞ Guaiacol, 5 grams.
Vaseline, 50 grams.

℞ Lead iodide, 5 grams.
Vaseline, 50 grams.

℞ Iodoform, 1 gram.
Vaseline, 30 grams.

℞ Iodine, 0.3 gram.
Potassium iodide, 3 grams.
Vaseline, 30 grams.

℞ Extract of belladonna or of opium, 1 gram.
Simple ointment, 20 grams.

—"Taschenbuch der Therapie."

Suprarenal Extract in Whooping Cough.—W. J. Lord reports a case that illustrates the good effects of this method of treatment which was advocated by G. V. Fletcher in the *British Medical Journal*, December 28, 1912. The case was that of a delicate child of seven years in whom pertussis was complicated with bronchitis, which was becoming more and more severe. The child had been ill for six weeks when the author began with the administration by mouth of 3 minims of the 1 in 1,000 solution of suprarenal extract every four hours, and almost immediately he noticed a marked diminution in the severity and frequency of the paroxysms. He was soon able to limit the administration of the drug to three times a day, and continued it thus for three weeks, at the end of which time the child had completely recovered from the cough and the bronchial symptoms, and had steadily improved in every other way, there being a total disappearance of the anemia and wasting which had been produced by the persistent vomiting.—*British Medical Journal.*

The Medicinal Treatment of Uterine Fibroids.—Bossi recommends the following formula:

℞ Fluid extract of hydrastis canadensis,
Fluid extract of hamamelis,
Fluid extract of viburnum prunifolium,
Tincture of piscidia erythrina,, āā, 10 grams.
Tincture of opium, 2 grams.

Of this mixture the dose is 20 drops three or four times a day.

A Diuretic Potion.—Herbert has employed the following potion with good results:

℞ Acetate of potassium, 4 grams.
Tincture of squill, 80 drops.
Syrup of eucalyptus, 60 grams.
Infusion of uva ursi, 250 grams.

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Original Articles.

LEAD POISONING IN NEW YORK CITY:*

A STUDY OF TWENTY-FIVE CASES WITH SPECIAL REFERENCE TO INDUSTRIAL HYGIENE FROM THE DISPENSARY STANDPOINT.

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ABOUT one year ago, at the suggestion of Prof. W. Gilman Thompson, a somewhat systematic study of the trade diseases that presented themselves at the Cornell Clinic was begun with the view of gaining facts and information as to the extent and prevalence of these conditions, how they were brought about, and other useful knowledge that might aid in their prevention and control. Statistics relating to industrial disease have been lacking in this country, and it is only in comparatively recent years that any sustained effort has been made to secure reliable data, and to disseminate the knowledge thus gained among employers, laborers, and others exposed to daily risks in their work.

Importance of Securing Accurate Statistics.—In this country, and in certain States in particular, a serious and painstaking effort to gather this information has been made for the past three or four years, and investigations are still going on. Despite this, we are not yet in a position to state with accuracy the status of lead poisoning and other dangers in our industries. The phosphorus evils, thanks to the efforts and persistency of John B. Andrews, will be controlled, but these represent almost the only forms of industrial poisoning in which legislation has played a serious part. Great Britain recognized these dangers more than twenty years ago, and the regulations of the Home Office have done much to mitigate the troubles of the lead workers. In England it was found that, in spite of the fact that factories were posted, and certain regulations were in force, much of the hazard and disease continued, and it was only by government intervention and necessary legislation that many of the abuses have been checked, notably the abolition of female labor in the more dangerous lead processes. These, and other benefits have been attended only by a careful study of the conditions as they exist, and the production of statistical proof. This experience in England illustrates very clearly the good effects of compulsory reporting of these diseases as instanced in the improvement of the lead industry.

Since the awakening in this country, several admirable reports have appeared, especially the researches of Dr. Alice Hamilton for the Illinois Commission, and her studies on the conditions in the white lead industry for the United States Bureau of Labor, and John B. Andrews' report of fatal cases of lead poisoning for the New York State Bureau of Labor. Dr. Hamilton's figures from the Illinois investigations are very illuminating, and show strikingly the necessity for proper legislation and control. She states that among the employees in Illinois, where there was no legalized inspection, one case of plumbism occurred among every seven workmen, while in Great Britain, with properly controlled medical inspection, there was one case among every 264 workmen. Still more recently, E. E. Pratt, in his report to the New York State Factory Investigation Commission on lead poisoning in New York City, states that in 1910, in the whole of England, there were only 505 cases of plumbism, while in New York City alone in the same year, there were 121 cases, and for the years 1909, 1910, and 1911, there were 376 cases. These figures show conclusively the necessity for legislation and education, for these facts, prominent as they are, represent only a small part of the actual conditions that undoubtedly exist in this city to-day. Since September, 1911, the compulsory reporting of lead, arsenic, mercury, and phosphorus poisoning, the caisson disease, and anthrax, has been required in New York State, and the statisticians of the Department of Labor will unquestionably have a large amount of valuable information upon which to carry out measures of needed reform. The frequent publications of the American Associations for Labor Legislation, show well the trend of the work now being done in this country, and it is to be hoped that all the good effects aimed at will soon be realized. I believe that the subject of lead poisoning is to be the main object of the work of this society during the coming year.

Opportunities for Study in New York.—Of the numerous diseases that can be attributed to occupation, perhaps none is better known or been more extensively studied than the various phases of lead poisoning, but, notwithstanding all this, very little has been done to relieve suffering, or to make its use safer. This, as has already been stated, is due to the lack of knowledge of the extent of this hazard, and the many fields in which it finds employment. New York City, with its immense cosmopolitan population and its great manufacturing interests and large variety of trades, offers a field for study that is abundant for almost any of the occupation hazards, and this is particularly true in the case of lead. Numerous hospitals and dispensaries in the greater city are daily treating men engaged in all manner of occupations, and in certain sections the preponderance of factories, paint shops, etc., makes the opportunity an unusual one. Of late years the extensive demands for electric accumulators, magnetos, and similar things, have added a large danger to the workman from lead, and this is one of the newer risks, in addition to the well-known hazards of the older industries. In all there are about 131 occupations in which lead is a factor and source of

*Read before the Audubon Medical Association, March 28, 1913.

Case No.	Age	Sex	Occupation	Length of Exposure	Symptoms	Laboratory Findings	Diagnosis and Remarks
1	44	Male	Painter	Not known	Lead line arteriosclerosis, weakenss of right hand, colic, constipation	Albumin, trace, hyaline and granular casts	Chronic lead poisoning, interstitial nephritis; acute symptoms two weeks
2	37	Male	Foreman in paint factory	2 months	Colic, constipation, weakness of right hand, lead line, tremor, enlarged heart		Acute lead poisoning; sick 3 weeks before seeing doctor
3	31	Male	Brass worker	Not known	1 year abdominal colic, constipation, pains in legs, arteriosclerosis	No basophilia	Case diagnosed as lead poisoning probably by exclusion
4	45	Male	Plumber	Not known	Pain, tingling, numbness, weakness of right hand; no lead line	No basophilia	Lead poisoning?
5	40	Male	Painter	25 years	Colic, constipation, lead line		Lead poisoning; previous attack 3 years before
6	46	Male	Laborer in lead works	Not known.	Pain in shoulder and arms; constipation, numbness, partial loss of power in right hand; tremor, lead line	No basophilia. B. P. 152	Chronic lead poisoning, probable nephritis, duration of symptoms, 4 months
7	31	Male	Painter	Not known	Nausea, pains 3 months.	No basophilia	Great improvement under potassium iodide and elimination
8	51	Male	Painter, polisher, varnisher	1 year. 32 years.	Abdominal pain, nausea, constipation, loss of 17 pounds, anemia	Hb. 87, Gr. basophilia positive	Duration of symptoms 3 months. Healthy previous to taking up painting
9	34	Male	Laborer in paint factory	Not known.	Abdominal pain, constipation, weakness, anemia, colic	Hb. 82, Basophilia positive	Acute and chronic lead poisoning; severe attack 9 years ago.
10	54	Male	Painter.	About 30 years.	Anemia, colic, pains in back, weakness, lead lines, arteriosclerosis, systolic murmur	Hb. 58, Basophilia positive	Present attack 10 weeks' duration. Previous attack 28 years ago
11	25	Male	Painter.	Not known.	Anemia, constipation, weakness, sweats, lead line		Great improvement under potassium iodide and elimination
12	32	Male	Painter	15 years.	Anemia, colic, constipation; no lead line, arteriosclerosis	Hb. 80, Basophilia positive	Acute lead poisoning. Symptoms 2 weeks. No previous attacks
13	45	Male	Painter	Not known.	Colic, constipation, anemia, arteriosclerosis. Lead line	Hb. 65, Basophilia positive	Subacute lead poisoning. Active symptoms only present few days
14	29	Male	Painter	Not known.	Colic, constipation, abdominal tenderness, neuritis left arm; lead line	Hb. 84, Basophilia positive	Chronic lead poisoning, duration 3 months. First attack
15	47	Male	Painter.	About 27 years	Weakness of fingers and hands. Extensive paralysis. Arteriosclerosis. No lead line	Hb. 80, Basophilia positive	10 years ago drop wrist. Did not work again until 3 years ago. Present symptoms 5 months
16	28	Male	Painter	Not known	Vomiting, constipation, colic, anemia, no lead line	Basophilia negative.	Lead poisoning? Similar attack 6 years ago
17	26	Male	Lead pipe maker.	Not known.	Colic, constipation, weakness, no lead line	Basophilia negative	Lead poisoning? Great improvement under the treatment and change of occupation
18	32	Male	Painter	18 years	Colic, constipation, backache; no lead line, anemia	Hb. 66, No basophilia	Previous attack 1 year ago. Probably lead poisoning
19	40	Male	Plumber.	Not known.	Pain in legs; nausea, colic, constipation, anemia, arteriosclerosis. Lead line	Hb. 85, Basophilia positive	Two previous attacks. Present symptoms 5 days. Acute attack of chronic lead poisoning
20	42	Male	Painter.	Not known.	Pains in legs, nausea, vomiting, no lead line		10 years lead colic. Present attack 4 days
21	35	Male	Painter	15 years	Colic pains in arms, constipation, marked lead line, anemia	Hb. 75, Basophilia positive	Chronic lead poisoning Symptoms 3 weeks
22	31	Male	White lead worker.	Not known.	Colic, nausea, constipation, arteriosclerosis, lead line		Chronic lead poisoning.
23	55	Male	Compositor.	20 years or longer.	Dimness of vision; palpitation, digestive disturbance, polyuria. Arteriosclerosis. Systolic murmur; no lead line	Urine negative. Hb. 90, Basophilia positive	Chronic lead poisoning, probably nephritis, acute lead poisoning 16 years before
24	43	Male	Gasmeter maker.	Not known.	Weakness right hand and wrist, colic, constipation, lead line	Basophilia negative.	Symptoms relieved promptly by treatment
25	39	Male	Painter	15 years.	Vomiting, colic, pallor, nervousness, chronic cough, no lead line	Hb. 70, tubercle bacillus negative, Basophilia negative	Had lead colic 2 years previously
26	35	Male	Metal worker in lead factory	13 years.	Weakness of right arm, nausea, colic, constipation, lead line		Has had 6 attacks of lead colic last 13 year

Case No.	Age	Sex	Occupation	Length of Exposure	Symptoms	Laboratory Findings	Diagnosis and Remarks
27	26	Male	Painter	Not known.	Constipation, vomiting, pain under sternum; lead line	No basophilia	Lead poisoning, chronic syphilis 5 years before. Present symptoms improved by mixed treatment
28	25	Male	Painter	9 years.	Pains in legs, weakness of wrists, tremor, anemia, nausea, constipation, colic, lead line, slight wrist drop		Acute lead poisoning, duration 4 days. Improvement on potassium iodide and elimination
29	47	Male	Melter of lead	20 years	Colic, wrist drop, double; constipation, nausea, anemia; marked lead line	Basophilia positive	Present attack 6 months. Has had 15 or 20 attacks of lead colic in last 10 years
30	30	Male	Painter	5 years	Constipation 4 years, colic, loss of weight; anemia; no lead line	Hb. 60, Basophilia negative	Enlarged liver and spleen; probably cirrhosis, as he is a heavy drinker; lead poisoning
31	31	Male	Laborer in lead factory	6 years	Abdominal pain; nausea, constipation (since beginning of work). Lead line	Basophilia positive	Present symptoms 2 weeks; slight attack 1 year after starting work; also has worked as solder caster. Chronic lead poisoning
32	48	Male	Painter	23 years	Colic; pains in legs		Probably lead poisoning
33	42	Male	Painter	Known to be longer than 8 years	Vertigo, double vision, palpitation, abdominal pains; tenderness and pains in back, extremities; no lead line	Urine negative	Diagnosed as lead neuritis; lead colic 8 years ago
34	36	Male	Painter	20 years	Partial loss of power in both arms. Lead line	All varieties of casts. Hb. 75; Basophilia negative	Cbronic lead poisoning; chronic nephritis
35	45	Male	Painter	Since boyhood	Constipation, colic, pains in legs and arms; anemia, partial wrist drop, lead line	Hb. 80, Basophilia positive	Chronic lead poisoning; present symptoms 3 months, lead colic 10 years before
36	24	Male	Brass fitter		Not stated		Metal poisioning

danger. At the Cornell dispensary, where the cases studied in this paper have been seen, we are able to observe practically all of the more common occupations which involve the exposure to lead, and not a few of the not so well known, though none the less dangerous ones. The more severe forms of poisoning in this series have been in lead smelting, white lead workers, magneto makers, and the dry paint work of the Navy Yard cases, some of which have previously been published in an article by Mr. Pratt. These have mostly been relatively acute disorders. The chronic cases have been chiefly the familiar symptom-complex, as seen among painters, printers, plumbers, enamelers, etc.

The Number and Variety of Occupations.—Some idea of this subject may be had from a reference to the following table, compiled from the records of the Cornell dispensary during the past few years. From the department of medicine alone, and without any reference to other sections of our clinic, 86 cases that applied for treatment have been classified as poisoning or intoxications, with an industrial etiology. Doubtless a search of the other branches of the dispensary would reveal many more cases. Of these, 53 cases have been diagnosed as lead poisoning, 2 as chronic arsenic poisoning, 3 as mercury poisoning, 1 as chromic acid poisoning, about 10 cases of brass founders' "ague," 10 cases of bronchitis, asthma, etc., due to harmful dusts, and a few remaining were grouped as occupation neuroses. Considering that these figures were taken when the numbers at the clinic were comparatively small, and the histories not carefully filed, as at present, one gains a fairly good idea of the frequency of these distinctly industrial hazards. In my table I have recorded about 35 of the lead troubles, which leave little room for doubt as to the correctness of the diagnosis. None have been studied in greater detail than the necessary histories and examinations required for diagnosis, but they serve to show the variety and number of the occupations involved, and the length of exposure where known.

An analysis of the above table shows for even this brief number of cases, thirteen distinct occupations, ages ranging from twenty, the youngest, to fifty-five, the eldest, the majority occurring in the third and fourth decade, and exposures varying from two months to thirty-two years, some of these cases having had many acute attacks. As is pretty generally known, the occupation furnishing the largest number of cases is that of painting, and it is in this class that education is so much needed, as the victims hardly come within the scope of legal control. A glance at the symptoms in the above group of cases, shows that it has been chiefly states of chronic ill health that have been produced, rather than short acute attacks. Case No. 8 is a good illustration of a man who late in life took up painting as his trade. Always healthy previously, in about nine months after starting work he showed the evil effects of his acquaintance with lead. Anemia of a varying degree has been a striking factor in many of the cases, and where basophilic granulations have been searched for they were found positive in thirteen cases and negative in eleven, little more than half.

Present Study and Details of Special Cases.—In the present investigation I have been able to study about thirty cases of lead poisoning, twenty-five of which have been gone over with considerable detail. There are also about five cases of other conditions, which are probably due to occupational causes, and I will cite them briefly. Of the twenty-five cases of lead poisoning that have been investigated intensively, five were employed in the manufacturing of white and red lead. Four were engaged in the scaling of dry paint on the double bottoms of war ships. Three were house painters and decorators, two were carriage painters, two were plumbers, one was a wire hardener and a steel hardener, one a compositor, two were lead smelters and solder

casters, one was a paint factory hand, one an electrotyper, and one an enameler. One whose occupation was stated as that of a mechanic gave no further details of his work, yet no doubt could be cast on the diagnosis of plumbism. In even as short a series of cases as this, one can readily form an idea of the extent of the hazard, for among these twenty-five cases, thirteen distinct occupations are involved. Nearly all these cases were seen at the Cornell Dispensary alone, two were Bellevue Hospital cases, and the remainder were seen at their homes with Mr. E. E. Pratt, to whom I am indebted for several of the most interesting ones. The ages of these patients varied from twenty-four years, the youngest, to fifty-five, the eldest, and the length of exposure from three months as the shortest time, to thirteen years the longest. Of this group, one case had a fatal termination. I will outline the chief points of interest in these cases, and summarize them in the tabulated form below:

Case I.—A young Polish man who was employed for eight months in the corroding beds of a white lead works, after five months' work, had a definite attack of acute lead colic and showed a distinct lead line. This patient was seen at his home, and no clinical work was done. The factory was posted, but he could not read and had received no instructions as to the danger of his work.

Case II.—Also a young Pole who was employed five months in the pressroom of the lead works. This is a particularly dusty process, and he had two attacks of acute lead colic within one month, the effect of which was so severe, that it laid him off for several weeks, and he has since given up the work. He showed a definite lead line, a hemoglobin 80 per cent. and no basophilia. He, too, had not been informed of his dangers.

Case III.—A Polish man, thirty-six years old, who had been employed four years in the lead factory, during which time he had served as furnaceman in the making of red lead, in the pressroom, in the drying process in white lead manufacture, and as yard man, where he loaded the lead products. During this time he had four severe attacks, and in all had lost about eleven months' work. When seen last spring his condition was pitiable. He had been ill then six weeks and was a chronic invalid, with colic, neuritis, partial wrist drop, advanced anemia (Hb. 65 per cent.), red cells, 4,000,000, marked granular basophilia, lead line, and profound weakness. His environment and working conditions were the same as in the preceding cases.

Case IV.—A man of fifty-two, very aged for his years, who had worked for thirteen years in white lead corroding beds, and as a packer of white lead, had his first attack after nine months' work, a second attack five months later, and many subsequent attacks. He worked under extremely bad conditions, in a very poorly conducted establishment, and with no instructions at any time, as far as I could learn. He is now a cripple, with double wrist drop and signs of disease of the central nervous system, and is out of work.

Case V.—A young man with symptoms and work the same as in Case I. He was affected after three months' work.

Case VI.—A man, fifty-one years of age, who was employed in the Brooklyn Navy Yard as a bottom scaler, worked on this job in a very confined space in a cramped position, and by means of a compressed air hammer removed the dry paint from the iron bottoms of the battleships. This was a very dusty and dirty occupation, and he worked eight hours a day with one-half hour for lunch. The washing facilities in this work were very poor, and the men did not realize that there was any danger in their task. He had his first attack of lead colic after one year's work and was sick four months. He returned to this same work in July, 1911, and in three months came down with a most severe attack of anemia, weakness, wrist drop, and lead line, and has not been able to work since. This was a most striking example of the rapid and permanent effects of being thoroughly "leaded," and is the case presented to the Navy Yard authorities when seen last spring, with Professor Thompson and Mr. Pratt.

Cases VII., VIII. and IX.—These men all worked in the same job, and all rapidly were affected. I have been told since that a careful inspection and surveillance of the men employed in this branch of the service is enforced, and all cases are being referred first to the yard dispensary.

Case X.—A young married man, previously healthy, who worked four years as a house painter and inside decorator, uses white lead paints, mixes paints, and sandpapers dry paint. He has never had any acute symptoms, but for two or three months before he was seen he complained of general ill health, poor digestion, general abdominal soreness, numbness, and tingling and weakness of arms and legs. On examination he has a secondary anemia, a lead line, and a slight trace of albumin in the urine.

Cases XI and XII.—Similar to Case X, as to occupations and general symptoms. One of these men states that in the past few months the men with whom he works, formerly very careless in their habits, have become very cautious and have used all precaution in their work and about their person, as he says they had been warned repeatedly of the risks incurred. No doubt this good news is already the result of the efforts being made in this direction.

Cases XIII. and XIV.—Both these men have worked as plumbers for more than twenty years, and have been in contact with white and red lead paints, lead fixtures, and solder; one has had two attacks of plumbism, and both now show a chronic anemia, weakness, neuritis, etc.

Case XV.—A young Hungarian who worked for four years in a wire factory, did piece work, and put in eleven and twelve hours per day. His duties were to plunge the wire into a trough of molten lead, to harden it, and then allow it to cool rapidly when it was rubbed to a smooth finish with sandpaper. In this work he was exposed to both fumes and dust, and the latter probably was the more potent as a source of poisoning. He had a very severe attack lasting more than two years, with advanced anemia, weakness, colic, constipation, and wrist drop. His wife had a miscarriage shortly after he became "leaded." He has now made a rather good recovery and has given up the work entirely.

Case XVI.—A middle-aged German, who for eighteen months had worked in a magneto factory, his work being to plunge the steel bodies into a bath of molten lead to harden them, afterwards these being treated as the wire in the preceding case. The factory was poorly ventilated and the work very dusty. The washing facilities were poor, and the men often ate lunch in the workroom. Eight other men worked at this same job, and all have been affected. His symptoms began after six months' work, and he has been almost incapacitated since, with loss of fifty pounds, weakness, anemia, lead line, colic, and wrist drop.

Case XVII.—A middle-aged man of fifty-five years, who had handled lead type as a compositor for many years, for two years had complained of dimness of vision, weakness, and excessive nervousness; urine examination was negative, but he had a lead line in the gums and a secondary anemia, with granular basophilia.

Case XVIII.—A lead smelter and refiner, also a solder caster, for sixteen years worked under poor hygienic conditions, and for the past three and one-half years had repeated attacks of lead colic and constipation. He has at present a distinct lead line, an enlarged heart, and a slight neuritis.

Case XIX.—This was the fatal case of my series. He was a man of forty-five years, who had previously worked as a solder caster, but for the past five years as a lead smelter. Little could be learned of the man's past history, for he was brought to the hospital in a stupor, with hemiplegia and aphasia. Examinations showed an emaciated man, with a marked lead line, n extreme arteriosclerosis, an interstitial nephritis, an hypertrophied heart, a systolic blood pressure of 217, Hb. 65 per cent., a marked granular basophilia, and a positive Wassermann reaction. No history of syphilis could be learned of in this case, and too much stress must not be laid on the Wassermann, as this reaction has been found positive in a quite large percentage of the cases of lead poisoning. Autopsy revealed a chronic interstitial nephritis, hypertrophy of the heart, and cerebral hemorrhage. I think that there can be no doubt, despite the organic disease present and the positive Wassermann that lead entered largely into the etiology and fatal issue of this case.

Case XX.—A man forty-five years of age worked nine years as a carriage painter. His occupation included the dangerous dry work with chisel and sandpaper, his workroom was very dusty and poorly ventilated, and for the past two years he has been a sufferer from lead colic, lead neuritis, extreme constipation and anemia, and his blood showed marked basophilia of the red cells.

Case XXI.—Also a carriage painter who, employed for twenty years and exposed to red and white lead paints,

Case No.	Age	Sex	Civil Condition	Occupation	Hour of Work	Length of Exposure	Source of Danger	Remarks
1	36	Male	Married	Lead factory hand as furnace man (red lead) drying room and press room	10 hours	4 years	Lead dust and fumes	Four attacks of acute lead poisoning. First attack 9 months after beginning work
2	32	Male	Married	Lead factory hand in corroding beds (white lead), and packer of read led	10 hours	4 months	Dust and fumes	Acute lead colic after 3 months' work
3	25	Male	Single	Lead factory hand, same as case 2	10 hours	8 months	Dust and fumes	Acute lead colic after 6 months' work
4	26	Male	Married	Lead factory hand. Handles fresh white lead. Works in press room	10 hours	5 months	Dust and filings	Two attacks of lead poisoning in 5 months. Has quit work
5	52	Male	Married	White lead worker in corroding beds, and packer	9 hours	13 years	Dust and fumes	First attack after 9 months. Repeated attacks since. At present crippled, and out of work
6	47	Male	Married	Scales double bottoms of battleships	8 hours	17 months	Dust	Two attacks of lead poisoning
7	32	Male Colored	Married	Same as case 6	8 hours	6 months	Dust	Attacked after 4 months' work
8	36	Male Colored	Married	Same as preceding	8 hours	3 years	Dust	Present attack his first
9	51	Male	Married	Same as preceding	8 hours	4 years	Dust	Acute attack 1 year after beginning work. Second attack July, 1911; incapacitated since
10	24	Male	Married	House painter indoor and outdoor work. No dry work	8 hours	4 years	Dust filings, white lead paint	Attacked 2 months before seen
11	31	Male	Married	House painter and inside decorator. Sandpapers dry paint	8 hours	4 years	Dust lead paints, etc.	First attack after 2 years' work; second attack at present
12	44	Male	Married	House painter, same as case 11	8 hours	15 years	Same as case 11	First attack after 13 years' work. Has a chronic poisoning now
13	40	Male	Married	Plumber, uses red lead in paint and lead pipes and fixtures. Uses lead solder	8 hours	24 years	Lead dust and fumes	First attack after 19 years' work; chronic symptoms now
14	45	Male	Married	Plumber, same as case 13, especially solder	8 hours	30 years	Lead dust and fumes	Said to have colic 7 years previously. See details
15	26	Male	Married	Wire hardener. Plunges wire into molten lead	11 hours, does piece work	6 years	Lead fumes and dust	Severe poisoning which lasted 2 years. Began after 2 years' exposure
16	47	Male	Married	Steel hardener. Plunges metal into molten lead	9 hours	18 months	Lead fumes and dust	Attack began after 6 months' work. Incapacitated 8 months
17	55	Male	Married	Compositor	10 hours	Not known	Lead dust and filings	Chronic ill health for 2 years, with granular basophilia in blood
18	32	Male	Married	Lead smelter and refiner	10 hours	16 years	Lead fumes and dust	Lead symptoms for 3½ years
19	45	Male	Married	Solder caster and lead smelter	Not known	20 years	Fumes and dust	Fatal case. See details
20	46	Male	Married	Paint factory hand. Also makes sodium acetate from wash water from white lead	10 hours	16½ years	Dust fumes	Chronic symptoms for 3 weeks. See details
21	28	Male	Married	Electrotyper	9½ hours	7 years	Dust and fumes	Attacks began after 5½ years
22	49	Male	Married	Enamel and gold letterer	10 hours	3 years	Dust. Lead paste	General ill health for 2 years. See details
23	40	Male	Single	Carriage painter	9 hours	20 years	Lead paint and lead dust	First attack after 18 years
24	45	Male	Married	Carriage painter	9 hours	9 years	Lead dust and lead paint	Attacks began after 7 years
25	49	Male	Single	Mechanic, uses lead	Not known	Not known		Positive lead poisoning from clinical finding. See details

as well as lead dust, showed all the characteristic symptoms of chronic plumbism. His first attack came after eighteen years in the work, and ever since he has been an almost constant sufferer.

Case XXII.—A man forty-six years of age, who for nine years worked as a color packer and who during this time was not exposed to lead. During the last five years he has been engaged making sodium acetate from the wash water in which white lead is prepared. He showed a marked lead line and dilated heart, myocarditis, anemia, and a lead neuritis, with partial wrist drop. All the above symptoms appeared within the past two months, and as the man was not an alcoholic and had never had syphilis, his condition is undoubtedly due to the effects of lead.

Case XXIII.—A young man employed seven years as an electrotyper, whose work consisted of trimming up and mounting electrotypes, was exposed to lead fumes and acid fumes in the melting of the plates. He worked in a fairly well ventilated shop, but the melting pots were not hooded or provided with exhausts, so that the fumes escaped into the room. He showed a marked anemia, a lead line, an enlarged heart, a high blood pressure, and a slight abdominal colic. These symptoms have lasted about eighteen months, and he has been treated for various complaints, such as gastritis, gastric ulcer, etc., without the true nature of his trouble being recognized.

Case XXIV.—A middle-aged man, who had worked off and on for three years as an enameler and gold letterer for the three months preceding his illness, worked steadily, placing enameled letters on windows, in which work he used a white lead paste. His working conditions were fair but he had no knowledge of dangers. His complaints were general ill health, poor appetite, weakness for two years, and in the last three months, rapid loss in

weight, marked anemia, constipation, and neuritis. Examination showed lead line, basophilia, enlarged heart, high blood pressure, advanced secondary anemia, but no evidence of nephritis.

Case XXV.—A mechanic, who used lead in some manner which could not be ascertained, showed all the distinct features of a chronic lead poisoning.

The five cases referred to above that probably had an industrial etiology, were first a case of chronic pneumonokoniosis in a coal miner employed in coal mining for nineteen years, who showed an advanced secondary anemia and evidence of fibrosis of the lung. His sputum contained large quantities of black pigment, many pus cells, but was persistently negative for tubercle bacilli. A second case was that of a brass polisher and buffer, whose work was very dusty, due to the use of an emery wheel and a rag wheel, and who showed a marked obliterating endarteritis. He was only 31 years old and had never had syphilis, Wassermann was negative, and nothing could be found to account for his condition, except the alloy, with which he had been working for six years, and which contained considerable quantities of lead and copper. The third case was one of pulmonary tuberculosis and lead poisoning in a house painter who had worked eleven years under very poor conditions. His pulmonary complaint was undoubtedly aggravated by the lead trouble. Case four was also a brass polisher and buffer, who showed evidences of early pulmonary emphysema, and a fibrosis of the lung. He was only thirty-one years old and had been employed for ten years in this very dusty work. The last case was that of a young boy of seventeen years who cleaned out the pots and paint cans in a paint shop with benzine, and scraped out the dry paints. He had previously been perfectly healthy, and after about ten months of this work he was seized with severe abdominal cramps, constipation, vomiting, and jaundice. His urine showed a slight trace of albumin; blood examination was negative, and no lead line could be found. Nevertheless, the symptoms and the nature of the work make one consider lead as a very probable factor in the causation of his trouble.

Suggestions for Betterment and Prevention.—It is for this purpose, the prevention and control of these unnecessary evils, that all the present work of collecting statistics and diffusing knowledge, has been done. To make our hazardous industries more endurable and safer for our wage earners to work in is the ultimate goal to be realized. The scope of this campaign, then, should be both legislative and educational, and the latter is probably the most fruitful one. It should be carried out on the same lines as the fight against tuberculosis, and a nation wide plan of action devised to keep this subject constantly before the public, and particularly that portion of it, the working classes, who are the real sufferers after all. A few suggestions as to the ways and means of accomplishing these ends may be stated here, and while doubtless some of them have been already mentioned elsewhere, they will bear repetition.

1. Education of the worker and employer of the dangers in their particular trades. The former should be taught how he acquires the disease and as to the methods he must employ to safeguard himself; the latter should be taught that his industry is a dangerous one, and he should be made to understand his responsibility in relation to his men. In the lead factories, particularly the posting of proper notices which can be understood by every one; the adoption of modern machinery where it has demonstrated its superiority and safety over the older methods; the enforcement of suitable ventilation, use of exhaust fans, etc., and the regular examination of the men by qualified medical inspectors should be insisted upon. As far as possible, the men should be encouraged to learn English, and where this is impracticable the risk should be carefully explained to them, and written out in their own language, if necessary.

2. Legislative control should be urged along certain lines, at least. The compulsory reporting of special diseases we already have, but in addition, as Dr. Thompson has already suggested, we need a standard nomenclature and classification, a uniform blank for reporting, compulsory periodical examinations of employees, especially where lead is involved, and the labeling of containers of all dangerous chemicals, such as white lead, wood alcohol, etc. In the lead industry, too, the substitution of zinc white, for the dangerous metal, should be required whenever practicable, and that this is feasible has been proved in France, where a law to that effect goes into effect in 1914. The abolition of female and child labor should be brought about in many of our industries, and in this State is at present engaging the attention of the Factory Investigation Commission.

3. The rôle of the hospital and dispensary in the prevention of occupational disease was the subject of a paper by Richard C. Cabot at the last national conference on industrial diseases, held in June, 1912. I believe this source of information and education has been too long neglected, and a great deal of good can be done by those who see these conditions almost daily in all our larger institutions. Heretofore, this has received little attention by those having to do with the recording of histories, records, etc., and I have found, in going over our records, how many, in fact almost all cases, state only the barest facts, and leave much to be desired. I know, too, from our relatively short experience at the Cornell dispensary, that the efforts being made there to help those men, to instruct them and interest them in the prophylaxis of their trade hazards, have gained very much encouragement, and I agree with Dr. Cabot in his call for trained investigators to represent the hospital, and therefore be thoroughly impersonal in gathering information. The resultant accumulation of facts can then be analyzed, and suitable circulars, pictures, notices, etc., can be furnished and distributed among those who need them. This latter method we have found successful at Cornell, and a printed circular of instructions for those exposed to the dangers of lead has been formulated and, with Professor Thompson's approval, has for some time been given out to those whose field it covers. Not only this, but we have requests from employers, builders, and others interested in the welfare of their employees, to furnish them with these simple directions to hand to their men before entering upon their work. A copy of this circular I have appended below:

MEDICAL CLINIC

CORNELL UNIVERSITY MEDICAL COLLEGE

OUT-PATIENT DEPARTMENT

(No. 5)

Instructions for persons exposed to Industrial Diseases, especially Lead.

General Information.

1. Dusty occupations cause colds and infections, irritate the nose and throat, and weaken you.
2. Fumes cause thin, poor blood, weak muscles, indigestion, and weak hearts.
3. All workers exposed to dust and fumes should have good ventilation, open windows, and protective devices as Exhaust Fans, Hoods and Blowers.

Metal Poisons, Chiefly Lead.

1. Lead causes more poor health among workmen than any other metal; leads to indigestion and "colic," chronic disease of heart, blood vessels and kidneys, and paralysis of the hands—"wrist drop."
2. Young adults are easily poisoned by lead. Young women often get the worst forms of it.
3. Lead acts slowly and silently by constant exposure, and causes illness without the workman's knowledge of his danger. He must, therefore, be most careful.
4. Lead enters the system through the nose, mouth, and skin; that is, it may be inhaled as dust, in fumes, swallowed with food and saliva (especially if tobacco or gum is chewed), and absorbed by the skin.
5. In New York City those trades that specially expose the workers to Lead Poisoning are: White and Red Lead manufacture, Painters, Plumbers, Typesetters, File Makers, Storage Battery Makers, Metal Hardeners and Polishers.

Rules for Prevention of Lead Poisoning Outside the Factory.

1. Keep general health always good by plenty of light, good food and fresh air in the home. Sleep at least eight hours every night.
2. Personal cleanliness must be had. Wash with warm water and soap daily, always before eating, and at least one full bot bath a week. Remove all dirt from under finger nails.
3. Never chew tobacco or gum when working. The lead dust on fingers is sure to be swallowed.
4. Don't drink liquor of any kind. Alcoholic intemperance causes attacks of lead poisoning, weakens the kidneys, and causes paralysis.
5. Never eat when you can avoid it in same room you work in.
6. Always eat a good breakfast before going to work, especially drink milk.
7. Do not wear same clothing on street or at home that you work in. Use overalls.
8. Have at least one good bowel movement every day.
9. Exercise in the fresh air. Live, when possible, some distance from work, and walk both ways.
10. Take good care of teeth and gums. A decayed tooth favors lead symptoms. See your physician before going to work in lead factory, and at frequent intervals thereafter—at least once a month.

My thanks are due to Professor Thompson in particular, for the inspiration and much valuable help, to Dr. Sheldon for the suggestion of the printed circulars, in accordance with the general policy of the clinic, and to all the physicians and others who have aided me in any way.

700 West One Hundred and Seventy-eighth Street.

THE PSYCHOANALYTIC DELUSION.*

A CRITICISM AND REVIEW.

By J. VICTOR HABERMAN, A.B., M.D., D.M. (Berlin).

NEW YORK.

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THE INFANTILE SEXUAL.

"But by the way there is a great Quicksand,
And a whirlepoole of hidden jeopardy;
Therefore, Sir Palmer, keepe an even hand;
For twixt them both the narrow way doth ly."
(The Faerie Queene, Book II, Canto XII.)

Dictu mirabile! With Emmanuelism just safely seen through its "second summer" and with its sister "science" passported into the never-mind (would we could say the "never-more"!), a new distemper has come among us, the psychoanalytic, and lo! its victims are afflicted all with "mental stridulus." "But none of the masters have as yet been infected; why then," I queried of one of the Cathartic group, "why then do you vocalize in superlatives?" And in reply he gave me a Mona Lisa smile, and in staccato tones assured me that as regards the masters and me, it scarcely mattered.

The "scientist" at least is demure, mildly admonishes with his absurdities and suavely assures me I'm in "error." But the psychoanalyst assumes in the absolute, is ever unerring, stretches and amplifies in terms elastic, and, bless my soul, pities and commiserates the little oil aglow within one's uninitiate attic.

This to put it brief and pleasantly is the ring to be heard more or less plainly in the expoundings of our Freudists, or a gradually growing group of such enthusiasts on this side of the Atlantic. Their writings are neither thorough, studied nor critical, and yet are launched with vaunt suggesting that venturesome stylistic presumption of "it is a well-known fact" or "it is not to be disputed," etc., with over-estimation and fallacious forcings as the fundamental note. Indeed, rarely has a subject ever been presented to us (in America) with a greater paucity of sober fact and proof than this of the Freudian theories. Nowhere are careful case-studies presented, nowhere an endeavor made to substantiate with real evidence. In the way of authorities these writers for the most part refer to one another even though none is recognized as an authority in anything, and the majority could have had but limited neurological experience. Nowhere does one meet with caution or forethought, with the use of words like "hypothesis," or "supposition of Freud," but everywhere with a grandiloquence of assumption which admits of no doubt. One reads' "the remarkable discovery of Freud"; "this wonderful new discovery"; "the epoch-making study of hysteria"; "it is one of the greatest achievements of the method of psychoanalysis that it has found the mental mechanism of such cases"; "the theories of Jung and Freud have succeeded in revolutionizing the methods of diagnosis and treatment of psychoneuroses and have placed psychotherapy upon a sound basis"; "this subtle method of obtaining insight into the processes of the unconscious has been developed in Freud's remarkable work, 'Die Traumdeutung.' This work is the *fiat lux* amid the nebulous chaos of dream-imagery. Through its genius the baffling, apparently incoherent congeries of dream-elements is resolved into form and significance and rendered conformable to genetic principles"; "every dream represents the fulfilment of a wish that has remained unfulfilled. To these laws there is never any exception"; "let me now briefly explain some of the well-established laws of dreams" (well-established!!); "though considerable attention has been paid to it (the problem of dreams) by scientific writers, little approach to a solution had ever been made until Freud came forward with his epoch-making work, 'Die Traumdeutung'"; "the studies of this observer have already practically revolutionized (!) our ideas of psychoneuroses," etc. "Freud has found a set of methods that for the first time reveal clearly the facts and laws of the subconscious"; "the results that are obtainable when

*This article was intended for the installation of the Psychoanalytic Society a few years ago though not completed at the time. In preparing it now for publication the literature has been brought up to date.

these methods are applied to the correction of character are surprising," etc.; "in character treatment the improvement begins immediately and the results are apparent from the start." (This writer speaks of remodelling character by interpreting dreams just as if heredity and habit did not exist at all!) "A wide field has been opened through this line of research, laboratories of applied psychology, educational dispensaries, psychological clinics and hospitals have been established at the best schools abroad and in this country" (all of which is utterly untrue), et cetera, et cetera.*

Is not this unscrupulous exaggeration, this "hyperquantivalence in precision" quite wonderful? Would one not gather from such ebullition that these doctrines were already well-established facts, long since like good sapolio, enrolled among our household platitudes—while, in fact, not a leading neurologist the whole world over has accepted them?

Nor have I dared to quote passages from those out-Bocaccioed interpretations of symbols (this chapter will be taken up separately later) nor from the esoteric pages of anal and excrementitious erotics! A few additional quotations from the psychological attestation of these writers and some of their utter untruths shall suffice for the present to substantiate the stricures made above.

Speaking of the subconscious (no differentiation appears to be made between unconscious and subconscious) one reads: "In the phantasies which the unconscious conjures during sleep, life's frustrated quests come into their right. In the unchecked vagaries of sleep the primitive springs of action are released. . . . In the grotesque illusions of dream-creations, the unconscious slips its fetters and indulges its crude, archaic trends. . . . It is only in the guise of veiled equivalents that the suppressed, expatriated trends of the unconscious venture to clothe their meaning," etc. Again in another paper we read: "So can the conscious mind of a human being bring its own transliminal into the control of its own organism"; and again, "In this desperate effort to forget he represses it (namely the disagreeable thing to be forgotten). This repressed material is pushed into the subconscious and there remains in a dormant state. This repression complex is not always successful, and a splitting of consciousness may result, when this takes place, through the strife of the repressed complex for manifestation, a psychic conflict occurs with a resulting psychosis or neurosis." This writer also alludes to finding access to "the deeper strata of consciousness retaining the pathogenic idea." On the whole, rather edifying psychology!* As a climax to these quotations one may note this: "The arduous researches conducted by him (Jung). . . . have vindicated conclusively (!) the psychoanalytical method in psychiatry, for in applying the method in the study of insanity it has been Jung's great service to open the way to psychological interpretation of the psychoses. Through the method of psychoanalysis he appears to have established the psychological mechanisms upon which is based one of the most typical of the insanities, and in discovering the key to dementia præcox (discovering the key!!!) he has rendered animate and coherent many of the delusions, stereotypies and obsessions before which clinical psychiatry has until recently stood baffled."—and yet not only has this theory not been accepted by a single psychiatrist, but even Jung himself has added an "infectious" factor to prop up the *hypothesis*.

The kind of evidence, by way of proof, espoused by these writers may be gained from this: "A most frequent case is the sublimation of the libido into ambition, scientific spirit, or the like. The origin of scientific fervor was very evident in the case of one patient, a college professor. As a young man he had lived an absolutely abstinent sexual life, but had been driven by a wild ambition to achieve distinction in science. His laboratory he had fitted up with care for details of decoration and beauty that reminded one (*only a psychoanalyst! let's hope*) of the way a woman would select her clothes. His account of his laboratory sounded like a lover's enthusiastic description. It was evident that his abnormally strong sexual instinct had been sublimated into love for his laboratory and for his science." Whether this is a case of the writer's or of Jung's (in the article no endeavor is made to draw lines), pray, where by all we hold sane and logical is this fact *evident?*

And yet it must be remembered that this important and ponderable field of the psychoneuroses though not fallow has at least remained unfertile, though laboriously tilled, has meeded out no more than theory and conjecture. In short, in this domain of mental abnormality we are little more than groping in the dark, and crave some light. Therefore we needs must of very necessity welcome the work of Freud with its luminous (or shall we say phosphorescent?) ideas. Have we here a new beacon to help us beyond the gloom—or is this again a mirage drift misleading out into arid wastes? This is no matter of unimportance. We are at a kind of crisis in the history of psychopathology and therapy. The roads diverge, and to proceed means immense expenditure of energy and time. Nor can we well afford to blunder. And yet with what noise and din are we beset and with what superficialities swayed! Let us at least be circumspect lest we wander too far afield and fall into evil ways. Let us sever from specious guides, for there is indeed danger of "quicksand and hidden jeopardy"and stifle the *ecce!*

*Since this was written I have come upon some gems that may be added to these citations: "Across a sea and continent, beyond the Cisalpina mountains, even yonder behind Napoleon's Austerlitz, Professor S. Freud, of Budapest and Vienna, reigns as a modern genii, with a newer kind of magic by which dreams are translated into real facts. Dr. Freud has succeeded according to his adherents among the scientists and physicians of Europe, Japan and America in removing all mysticism and superstition from dream life, and has triumphantly placed the interpretation of dreams upon the secure foundation of the newer and even marvelous scientific methods." (*Med. Times*, June, 1913.) "Then it is that the psychologist, trained in the methods, gets in his fine work and by means of this newer higher criticism, this modern Rosetta stone of dream interpretation, he succeeds in searching out with dictagraph-like thoroughness, the innermost recesses of your soul" (*Ibid*). Strange how that "higher criticism" finds only sexual complexes filling up the innermost recesses of one's soul!

*In association with this read what Wundt,[2] one of the foremost of all psychologists, has to say about Freud's conception of the subconscious: "Auch S. Freuds Anschauungen berühren sich mit okkultistischen Vorstellungen, am nächsten mit denen der medizinischen Naturphilosophie der Schellingschen Schule zu Anfang des 19 Jahrhunderts. Da sie in ihrer Umdeutung und Verallgemeinerung einzelner Beobachtungen durchaus in die Bahnen jenes älteren Okkultismus einlenken, so schliesse ich sie von dieser Betrachtungaus, die sich auf die einigermassen empirisch fundierten Hypothesen beschränken soll." It may be added that no psychologist abroad or in America has accepted Freud's view nor indeed believes, for the most part, in the subconscious at all.

of the soothsayers, too utterly unmitigated for credence.

This paper purposes to be a criticism and review. I would point out some of the sound and fury signifying nothing, and estimate the approximate standing of these theories of Freud and his students in the conservative neurological world of the present so that one can come to some conclusion as to possibilities and probabilities in values.

Let me first take up the matter in regard to the sexuality of infancy.* The American translation of Freud's "Drei Abhandlungen zur Sexualtheorie" was heralded and commented on in the following way.[3] After giving two or more pages of quotations from the pamphlet the reviewer goes on to say: "It will be seen from the above summary what a vastly important work this is. In many respects it is the most important work of the contributions to this subject that has appeared in recent years, and certainly from many standpoints the very best thing that has been written on the theory of sex in English. The work should be in the hands of every physician, particularly those who devote themselves to pediatrics and the genitourinary (!?) specialties, and those who are engaged in court work; the lawyers who deal with the criminal and the educators who deal with the developing child should surely be acquainted with its contents. Its general contents is not only wholesome (!!) but enlightening in endeavoring to lay a foundation from which all of the sexual perversions and inversions can be traced, etc. The book deserves a wide reading."† Surely a remarkable eulogium! But just as surely written with indifference to pertinent literature or the present conclusions of neurological or pedological opinion.

Let us look over this literature and animadvert. There is, for example, Albert Moll's "Das Sexualleben des Kindes.[7] This is a very recent and complete work on the subject, complete inasmuch as it takes note of nearly everything else written upon this theme, and embraces more data than can be found elsewhere. There is much criticism in the volume besides, and speaking of Freud's theories the author concludes that they are utterly wrong, that the only way they can work out is by employing "symbolism," which is absolutely subjective, and may be used to change anything into any other thing you please. "Freud sees the sexual in the life of the child, where to my conviction there isn't an iota of it. He looks upon the sucking (Ludeln) of children as a sexual manifestation. The lips, fingers, are to him erogenic zones. With the same right one might interpret every movement as sexual, as, for instance, the infant's making a fist." Et cetera. (See p. 154, also 254, etc.)

Regarding this "pleasure sucking" (Ludeln) which is one of the most important of infantile sexual expressions for Freud, the infant supposedly obtaining sexual gratification from it, H. Oppenheim[8] has said, that it (as also the biting of nails) had nothing to do with onanism. Such manifestation only shows that the individual is one in whom habits easily become fixed and take on an impulsion character. M. Thiemich[9] appears to be of similar opinion, and Loewenfeld, whom I shall presently cite, also finds no necessary connection between sucking and sexual satisfaction, etc. Kieran[10] comes to the same conclusion. Nor does Ad. Czerny[11] see any harm whatsoever in infants sucking on pacifiers or fingers (save in the latter the possible difficulty in again breaking the habit). From a citation in this same pamphlet it would seem that Escherich thought about the same. Loewenfeld[12] takes this matter up thoroughly in his first chapter. He sifts one after another of the statements made by Freud and one by one throws them over as not by any means justified or tenable. To quote a few passages: "The judgment of writers on this point has been in opposition to Freud's." "Even if one admits that the conclusions—in regard to the infantile sexual—arrived at through the psychoanalysis of adult neurotics be sufficiently founded, the generalizing of these conclusions must arouse decided dubiety," and he adds, "even the direct insight into the sexuality of nervously affected children obtained by psychoanalysis is scarcely of a kind to 'lay' these doubts." "The assumption that masturbation should constitute a regular occurrence in infancy greatly astonished me, as this is a matter to be judged wholly upon grounds of personal experience, and my own observations, as well as those of other writers known to me in medical literature, did not tally with this."* . . . "Upon the basis of the known facts as they stand up to date I cannot regard either the occurrence of infantile masturbation or its reoccurrences in later childhood, as Freud assumes, either as a regular or even frequent appearance in the sexual development of the child." Loewenfeld concludes with, "Out of the facts stated we perceive that one is unable to gain a picture of the normal sexual development of the child from the data Freud furnishes."

Other recent writers in the same field either entirely ignore the Freudien theories in regard to masturbation, sucking, anal eroticism, etc., as G. Flatau[14] and A. Cramer[15]† (writing upon masturba-

*This article as first prepared for publication also took up the matter of "symbolism," "dream-interpretation," "psychoanalysis" as therapy, and the "association tests" of Jung and summed up the current neurological and psychological opinion on these elements of Freud's theory. In the present paper only, the "infantile sexual" will be considered, the remaining material possibly appearing later in the year. Elsewhere I have already summed up "Some Recent Criticisms of Psychoanalysis" and brought together similar data in a paper on "Hysteria."[4]

†It is not meant to subject this review to especial criticism but merely to use it both as an example of the uncritical observation found wherever Freud is espoused and because it serves as a good paragraph for the commentary which follows. There are some remarkable passages in the articles previously referred to, which might also be thought of by way of association, as for instance,[5] "Quite frequently the mother-relation produces not autoeroticism but a maternal-eroticism in the child. He loves his mother so abnormally that the passion is as strong as a sexual one. Often these boys become unable to love or marry other women. Sometimes the child is kept too close to the father; this is often the case with girls, *etc., etc.*" Of course no attempt is made at any kind of substantiation. This doesn't seem necessary despite the very startling and appalling assumption. Among the young writers enamored of the "Oedipus Complex" and who cannot terminate a paper without first lingering upon this theme, one finds ideas maintained that are more than lamentably atrocious. The editor of *The Nation*[6] commented upon this recently in deploring the inroads of these writers upon the works and characters in literature. Lady Macbeth is made out to be a case of hysteria, her ambition merely a sublimation of a suppressed sexual impulse, namely, the desire for a child. And Hamlet is resolved "into an ordinary neurotic, the victim of 'repressed' love for his mother." "This," he writes, "is as absurd as it is disgusting," and very few physicians with mental equipoise will disagree with him.

*Freud[13] writes that scarcely an individual escapes this masturbation in infancy (p. 47). He also states that nocturnal enuresis, where it does not signify an epileptic attack, denotes a pollution! (p. 48.)

†See also "Ursachen der Nervosität der Kinder," Berlin, 1899, pp. 23-4, in which Cramer denies to masturbation any especial etiological value. The same is held by H. Oppenheim (loc. cit.), Ad. Czerny (loc. cit.), G. Aschaffenburg,[16]

tion), or hold them to be unmaintainable exaggerations, as Rholeder,[16] or Kötscher,[17] or challenge them outright as Aschaffenburg.[18] The same may be said of the pediatrists who nowhere mention Freud (Huchard, Heubner, Baginsky, Biedert, Czerny, the various writers in the encyclopedic work of Pfaundler and Schlossmann, etc.), while Rietschel called these theories "forced interpretations" and "endless artificiality."

O. Binswanger[20] has expressed himself in like measure, saying pointedly: "In agreement with the opinion (experience) of psychiatry we come to the conclusion that this masturbation of children is not the cause of hysteria, but only a symptom of the degenerative constitutional disposition. Not only does Binswanger deny a greater frequency of sexual abuse in the hysterial (male or female), but he believes on the contrary, and in accord with many other observers, that a high percentage of both hysterical men and women evidence sexual frigidity in consequence of defective (or imperfect) development of sexual excitement.

Let us also examine some of the neurological and psychiatric criteria on the child. A. Eulenburg[21], Bruns,[22] Saenger,[23] Th. Heller,[24] Ludwig Strümpell,[25] Th. Ziehen,[26] H. Stelzner,[27] Peritz,[28] R. Bruns - Cramer - Ziehen[29] either entirely ignore Freud's theories or place themselves on record as being decidedly against them. While Scholz[30] (p. 149) comments, after noting Freud's theory, as follows: "And here the teachings of Freud meet with the most vehement resistance from the great majority of his colleagues. His opponents point out that if the examiner only takes the trouble, sexual child-phantasies and experiences are to be fished out of every mortal's memory, hence also of the hysterical's. Therefore it seems venturesome, to say the least, to discern in this the key to the explanation of the pathological process. Moreover the impressive psychoanalysis leads the patient to self-deception and autosuggestion, misleads the physician to fallacies,† and, besides, causes torment for the patient by the waking up of old sexual secrets.‡ Strohmayer[33] is the only exception to this group of writers, believing in the early sexual trauma in many cases, but stating that he does not mean by this to generalize. Under therapy he entirely avoids the subject. Elsewhere[34] he shows not only how psychoanalysis may be useless in certain cases, but directly harmful and inadvisable in making clear to a patient facts which after all are irremediable. On the whole he claims no unwonted or especial success with this method.— And where such is the case in the histories he publishes, not analysis but re-education is the factor involved. Interesting here is to note that Jung[35] himself is not of Freud's opinion in this matter. He says: "If I, for instance, acknowledge the complex mechanisms of the dream and of hysteria, this is a long ways from saying that I attribute to the early sexual trauma (sexuellen Jugendtrauma) the exclusive importance that Freud seems to do; just as little as I place the sexual so paramountly in the foreground or even in fact grant it the psychological universality which Freud postulates, as it seems, under the impression of the undoubtedly powerful rôle which sexuality plays in the Psyche.*

Of far greater importance is the opinion expressed by such men as Isserlin and M. Lewandowsky, as well as of Krownfeld who has devoted himself to a very thorough monograph upon the exposition and criticism of the Freudien theories. Lewandowsky[36] writes: "According to Freud the source of hysteria is always a sexual trauma which occurred in childhood (before the eighth year). No hysteria occurs without such a trauma. This trauma works through the repression of the normally accompanying affect which thus becomes suppressed ("verdrängt") or "incarcerated" and is able ever after on any accessory provocation to come out of the unconscious and engender the hysterical symptoms, especially the bodily symptoms. One can only obviate the causes of hysteria if one can ferret out this childhood's sexual trauma and free it from its "verdrängung." This then constitutes the treatment: to undertake a psychoanalysis up to the discovery of this childhood's sexual trauma. One must read the analyses of Freud and his students to see to what sexual-sniffeling (sexualitätsschnüffelei) this method leads. Whatsoever the patient may narrate of his psychic experiences, the *unconscious* sexual connection is always interpreted into it.†

To refute and retest the views of Freud is, of

*In a later edition (1912) Heller writes (p. 113): "It takes but little experience to be able to point out in many cases, particularly in girls, that not the slightest sexual emotion may have awakened even well up into puberty. Freud's views, he maintains, apply not to the normal child, but to the abnormal, here especially the sexual neurasthenic. The feeble-minded, however, also show in large measure a similar congenital sexual infirmity.

†Strümpell[31] at the last Neurological Congress at Leipzig also said: "The danger is very great that psychopathic patients thus treated both purposely and unpurposely lose themselves in fantasy and confabulation." He is convinced that many psychoanalyses are the purest phantasms, composed of the suggestions of the patient and the autosuggestions of the physician. The same opinion is found in Moll's[32] "Freudsche Theorie," Vogt, in same series, Lewandowsky, Aschaffenburg, Kronfeld (see farther on), etc., etc. The pathological fantasy and lying of the hysterical must, in fact, always be borne in mind. Ziehen writes: "By continued questioning and a repetition of the same answer, as advised by Freud and Brener, so that all these latent memories are refreshed, very little good can be gained. I have repeatedly observed that the *hyperimagination* of the patient constantly enlarges the original experience, sometimes even in the most dangerous manner, without decreasing the emotional emphasis of the memory and without improving the other hysterical symptoms (Dis. of Nerv. in Modern Clin. Med., p. 1093), and Heller comments (loc. cit., p. 300): "Erzählungen hysterische kinder über unsettlische attentate . . . haben sich übrigens nicht selten als von Anfang bis zu Ende erlogen erwiesen." See also Freud's Neurosenlehre, p. 223, etc.

‡So Strümpell also said that he had seen rather unhappy results of the treatment in Vienna. "The patients were not only not improved, but, on the contrary, driven to very distraction by the treatment." The same was found in cases coming to them by Oppenheim, Isserlin, Obersteiner, Frankle-Hochwart, Marburg, and Nonne. Aschaffenburg was among the first to call attention to this danger to the patient. Peritz mentions it especially in connection with the child (loc. cit., p. 411), also G. Voss, Berlin Klinik, Dec. 1912. Redlich is of the same opinion (Ebstein & Schwalbe's Handbuch d. Prakt. Med., Vol. III).

*Recently Jung broke entirely away from the infantile sexual, introducing some new "mechanisms" of his own and defining the word "libido" so as to make it elastic enough to cover any conception found in the dictionary.

†It has been suggested, and not without discernment, that Freud's method be called the "sexuo-analytic" (in contradistinction to the psychical analysis which the neurologists and psychiatrists have always made—but which employs no "symbolism," no "interpreting," "translating," etc., and goes into the mental life of the patient as a whole), and not "psycho-analytic," for it concerns itself entirely with the sexual and sexuoassociated matter. Such sexuoanalysis is utterly misleading. That Freud's work, however, has induced a greater interest in the psychical and caused the mental analyses to be more thoroughly and carefully gone into, no one will doubt.

course, out of the question. If one comes to the conclusion through one's analyses that the genesis of hysteria is a more complicated one and that it does not only rest on sexual grounds, one brings the reproof down upon himself that one doesn't understand how to analyze.* In point of fact, only he can make psychoanalyses in Freud's way who is convinced from the outset that it is fair to find the sexual trauma, let it cost what it might, and that he is allowed to neglect every other course. Naturally he cannot do this who sees how Freud suggests the sexual motive to his patient and how he falsifies their memory, and who does not consider it a matter of indifference if patients in the course of these analyses are entertained for months and for years—an analysis may necessitate six months to three years—with the delineation of sexual occurrences.

There is, however, a limit at which, despite ever so well meant scientific explanations, *common sense* has a right to interpose its veto, as, for instance, when we are told that little children retain (hold back) their excrement in order to procure themselves a sexual pleasure-profit (Sexuellen Lustgewinn). This limit is also reached in the case of the phobia of a five-year-old boy, which may here be taken as an example, which case is certainly maintained to be documental evidence of the highest kind by disciples of Freud. It concerns a five-year-old boy who had the misfortune to be educated by parents, who as adherents of Freud's theories had at the outset the endeavor both to train the boy with no more coercion than should be absolutely necessary for the attaining of good manners (or morals), and who wished, besides, to observe his sexual development. This boy gets a phobia of horses, and the father—a physician—writes to Freud: "Sexual over-excitement through coddling by the mother undoubtedly prepared the soil, but I am unable to give the cause of the disturbance. The fear that a horse may bite him on the street appears to be connected in some way with the fact *that he is frightened by a large penis*—the large organ of the horse he has already timely noticed, and he has drawn the conclusion from this that his mamma, because she is so big, must have an organ like a horse." Now the fact is later established that the fear dates from the moment that the boy once saw a horse fall over. Before one however discovered this simple incident, one had analyzed almost three months—an example of the objectivity of these analyses. It is but by pure chance that this occurrence is at all learned in the analysis; yet this fact which would sufficiently explain for the majority the source of the fear cannot forsooth be the basis of it but only the "actual incitant" (Anlass)—and the analysis is again begun anew. The father who himself makes the analysis doesn't seem at all to be moved by the discovery of the actual fright occasioned by the falling horse, but he asks a five-year-old boy—three months after its occurrence—"Did you, as the horse fell, think of your daddy?" for he, namely, is of the absolute conviction that the boy had the wish to see his father, of whom he in sexual relations to his mother should be jealous, drop over dead. The boy answers: "Maybe, yes. It is possible." And this (writes Lewandowsky) should not be suggestion?

If this sort of thing is already done in the case of a child, then just imagine (or look it up in Freud's writings) the way the sexual trauma suffered in childhood is gradually foisted upon the credulity of the adult.* Lewandowsky also notes that Freud writes for the credulous and not for those who question him, and adds that we wish *evidence* before we believe, and in the place of evidence we are given fantastic conjectures. "Indeed even if it were true, namely, that every hysteria might be traced back to a sexual trauma, this wouldn't by any manner of means indicate that the discovery of this trauma and the abreaction of the affect associated with it would effect a cure, in truth, not even that it would be expedient to tell every hysterical patient bluntly from the outset that her disease be of sexual origin and then for months go prying after the sexual experiences of her life. Nor have the publications of the Freudein school brought by absolutely any means evidence of the superior success of this therapy."

Isserlin,[39] whose criticisms are as yet the most profound and complete on the Freudian theories, says anent this infantile sexual: "Freud's conception of the sexual development of the child appears in the essential to be pure fiction and made possible only through the arbitrariness of his method." In a second equally penetrating paper in 1911[40]† the whole Freudian subject is again gone over with equal condemnation. Concerning the matter here in question he maintains about the same as in the previous article. He writes, furthermore, that Freud's conception of the sexual development in the child is built upon the analyses of *adults*. The few facts obtained from the child itself are not simple observations, but much made up (sehr vermittelt) and in fact "interpreted" (erdeutet). He refers to the untenable method in which these facts are obtained and finally asserts that the theory has no palpable ground to sustain it. He also points out—let me, so to speak, italicize this observation—how one tries to predicate that Freud's conception of the sexual has a wider, quite different application than the usual: "Why does one then constantly label this supposedly superfine secondary erotic infusion as *incest* and *Oedipus complex*? Whosoever has interpreted with Freud the language of hysteria from the *'Bruchstück einer Hysterie-analyze'* through to the symbol of the steps and the hat—to say nothing of the feats of Stekel—has well perceived of what nature the suppressed sexuality is, which is to account for the neurosis!"

*Isserlin (loc. cit.) also brings up this point and answers it by saying that he carefully examined cases by psychoanalysis in Freud's sense. That he, however, could not reach the conclusions in these cases which the Freudiens might have reached though he easily saw how it could be accomplished, namely, by accepting hypothetical premises (using symbolism) that the Freudiens take for granted, but which have absolutely no conclusive values. It is just these hypothetical premises that the psychoanalyst has employed as if they were proven actualities and takes no pains to reexamine or substantiate. Similar criticism has been made by J. B. Watson,[37] director of the psychological laboratory of Johns Hopkins.

*So F. X. Dercum[38] has also written: "Further, it is extremely probable that Freud by his method suggests the memories of sexual occurrences to his patients; in other words, that he elicits from them a fictitious memory of sexual events in their childhood, of events that have never occurred. Indeed, Loewenfeld gives an instance of a patient of Freud who subsequently came into his hands. The woman stated to him that the sexual events which she had related to Freud when under his treatment had really never occurred. She declared that the whole thing had been a piece of pure imagination." (*J. of A. M. A.*, May 13, 1911, p. 1375.)

†An English translation of the greater portion of this matter was published by the present writer in the *Med. Rev. of Revs.*, October, 1912.

Kronfeld's[41] argument cannot be given briefly enough to abstract here. For him, too, there is not a logical or psychological prop to sustain Freud's assumptions. The reader is referred to this very painstaking study which first gives a careful exposition of all the facts embraced in the Freudien theories and follows with a critical exegesis of the entire.

One other citation containing a rather pertinent observation might be added here, especially inasmuch as the author is one who has a strong leaning toward certain Freudian ideas. O. Dornblüth[42] writes: "One other point making the really causative significance of sexual traumata rather questionable, is the fact established by me in very many cases, and also brought up by Freud, that ever so many children suffer sexual traumata and ever so many people are subjected to these very imputable conditions of the Freudian school without thereby succumbing to a neurosis. The determining factor therefore lies not in the action of such a trauma but in the peculiarity of the psychical reaction.* As much as I apprise Breuer and Freud's established conception of psychical changes and their relations to conditions of fear and conversions, so little can I accept the fantastically adorned and exaggerated application of the infantile sexual and of symbolism. In this connection I am entirely in accord with the conceptions of Friedlander and with the keen criticism employed by Hoche in describing the recent performances of the Freudian School as *a psychic epidemic among physicians.*"

In French literature one can find but scant reference to Freud. The leading neurologists do not even seem to take notice of his work. Déjerine[43] deigns to devote but a footnote to his teachings (in the chapter on therapy in his "Psychonévroses." This reads: "C'est délibérément que nous négligerons l'étude de la 'Psychoanalyse.' La méthode de Breuer-Freud, si elle peut offrir un certain intérêt au point de vue psychologique, nous paraît, dans ses applications thérapeutiques, présenter d'incontestables dangers. Quant aux conclusions tirées de cette méthode—origine génitale des psychonévroses—conclusions qui ne nous paraissent par admissibles, nous avons pensé qu'elles ne devaient pas trouver un écho ici."

Concerning this "infantile sexual" (and on the aggregate Freudian teaching, for that matter) little that is reasonable has found its way into the American journals. The majority of articles are of the nature of those from which I quoted in the beginning and which proved the "agents provocateurs" of this paper. Though most of our chief neurologists and psychologists are at variance with the Freudian conceptions, no one save Dercum[28] published any especial criticism. A brief passage from his publication will suffice to give his point of view—and also to round up this series of citations in evidence of the fallacy of this *pansexualism* of Freud's and the infantile sexual trauma as cause of hysteria: "Others than myself have dwelt on the glaring inconsistency of the sexual immaturity of children and the intrinsic biologic improbability of this theory. Perhaps Freud has himself been impressed by this fact, for of late years it would appear that he has retreated to the age of puberty, attempting to save the situation, however, by saying that the memory of these sexual events is projected from puberty into the period of childhood." (See also Starr,[44] Jacoby,[45] Walsh,[46] and M. Nonne, who stated that in traveling through our West he found no one accepting Freud's views.)†

In the face of so great a negative array—and these citations are for the most part from men of some distinction—does it not seem strange that this theory should remain unchallenged among us, or that a reviewer of Freud's brochure (i.e., its English translation)—even though the study in question be unique, of much interest, and of value in stirring up thought and investigation—should indite encomiums so lavishly, should hail this work as of inordinate consequence? The fact in brief is, this is not fact at all, not even logical conjecture. To be precise, we have in this a mere hypothesis, and one that *has not passed* the muster of general and authoritative opinion. Indeed, let it be remembered, effectively remembered, that, taking the Freudien theories all in all, they have not been accepted by a single distinguished neurologist, psychiatrist, or psychologist in Europe.‡ (Bleuler and Jung being the only exceptions, nor by a single professor or individual on the teaching staff of any university abroad; and that they have been strongly decried by all the men in these fields of work who because of their high attainments and eminent positions we are wont to call masters (Oppenheim, Ziehen, Strümpell, Kraepelin, Wundt, etc.).

And as for "wholesome"—bless my soul! to think of the sucking of an infant, its little tramplings, tossing off of covers, or chewing of its fingers, toes, or what not, all as sexual! A little shaver's riding on his father's knee or down the banister or on a hobbyhorse as per erotic gratification, branding him with curiosity concerning his parents' sexual relations, and as eavesdropping to indulge it; as regarding his mother with incestuous feelings, etc., etc. *O tempora, O mores!* Wholesome? No, not exactly. "Nor can these things apply to the normal childish psyche," writes Maag,[47] who also adds (and this *is* wholesome): "The great, unconscious wish in the soul of the child is *to live*. It is the very 'Lebensdrang' (vital desire) that urges and impels him, the instinct for knowledge of his surroundings, for

*It should be remembered that most neurologists have insisted on the inherited disposition, the congenital *psychopathic constitution*, in the overwhelming majority of cases of hysteria. The peculiar psychical reactionability is but the evidence of such inherited impairment. Psychoanalysis cannot in the slightest influence such a psychopathic constitution (see above citation of Strümpell, also Oppenheim, Romberg, Dubois, Aschaffenburg, etc.). This shall be more fuliy discussed under therapy.

*Since the preparation of this paper, C. W. Burr, professor of mental diseases at the University of Pennsylvania, has expressed himself strongly against Freudism. He says, in part: It is (this so-called Freudism) a part of the general sexual-mystic philosophy which is becoming more and more widespread and is itself a symptom of the madness of the times. It contains so little truth and so much error as to be useless. More than that, it is harmful. It claims that, therapeutically, psychoanalysis is of great value. This psychoanalysis really resolves itself into a searching and filthy examination into the past sexual life, repeated, if necessary, time and time again, and lasting over a period of days or even months. It is largely a science of words and has developed a large vocabulary, etc. (P. 1057, *J. of A. M. A.*, April 5, 1913.) In the same issue of the *Journal*, Dercum also has a paper in which he terms psychoanalysis as absurd, and again strongly decries the "new psychology" of the Freudian school.

†Among those opposed to the theories of Freud are Oppenheim, Ziehen, Strümpell, Kraepelin, Nonne, Obersteiner, Hoche, Binswanger, Cramer, Vogt, Aschaffenburg, Isserlin, Frankle-Hochwart, Alt, Foerster, Heilbronner, Weber, Kurt, Mendel, Schlessinger, Anton, M. Lewandowsky, Auerback, Cassire, Bing, Marburg, Friedländer, Moll, Loewenfeld, Schnitzler, Saenger, Steyerthal, Scholtz, Vosz, Spielmayer, Hirschlaff, Dubois, Monakow, Bechterew, J. Déjerine, Wundt, Sommer, Ranschburg, Levy-Suhl, etc.

tenure of the outer world, for pleasures, for possession, that produces all that which, within the limits and with the material of the child's mentality, we observe in the normal child. The erotic moment in hundreds of thousands of cases plays absolutely no part. . . . Where pronounced sexual factors occur, there, there always exists a diseased accentuation of disposition, normal in itself, but which becomes active far too early, etc.

These citations, aggregated, amply confirm, and without further argument, the criticism intimated at the outset of this paper that the supposition of a sexual infantile or childhood's trauma as the causation of hysteria is utterly untenable, and that this is the opinion maintained by the authoritative writers on this and allied subjects and the neurological world at present. The nature of the articles published and statements made, examples of which have been pointed out (to say nothing of the newspaper accounts, magazine advertisements, and press notices) afford us "in superfluous abundance," to use the words of Oliver Wendell Holmes writing of kindred delusions in his own day, "a rich illustration of the pretensions, the arguments, the patronage, by means of which windy errors have long been, and will long continue to be, swollen into transient consequence."

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IS THERE VALUE IN ELECTROTHERAPEUTICS?

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In some communities and in some medical circles this would be answered in the negative. In other sections, where physicians have had the experience, the affirmative answer would be the one decidedly given. There being so much doubt prevalent in the profession, one is warranted in discussing the question, and I therefore propose doing this in as concise a way as is possible in a short paper. It is to be regretted that there should be any question at all, for the value of properly applied electrotherapeutics has been amply proven. The fact that so many of the profession know so little of these modern methods of therapeutics is traceable to two reasons: First, the fault is with the medical colleges. With a few exceptions, modern physical therapeutics, in all its branches, receives little or no attention, either didactically or clinically. The second reason is the direct result of the first. Because the regular profession has not been educated to a working knowledge of electrotherapeutics, it has been taken up by charlatans and quacks, who have exploited it to their financial advantage, and have accomplished results in many cases in spite of empiricism. The very fact of these results in some cases where the regular practitioner has failed, has led the public to seek the irregulars in order to get what the medical man should have given in the proper way. This has been to the detriment of the medical profession and the specialty.

The regular family physician, knowing nothing of the value of properly applied electricity, has lost many a patient to the quacks that he should have kept, just because he was either ignorant of its use or prejudiced against it. What applies to electrotherapy applies to all of the other physical measures. There must be some good in each, or there would be no results of a satisfactory nature. That

these results are had is proven by the constantly increasing number of invalids seeking help from these therapeutic methods. It is high time that the medical profession should get alive to the situation and investigate these various methods and choose out of them what is good, and then teach them properly in the medical colleges. This would be the best and quickest way to eliminate quackery.

During recent years some of our most prominent members of the profession have largely lost faith in drugs and have become therapeutic nihilists, depending almost entirely upon hygienic measures in the treatment of the sick. Could they but see it, it is a short step to physiotherapy, and, in fact, some have taken that step, greatly to their advantage as well as to that of their patients. It has been through these and others, who have been willing to investigate and risk their prestige in the profession, that there have been made such strides in the line of scientific electrotherapeutics during the last few years. Those of us who have chosen this specialty have done so with full faith in its value and that it offers the best means to the end. All therapeutic measures, whether they be drug or other, have their limitations, and no one claims that electrotherapy is an exception, yet it can be shown that we have many successful results in long standing chronic cases that have not yielded to treatment by drugs. The physician who uses all measures, drug and physical, is the one who is most likely to get the best results It is therefore wise to get rid of prejudice and study all methods from a scientific standpoint and use them as indicated.

After this preamble the reader will naturally want to know what we do treat by these methods. All that can be said in a short paper necessarily must be done without much detailed explanation, therefore I will merely touch upon some of the more important conditions that best respond to the application of electric modalities.

Of all cases that present themselves for treatment perhaps the most serious are those listed under the heading of cardiovascular disease. Many of these come to us as a last resort and consequently do not show such a wonderful record of results Should these, however, apply early, the result would be far different. In spite of the late treatment in these cases, it is wonderful what symptomatic relief is had, even if the patient is not actually cured. Relief spells comfort if not cure, and this comfort alone makes it well worth while to the sufferer. Hypertension so frequently seen as the result of toxemias can be readily relieved, particularly when it is recognized prior to organic changes. In the latter cases, when arteriosclerosis, and heart, liver, and kidney changes have taken place, the excess of hypertension can be reduced to the safety point of compensatory pressure, thus removing a stress from these organs, and it is surprising to note the difference it makes to the sufferer. In the cases of early hypertension where there is imminent danger of acute cardiac dilatation under the sudden strain of muscular effort, safety can be had by the prompt use of the high-frequency current given by the autocondensation method. In all cases of hypertension, whether early or late, at least something can be done for relief of the urgent symptoms, which means an added comfort to the patient. Hardening of the arteries, which seems to be an accompaniment of the modern methods of living, due frequently to toxemias, can be prevented from advancing by this method of treatment, and some physicians feel warranted in stating that this condition can be measurably removed, and surely there have been cases that have shown remarkable results from the treatment. Other physicians state that they get the same results from drug and hygienic measures and question the advantages of the electrical treatment. Those who have tried both ways cannot speak too highly of the more modern electrical method, and with this there is no reason why other means may not be used if one so desires, for they need not conflict. The futility of drugs alone has been so frequently shown that this needs no argument. Under the autocondensation method of treatment it is surprising to note the remarkable improvement both mentally and physically that takes place, due to the removal of the great strain from the cardiovascular system.

Neuritis of one or more nerves offers problems to drug methods of treatment, a fact that is common knowledge. That it can be cured by properly selected modalities has been frequently proven. We have in the static current a most potent factor, one perhaps more frequently curative than any other, yet we are not limited to that alone, for the high frequency and constant currents are of great value also in the treatment of this severe ailment. When treated by electrical methods we seldom require the use of drugs, as the use of anodynes is not required. Not only is the inflammation relieved, but the plastic exudate is broken up and absorbtion promoted, which makes the cure real. This should appeal to the intelligent physician as a wonderful advance in the practice of medicine, and should be recognized by all as such, for proofs are not wanting. In those cases of neuritis, in which there is hyperesthesia of the spinal nerves, the use of mechanical vibration adds much to the comfort and relief of the patient. Once used, its omission will be at once recognized by the patient, with a request that it be given. In my experience this vibration soothes when regular massage irritates.

Nerve cell degeneration, with or without muscular atrophy, is a more frequent sequel of neuritis than some of us are wont to think. It has been my fortune (if it can be so called) to see recently two typical cases of this type, both of which had at least some cell degeneration, for there was marked atrophy of the muscles, together with total loss of use. One of these is now well, and the other is on the road to a complete recovery. In both cases there was absolutely no history of lead poisoning, which is so often a factor in these cases. The treatment was by the use of the static wave and the slow surging sinusoidal combined and alternated with the multiplex current. Rheumatism, osteoarthritis, gout, and allied ailments, naturally fall within the zone of electrotherapy, but it must be recognized that those measures of dietetic and hygienic lines that are so necessary with other forms of treatment, are just as essential with electrical methods. In these cases we find a large element of toxemia to which active attention must be given if we expect to meet with success. In those cases of severe and advanced rheumatoid arthritis although we feel quite helpless as to a positive cure a great deal can be done to relieve the suffering. What the future may bring us, I cannot say. Perhaps serumtherapy may offer the best outlook. Constipation, that bane of existence, is amenable to a cure in a majority of cases, if one will take the trouble to find the causative factors. This may be considered either as a symptom or as an entity, but in either

case a careful study is absolutely necessary. When constipation is the result of intestinal kinks, or ptosis, the use of a properly fitted belt or corset is absolutely necessary as a part of the treatment. These patients do well when treated by both the static wave current and the sinusoidal, the latter applied through the spinal centers. Purges should be avoided and laxatives used as little as possible. In lieu of these, such mechanical assistance as can be had from the non-absorbable articles, as agar-agar and the Russian mineral oil, or the liquid paraffine of the British Pharmacopea, will be the best. These act only as lubricants and as such supply moisture to the fecal mass and therefore assist nature.

Prostatic hypertrophy has recently been successfully treated by electrical methods, and this naturally has opened a wide field of usefulness, owing to the great mortality following operations for the relief from this distressing condition. The treatment is very simple and should appeal to all physicians as a safe and sane method. A cure can be assured in those cases in which the gland is soft and boggy in type, as these yield rapidly to the static wave current. Symptomatic relief is prompt, which adds much to the desirability of this treatment, and the cure naturally follows. The current is applied either through a solid metal applicator or through a vacuum tube. Through the former, the current is more decidedly felt, and the effect is more prompt. When the gland is sensitive the wave current through the vacuum tube is to be preferred at first, and then later the solid applicator can be used. In some cases it is best to use the high frequency current during the early part of the treatment, applied through the vacuum tube, which has a soothing effect. In other cases in which the gland is fibrous it may be necessary to use the constant current to soften it, and then follow with the static wave until the full effect is had. In the incurable fibrous type there may be some recent hypertrophy that can be removed and thus give at least temporary relief, and it is always worth trying upon this account.

Conditions of lowered vitality and altered metabolism, such as are met with in chronic digestive faults, involving the liver and other organs, are often much benefited and cured when the proper modalities are used. These cases require a careful study, for they offer problems that are not always easy of solution. As in other forms of treatment, the necessity of dietetic and general care is just as great, and one must take all care as to a positive diagnosis, otherwise the treatment may be in vain. Anemia, chlorosis, debility following long sicknesses or operations, and tuberculosis, pulmonary, bone, intestinal, or other forms, come within the province of electrotherapeutics and are amenable to the treatment just so far as there is response to an up-building of the vitality. In some of these cases persistency means success, and failure may be the result of the lack of this together with faulty technique. In these low types of vitality we have in the radiant light and heat a most valuable modality. The hyperemia and phagocytosis are naturally the factors that do the work. In addition to this we get a deeper hyperemia by the use of the high frequency current applied by the thermo-penetration method. The static wave current is used for its general tonic effect in addition to the other modalities. Those circulatory cases of failing compensation are probably the most difficult to handle with success, as they are of the type of organic failure that do not always respond to any treatment. It is always well to be very guarded in the prognosis, and yet well worth while to do all that one can do toward extending the tenure of life. In menstrual faults such as dysmenorrhea and amenorrhea we have a fair chance of giving great benefit by electrical methods. In menorrhagia, whether due to fibroids or other conditions, the best treatment is without doubt by the use of the *x*-ray. As in all kinds of ailments, we must get at the cause in order to get the proper result and to institute the right treatment.

In considering diseases of the nervous system we are confronted with problems of an entirely different type. That some supposedly incurable cases of nervous maladies are within the range of possible cure is denied by some and upheld by others. Perhaps the difficulty in some instances has been the lack of proper technique as well as a right diagnosis. As our experience grows and we learn more of the value of electrical modalities and their proper application to these conditions, no doubt there will be a more extended field of usefulness in these diseases of the nervous system. Many physicians who are not acquainted with the proper use of electricity feel that the only value is the psychic. We who use these methods recognize this effect as the least valuable and place little or no value upon it. That the effect is real is so proven that it is not necessary to dwell upon it. Hemiplegias and other forms of paralyses frequently improve decidedly under the treatment for reduction of the blood pressure. When this is under control the muscular strength can be measurably restored by the use of both the static and the sinusoidal currents. Anterior poliomyelitis offers a bone of contention between the neurologists and the electrotherapeutists in the matter of early or late electrical treatments. The latter contend for the use of the static wave current as early as is possible, together with the use of radiant light and heat, for purposes of influencing metabolism, while the former use only the constant current late or after the active stage is over. Perhaps this statement should be changed to apply to the majority of each, instead of making it so general, but this seems to be the difference of opinion in the treatment of this serious affection. There are cases that seem to prove the contention of each side, and as there have been some rather remarkable cases of cure from the early use of the static wave current, there certainly is the incentive to test this treatment out thoroughly in the future, in order that the best method may prevail. The claims for either relief or cure of tabes are at present on about the same basis. We do know that relief from pain can be had, and there have been cases very much improved by electrotherapeutic methods, but I am not in the position to state more than this. Perhaps some with a much more extended experience can speak for the future of this kind of treatment in these cases. Parkinson's disease has shown a tendency toward cure in one or two cases under my care, and I feel that the future has much in store for these cases when treated electrically. What applies to these diseases will apply to others, especially where the treatment is largely for the purpose of influencing metabolism. It can be easily understood that no one claims to restore totally degenerated nerve cells, but there is no doubt of our ability to restore nerve function that is lost when the cells are not dead.

Another class of cases that yield to electrical methods of treatment is that of the chronic skin diseases in which nutritional changes have taken place. This suggests chronic eczema, leg ulcers, and other usually intractable types of cases. In these conditions the use of the brush discharge from the static machine is of the greatest value. This is used in conjunction with the radiant light and heat, from a five hundred candle power lamp of the right construction. Some of these chronic skin diseases may be best treated by the .r-ray, but this is a point for each one to decide in the given cases. There are conditions of the mucous membranes of the various cavities of the body that are amenable to these treatments, and they will naturally suggest themselves to the physician, so it will be unnecessary for me to mention them in detail. I will state, however, that the method of treatment is by the use of the vacuum tubes, whether the current be from the static or the high frequency apparatus. These methods have been applied to the treatment of hay fever, and in some cases quite successfully. The future of this seems bright.

The list might be made much longer, for the possibilities of these methods are great, but it will suffice to show what is being done in the above mentioned cases without extending the list further.

Before concluding this paper I wish to make an appeal to the profession that they give us a hearing and not allow prejudice to overshadow judgment. That some men have been overenthusiastic, and perhaps have in a measure overestimated the value of electrotherapy, is no reason why the profession should treat them as charlatans. It is enthusiasm that wins out in the end, and many of the results gained, warrant this enthusiasm, and it is an easy step to get to expecting good results in some of the recognized incurable cases. This enthusiasm may lead to better results in the future, therefore it is best not to curb it too much. There is no reason why physicians practising electrical methods should be unethical, for the treatment is just as scientific, if not more so, than that by drugs; in fact, it is more exact, for we can see just what we are doing and each treatment is for a definite purpose. I wish, therefore, to make the plea that before misjudging this line of work the profession should be encouraged to investigate the value and recommend the use of electricity whenever cases warrant it.

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TWO CASES OF PANCREATIC LESIONS.*

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Pancreatic diseases, like the pancreas itself, hidden deep in the abdomen behind the stomach and the peritoneum, have been and still are often veiled in uncertainty and doubt. The organ, normally beyond the reach of palpation, can be felt only through very thin abdominal walls, or when it is the seat of large cancerous or cystic malformation, and even then not uniformly. Moreover, like many other pathological conditions in the gastrointestinal system, the resultant clinical symptoms are in no way pathognomonic of the provocative lesion, and it is only through mental patching of symptoms, by continued observation, by the elucidation of laboratory tests, by operation or autopsy, that a satisfactory or absolute diagnosis is obtained. Instantaneous exposures of the abdomen and snapshot diagnoses of intraabdominal conditions are apt to be of little credit to the physician and of great danger to the patient; for an autopsy means death for the patient, and also shows why death occurred. The accessory duct of Santorini may discharge sufficient pancreatic juice into the intestine to establish good fat and starch digestion even though the duct of Wirsung is occluded, a very small quantity of the juice may be sufficiently potent, there may be a very extensive destruction of pancreatic tissue with no resulting intestinal disorders, or glycosuria for a small part of the gland will render sufficient enzymes, while the parenchyma of the gland may be largely and seriously compromised, particularly in the interlobular form of chronic pancreatitis and the islands of Langerhans still remain intact for years, so that at no time is sugar present in the urine. Glycosuria occurred only once in twenty-two cases of the interlobular pancreatitis as reported by Opie. Pain, also, except in cancer, where it is early and fairly characteristic, is apt to be individual and confused with symptoms from prior conditions in the gall-bladder, duodenum or stomach, in which organs are likely to exist the lesions from which the pancreas is involved, either by the passage of gallstones or bile, ascending infections, or extension of disease by contiguity. With so much obscurity then, it is little wonder that there have been suggested many tests for pancreatic function; the Cammidge test, greatly lauded and also questioned, the Schmidt nucleus-test, open to objections because of the presence of intestinal enzymes capable of digesting nucleoproteins, the desmoid test of Sahli, the Schmidt test-diet with examination for neutral fat, split-fats, and excess of starch, the agar-plate method of Müller, the oil method of Boldyreff, the recent palmin test, the Fuld-Gross casein and the Wohlgemuth starch methods, and the direct aspiration of the duodenal contents by means of the duodenal tube. No method is infallible; probably the Cammidge test, the oil method, the Wohlegemuth test and duodenal aspiration are of greatest diagnostic value.

One of us has recently worked on a number of cases with regard for pancreatic disturbances. One case, that of a young woman with a persistent diarrhea and marked emaciation, showed a very strong pancreatic content in the duodenal contents obtained by the duodenal tube; another, with a very large empyema of the gall-bladder, in which the stool gave normal findings for bile and pancreatic juice; another, with vague gastric symptoms and a history of a very severe attack of epigastric pain, not followed by jaundice, in which there was no sugar in the urine and no lack of pancreatic ferment according to the Wohlgemuth test. The two following cases are reported in detail:

Case I.—Mrs. H., 54, housewife, first seen November 1, 1912, complaining of prickling sensation in feet and hands Father died of cirrhosis of the liver, one brother and a sister died of some hepatic disorder. Husband had hemaplegia at 42. Thirty-two years ago, when pregnant, the patient began to suffer from attacks of pain in the mid-epigastrium; the seizures were so severe that it bent her double, the pain passing "like a broad knife-blade" straight through to the back and up the rt. scapula, persisting at its acme for a few hours and recurring at first every two or three weeks, and later every month or two. These attacks, which patient claims were often incited by raising the rt. arm above the head, continued for about fifteen years. Only once, about twenty-five years ago, was there marked discoloration of the skin; at that time,

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an attack of four or five weeks was accompanied by a blackish-yellow appearance of the hands, face and neck for a week. Since then the attacks have been lessened in severity and frequency, so that they seem to occur only every seven years, the last one being six years ago. Since last April, when she was very nervous, she has been nauseated and vomited greenish liquid every month for several successive mornings without pain or other accompaniments. She has lost much weight, markedly since April, having declined from 140 of six years ago to 95 at present. Since April she has been greatly affected by numbness, tingling, prickling in the hands and feet, more particularly the left, and a sensation of walking on cotton or cushions with a feeling of insecurity and a lack of precision. Believes she passes small quantity of urine, but has frequent micturition at night. Menopause six years ago. Marked vertigo at times, but no headache since onset of the paresthesia. No clavus, globus, chronic tremor, sweating or bulging of eye-balls.

Physical Examination:—Patient is noticeably emaciated, and of very red, almost scarlet, complexion without any cyanosis of skin or mucous membranes. The pupillary and facial reflexes normal. The heart has an apical systolic murmur transmitted toward the axilla, but no great hypertrophy. In the rt. epigastric region there is considerable rigidity and some tenderness on pressure. Liver and spleen normal. The gall-bladder is not palpable. There are no disturbances of sensation, pain, heat or cold. Romberg slightly positive, patellar reflexes normal, no Babinski, von Graefe, Moebius, or Stelwag reactions. The red corpuscles number 5,900,000, the white, 11,200, of which 64 per cent. are polynuclears, 28 per cent. small lymphocytes, 4 per cent. large, 2 per cent. eosinophiles, 2 per cent. transitionals. The urine shows a mild interstitial nephritis with no sugar. The stool gives a moderate amount of free fat starch, but no blood with benzidin or guaiac. A specimen of vomitus consists of a thin greenish liquid without food particles, alkaline, containing bile but no blood. Though the vomiting gradually ceased, the rigidity in the epigastric region persisted, so that little could be felt beneath the surface until the middle of January when a sausage-like mass could be palpated to the right of the rt. rectus muscle midway between the ensiform and the umbilicus. The mass was slightly movable with respiration, fairly firm and somewhat tender, and no murmur could be heard above it. It was not in connection with the liver, and felt somewhat like an enlarged pylorus. On subsequent examinations, this mass was found to be decreased in size and consistency and tenderness until it could not be palpated. February 8 the urine again contained no sugar. The stool tested, both by the Fuld-Gross method for trypsin and the Wohlgemuth method for amylopsin gave entirely negative findings for pancreatic ferments. On February 18, a non-expansile pulsation beneath the rt. rectus midway between the ensiform and the umbilicus could be distinctly seen and felt; there was no bruit, but the heart sounds were very distinct and synchronous with the radial pulse. Palpation of this area showed rigidity and a tumefaction the size and shape of a small orange with moderate tenderness on deep pressure. On February 28 there was marked rigidity across the epigastric region, midway between the ensiform and the umbilicus, with tenderness on pressure. Over this area and to the right and left as far as the ribs there was dullness. The stomach, inflated by a seidlitz powder, became very prominent, both borders lying caudal to the umbilicus, the upper 1.5 cm. below the umbilicus, the lower 7 cm. below the superor spine of the ileum. On inflation of the stomach the dull area in the epigastrium decreased somewhat in size, and the patient herself remarked that the tenderness of pressure had strangely disappeared. Weight 98 pounds. The antitryptic index of the blood for gastrointest. carcinovia estimated after the method of the Roux and Savignac showed a ratio of 1-3. March 3, the urine showed no sugar, a considerable quantity of indican, a slight reaction for urobilinogen and a moderate diazo-reaction. The stool after a Schmidt test-diet showed entirely normal findings as regards meat, fat, and starch digestion. There is no reaction for occult blood. The Wohlgemuth procedure applied to this stool shows no complete starch digestion in any dilution after 24 hours incubation. One cc. of the undiluted filtrate causes starch digestion at the end of two hours, giving a brown reaction with iodine.

Case II.—Mr. T. G., 37, Italian, born in Italy, stationary-fireman, first seen by Dr. E. G. Benson of Albany, January 26, 1913, at which time the patient complained of general weakness. Family history: One uncle died of acute tuberculosis, another of gall-bladder disease. Previous history. At age of ten had chills and fever, recurring every other day for five months. Recovered under quinine. At twenty, gonorrhea and a chancre; no treatment for the latter and no recollection of any resulting lesions. At twenty-six, after a sea voyage, and incidental sea sickness lasting four or five days, he suffered from chills, fever, jaundice, pains in the pit of the stomach, which symptoms lasted two-three weeks. The yellow discoloration was pronounced, but not as marked as at present. Last summer had some pain for a short time in the back, which was regarded as "kidney trouble." Present illness: About December 15, 1912, he began to feel bloated, lost his appetite, and says there was pain for a week in the median epigastric region. On questioning, however, he states that it was not real pain, but only a sensation "as if something was there and wanted to come up, like wind," further, that it "felt as if two peas were down there." Four or five days after the onset he was told of his yellow appearance about eight-ten days after the initial symptoms began to feel chilly, and gradually developed distinct daily fever and chills with profuse sweats at night. No vomiting; nausea between December 25 and January 1. No irradiation of pain. Stool has been whitish. The patient when first seen by Dr. Benson was partially able to carry out his daily work as fireman, but complained of general weakness, almost total lack of appetite, constipation, insomnia due to intolerable itching, profuse night sweats, and yellowish discoloration of the skin.

Physical examination showed a man fairly well nourished, with greenish-yellow discoloration of the skin and conjunctivæ with symmetrical thorax and normal heart and lungs. The abdomen was protuberant, especially in the lower half; in the upper right quadrant was an evident tumor. Palpation gave a generalized muscular rigidity, and a hard, non-sensitive mass, with a well-defined, smooth, slightly rounded edge, moving with respiration, and extending to the umbilicus. Percussion gave distinct flatness in both flanks, not movable with change of position. Pulse 90, temperature 100°. Urine showed bile and albumin. In view of the fact that the patient had been treated for six weeks with no evident result, and with the history of a chancre, Dr. Benson considered the possibility of obstruction due to hepatic syphilis, and instituted mercurial measures by inunction and injection, together with a tablet of iron, arsenic and strychnine. Under these drugs the patient lost his sense of weakness: the liver, however, became larger, even though mercury was pushed to the point of salivation. The patient was seen by Dr. J. Meyers with Dr. Benson on the evening of January 28. Examination showed a moderately nourished, intelligent, and active adult. There was a most marked rigidity over the entire abdomen, which was moderately distended with evidence of tumefaction in its upper right quadrant. A smooth, non-sensitive liver began at the upper border of the fifth rib in the parasternal line and ended below in a slightly rounded smooth edge at the level of the umbilicus. The spleen was not palpable, due possibly to the intense muscle spasm; percussion gave no evident increase in size. In both flanks there was distinct flatness, which moved considerably with change of position, the same condition presented in the hypogastric region, although the patient had just emptied his bladder; a succussion wave seemed present. Pulse 100, temperature 99.4°. Urine was of deep brown color, containing considerable albumin, large quantities of bile, one or two hyalim casts, but no sugar, indican, or urobilinogen, either in cold or after heating after the addition of benzaldehyde. A specimen of stool was white, and looked like poorly digested stomach contents after a test-breakfast. There was entire absence of bile both with the benzaldehyde reaction and the corrosive sublimate test. Microscopically there was a moderate increase of fat with acetic acid. There was no occult blood. The patient on February 9 reported considerable subjective improvement. The entire body, however, was greenish-yellow, the scleræ were deep yellow. The abdomen had lost much of its rigidity, and now the spleen could be felt 2.5 cm. below the ribs on deep inspiration. The liver had increased in size until its lower border now reached 7 cm. below the level of the umbilicus. Its surface was still smooth and non-sensitive, it ran down as a wide tongue-like projection on the right half of the abdomen, and presented an incisure about 1.5 cm. deep near the edge of the right rectus. Just at this point the edge felt softer. There was not as much dullness in the flanks, and no great shifting, but there was still changing flatness in the lower hypogastrium. The urine was still dark brown, with considerable albumin, an epithelial cast, occasional pus cells, but no sugar or urobilinogen either in the cold

or on boiling. The stool, after a general diet, had a most rancid, offensive odor, leaden color without, due probably to iron, but white within; soft, of an acid reaction; no bile either by benzaldehyde or corrosive sublimate, and no blood. Microscopically, there were considerable numbers of neutral fat globules, a distinct increase of fat with acetic acid, and a moderate excess of free starch granules. When the benzaldehyde solution was added, a number of intensely red particles sank to the bottom of the tube. Under the microscope, these seemed to be collections of fat or soaps or possibly some glandular material. The Wohlgemuth starch test for the presence and amount of pancreatic ferment in the stool showed the absence of amylopsin in the dilutions used. The blood gave 7,200 leucocytes, of which 77.5 per cent. were polynuclears, 10.5 per cent. small lymphocytes, 2 per cent. large, 1.5 per cent. cosinophiles, 4.5 per cent. transitionals, and 4 per cent. mononuclears. The stained specimen presented a moderate uniform central decoloration, a slight poikilocytosis, and no malarial organisms. On Feb. 14, the conditions were unchanged, except that there was little dullness in the flanks. There was still flatness low in the hypogastrium that varied with change of position. On February 16 the patient was given a meal of chopped meat and potatoes, followed by calomel two hours later. The stool obtained was clay-colored, mushy, with a sour odor; in the rubbed specimen could be seen occasional meat fibres and tiny flakes of mucus. There was again no reaction for blood. There was much free fat, no fatty acids or soaps, much starch, free and in cellulose cells. The Wohlgemuth test again showed an entirely negative result for pancreatic juice in all dilutions. Two cc. of undiluted stool filtrate added to 5 cc. of starch solution gave a brown reaction with iodine after six hours' incubation. There seemed to be a very faint rose-colored reaction with benzaldehyde. There again separated the intensely red stained particles mentioned above. These under the microscope, seemed to consist of mucus or collection of starch granules or even cellulose. What they positively are is a question. It would seem possible that the intestine might attempt to excrete into its lumen some of the bile pigments circulating in the general blood system, and that bits of mucus or cells from the walls, or even food particles, might absorb some bile pigment through the vicarious excretion; the bile pigments then changed into hydrobilirubin would then give the red reaction on the addition of benzaldehyde. That some of these fragments might be bits of sloughing tissue about the papilla of Vater, either bits of mucous membrane, fat, or even some pancreatic tissue with bile, is also possible. It may be that a very slight quantity of bile is entering the intestine from the obstructed common duct.

On February 22 the liver measured 26 cm. in its longest diameter; it is possibly not quite so far below the umbilicus as before; is still smooth and non-sensitive. In the median line, midway between the ensiform and the umbilicus, there is considerable resistance and tenderness on deep pressure. The spleen is unchanged. No changing dullness in the flanks and apparently no ascites. The patient has had frequent watery movements for several days. No glandular swellings in supraclavicular fossæ, the abdomen, or pouch of Douglas. A small nodular mass felt on the previous examination just under the skin above the umbilicus is not so prominent and may be in the fascia. There is an evident enlargement of the superficial veins in both flanks, running up into the axillæ. The antitryptic index of the blood estimated according to the method of Roux and Savignac showed an index of 1-4[1] after one hour's incubation.

We have, then, two cases showing a positive diminution in the amount of pancreatic juice in the stool with various symptoms or history of symptoms of cholelithiasis. The diagnosis of Case I is subacute cholelithiasis, chronic interstitial pancreatitis, due probably to infection from the gall-ducts, possibly a pancreatic-cyst, marked gastroptosis, and acroparasthesia. In Case I, only once was there definite jaundice; it is impossible to say positively now whether the periodic vomiting, the tenderness and rigidity, and the emaciation are due to the results of adhesions, or the condition of the pylorus, or to a chronic pancreatitis. The pulsating tumor to the right of the right rectus and the dullness present the possibility of pancreatic-cyst. It is noteworthy that the rigidity is midway between the ensiform and the umbilicus, and that the tenderness elicited on deep pressure disappears on inflation of the stomach. It is again interesting that acroparasthesia was found by Collins[2] associated with intestinal disorders in 57 out of 100 cases. Both cases show no glycosuria on repeated examinations, showing mild or early pancreatic change with little or no destruction of the islands of Langerhans. In both, the antitryptic index of the blood has been within the limits of normal, speaking for a non-malignant lesion. Case I was on considerable doses of KI for a long period. Case II received vigorous mercurialization in neither case was there any benefit. In both, there is a very small quantity of pancreatic juice entering the intestine, so that the stools do not show marked disorder of starch digestion in either instance, while in Case I the fat is not markedly increased, and in Case II the absence of fat complicates the question of fat digestion.

Case II, in addition to the marked enlargement of the liver and the jaundice, gives three very striking findings on further investigation. Firstly, even with the immense liver and the great quantity of bile in the urine, there is no urobilinogen in the urine. This in itself speaks for a complete obstruction of the common bile-duct, for if there is no urobilinogen in the urine with such clinical findings it means that no bile is entering the intestine. Secondly, this is corroborated by the white stools which contain no bile. Thirdly, there is a marked diminution of pancreatic ferment in the stool. We have then a working basis for a diagnosis, because all these findings point to a complete obstruction of the common bile-duct and the pancreatic duct by the same lesion, and if both are obstructed the lesion must be so situated as to embrace both structures, that is, somewhere near the duodenum, probably in the papilla of the Vater. That the cause is cancer, either of the gall-ducts, the duodenum, or the pancreas, or the stomach, is highly improbable, because repeated examinations of the stool have failed to show blood. Moreover, the attack has been sudden and the development of jaundice rapid, and the antitryptic index of the blood is 1-4, speaking for a benign condition. The absence of alcoholism, the marked jaundice, the rapid hepatic tumor, the absence of positive ascites, the marked early fever and sweats, speak against atrophic or a mixed type of cirrhosis. The entire absence of bile from the stool, the acuteness of the attack, the small splenic tumor, the lack of pancreatic juice, are against hypotrophic cirrhosis. The liver grew larger under adequate mercurial treatment, there could be found no malarial parasites in the blood, there was no eosinophilia for the consideration of hydatid disease. Against a simple catarrhal jaundice are the duration of the disease (now about eleven weeks), the complete acholia, the rigidity in the epigastrium, the marked decrease of pancreatic juice, the great enlargement of the liver. Pancreatic calculus is rare, but not impossible. On the other hand the history of previous jaundice with fever and sweats, a second sudden attack, after an interim of good health, with rapidly developing jaundice, the complete absence of bile in the stool and urobilinogen in the urine, the tenderness and rigidity midway between the ensiform and the umbilicus, the lack of pancreatic ferments, the absence of metastases, and of blood in the stool, the normal antitryptic index, all, even without the history of a typical hepatic colic, point to the clinical diagnosis of calculus obstructing

the common bile-duct and the duct of Wirsung with local inflammation.

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EXTREME ENLARGEMENT OF THE CAVUM SEPTI PELLUCIDI.

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Two cases of extreme enlargement, or dilatation, of the cavum septi pellucidi were observed recently, which because of their apparent unusualness are considered worthy of record. Both cases presented such similarity of size, shape, and general appearance as to be considered for descriptive purposes identical. A brief description of the dissecting procedure which disclosed these cases will give perhaps the best conception of the conditions discovered and of the boundaries and relations of the enlarged cavities.

The upper portion of the cerebral hemispheres was torn off on the right side and sliced off on the left side to the superior level of the corpus callosum; the corpus callosum was then divided sagittally about a quarter of an inch on each side of the medial plane and the lateral portions were pared away to the outer margins of the subjacent lateral ventricles, exposing the bodies of these cavities from above. A transverse incision was then made about midway of the remaining medial strip of the corpus callosum and the divided halves reflected ventrally and dorsally, respectively. In doing this, in both instances under consideration, it was noticed that the body of the fornix, usually adherent about this point to the inferior surface of the corpus callosum, was represented not as usual but by two attenuated vertical laminæ, separated from each other about a quarter of an inch and inclosing between them a cavity that extended anteriorly and posteriorly as far as the two extremities of the corpus callosum. The medial strip of corpus callosum was carefully dissected out and the extent of the subjacent cavity fully exposed. The lateral width was approximately a quarter of an inch throughout; the vertical depth varied from about a quarter of an inch in the middle to half an inch about the extremity of the rostrum and three-quarters of an inch just anterior to the splenium. The lateral walls of the cavity were formed, from before backward, by the laminæ of the septum pellucidum, the body of the fornix, separated in the medial plane, and the crura fornicis. The floor was made up, anteroposteriorly, of septum pellucidum, a thin membrane derived from the lower border of the corpus fornicis, and the commissura hippocampi. On cross section, the general appearance presented by the walls and floor of the cavity could be quite aptly likened to two capital gothic Ls turned back to front at a little distance apart and their adjacent angles connected by one element of a parenthesis placed horizontally with its concavity upward, thus—)(—

The vertical limbs of the Ls would represent, in order from before backwards the laminæ of the septum pellucidum, the separated and vertically stretched body of the fornix, and the equally attenuated crura; the horizontally placed element of the parenthesis, the floor derived, in the same order, from the septum pellucidum, the body of the fornix, and the commissura hippocampi; while the horizontal limbs of the Ls would represent the fimbriæ fornicis. The floor was throughout its extent almost transparent because of its extreme thinness; the lateral walls were thin, but only in the anterior portion of the cavity, where they were derived from the septum pellucidum, did they approach the thinness of the floor. The posterior extremity of the cavity bulged slightly backward beyond the dorsal margin of the splenium. No communication with the adjacent ventricles was discoverable, nor was there any connection with the subarachnoid space. As far as naked eye observation could discern there was no evidence of inflammatory activity, either recent or remote. The other ventricles of the brain showed a slight degree of dilatation. As far as could be judged by appearances, both cavities had existed for a very long while; in fact there appeared no reason to think that they may not have been congenital.

Unfortunately no history of the two brains was to be had other than that they were those of adult negroes. They were two in a series of thirty that had been hardened *in situ* by formaldehyde injection and upon removal from the skull had been preserved in a 4 per cent. formaldehyde solution till used.

In a long experience in anatomical laboratory work, the two cases herein described are unique, as far as my personal observation extends. Nor have I been successful in finding reference to any other such in the literature consulted.

LUDWIG'S ANGINA: CLINICAL REPORT OF A CASE.

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In looking over the literature concerning this condition, one is struck with the discrepancies in the reports of the recorded cases as compared with the clinical histories of the cases occurring in the course of practice among our immediate surgical and medical contemporaries. The logical deduction from which is that the men having the larger experience either do not have the time, or, perhaps, the inclination to contribute the results of their experience to medical literature. As a consequence the student and the tyro must glean his knowledge of the subject from pamphlets and books written for the most part by comparatively inexperienced men. This is obviously unfair to all concerned, and the busy practitioner is in duty bound to contribute at least clinical notes of his cases and not skulk behind a cynical criticism of those who are doing the best they can with the limited facilities at their command to help themselves and others keep abreast of the times. Consequently, as an incentive, this clinical report is contributed, merely because it emphasizes certain features in the natural history of this condition which have not as yet been recorded, although they must have been noted time and again but have been given tardy literary consideration.

Case.—The patient was a young man, about twenty-nine years old, of a highly neurotic temperament, and a comparatively delicate physique, even though seldom sick. After a period of a day or so following an abrasion of the skin over the larynx, while shaving, the small

lymphatic gland in the median line of the neck directly above the anterior superior border of the larynx began to enlarge. Within twenty-four hours it was distinctly palpable, and within the next twelve hours succeeding there was a pronounced diffuse cellulitis extending to the posterior border of the sternocleidomastoid on each side and from the lower border of the jaw to the upper margin of the clavicles and sternum. The inflammation continued to increase and the swelling became so great that it was impossible to differentiate any of the surface markings of the structure in the anterior portion of the neck. The line of demarcation between the swollen gland and the thyroid cartilage was effaced and they seemed to be the same swollen structure. Swallowing became intensely painful and extremely difficult. Talking became almost impossible and hoarseness was pronounced. Only the lowest tones of the voice could be produced and edema of the larynx seemed imminent.

The possibility of this complication caused considerable apprehension and prompted the use of streptococcus vaccines, which were suggested and injected by Dr. E. H. Bainbridge, of Philadelphia, who had seen the case in consultation. The continuous application of an ice poultice was also prescribed. Within twenty-four hours, the distressing symptoms, the hoarseness, the difficulty in swallowing, pain, etc., subsided, and the temperature rose from 99 to 101° F., but otherwise there was no reaction. Within the following twenty-four hours points of tenderness developed so that by the third day after the onset of the cellulitis distinct pointing could be demonstrated at the site of the presumably original infection. A free and deep lateral incision was made by Dr. Bainbridge and a large quantity of pus was evacuated, and continued to be discharged for ten days following. All the symptoms promptly ameliorated. The prostration produced by this infection was extreme and required continuous feeding and tonics to combat it, even after the primary condition was no longer in evidence.

That this was no ordinary abscess was evidenced by the fact that pus could be expressed by pressure over the trachea above the sternum, by pressure beneath the jaw, and by pressure on either side of the larynx well down in the neck. There was undoubtedly suppuration within one or more of the special sheaths of the deep cervical fascia. The patient entirely recovered, without any sinus or fistulous tract remaining.

The interesting features of this case are these: In the first place the patient recovered. The literature on the subject up to the publication of T. Turner Thomas's classic paper on the subject in 1908 (*Annals of Surgery*, February, 1908) would seem to show a mortality of about 40 per cent. Thomas had two frank cases up until that time in one of which the patient died. The mortality undoubtedly is inaccurate. The personal communications received from surgical confrères of no ordinary surgical ability and experience, but of limited literary capacity and inclination, place the mortality of all cases at about 25 per cent., while the mortality of the selected, promptly treated, cases is somewhere about 5 or 10 per cent. The reason of this lowering of the mortality may be traced to the fact that there are more cases of this condition observed by the rank and file of practitioners than can ever hope to appear in print. Those that do appear in print are for the most part those that are observed in the larger city hospitals, the dumping grounds of the hopeless, neglected cases. Everything in these cases seems to favor a high mortality, while in the former class of cases the condition is no more or less serious than a host of other remediable surgical conditions.

The second point of interest in connection with this case is the use of streptococcus vaccines (100,000,000) and the absence of any pronounced reaction. This is, perhaps, the first recorded instance of the use of vaccines in this condition. The absence of reaction and the subsequent course would seem to indicate that the proper dosage in this case had been given, although it had been determined by the rule of thumb. The third point worthy of remark is the prompt involution of the disease following prompt incision. Nearly all the fatal cases that have not died as the result of edema of the larynx succumbed to gangrene of the floor of the mouth. Prompt incision has almost invariably prevented gangrene of the floor of the mouth and has been employed in all cases that have been followed by recovery. The fourth point of interest is the short course. This has been the rule in all cases treated surgically early.

These features are all worthy of serious contemplation and comparison with those of other cases of a similar character. Among the papers bearing upon this subject I would recommend the following:

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A DIRECT VIEW IRRIGATING URETHROSCOPE FOR DIAGNOSIS AND TREATMENT.

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Bearing in mind the limitations of the various urethroscopes in use, the writer has endeavored to design an instrument of easy manipulation and simple construction which would give a more comprehensive view of the urethra and at the same time be of equal service in treating it.

It consists of: (1) A straight endoscopic tube, eight inches long and 25 Fr. in caliber; (2) an obturator provided with a movable beak; (3) a direct view telescope to which is attached a lamp for direct illumination of the urethra and a faucet for irrigation; (4) an illuminating device projecting a powerful ray of light which is attached to the endoscopic tube when it is desired to make local applications to the urethra.

Technique.—Before using, the examiner should familiarize himself with the various parts of the instrument and their assemblage. The obturator is passed into the endoscopic tube, after which slight pressure on the disk, *D*, Fig. 2, causes the beak to assume a position of about 45° to the tube, in which position the instrument is passed into the bladder. The obturator is withdrawn as follows: A slight pull on the disk, *D*, Fig. 2, straightens the beak of the obturator, allowing its easy withdrawal. The telescope with its light carrier is then inserted. An irrigator filled with warm boracic solution or sterile water, placed about three feet above the patient's pelvis, is then connected with the irrigating faucet, *F*, Fig. 3. The flow is then started and the current turned on.

The empty bladder, trigone, and ureters are clearly seen. By drawing the instrument forward

an excellent view of the internal sphincter is obtained, after which the various parts of the urethra appear in a succession of urethroscopic images until the meatus is reached.

By means of the direct telescope and straight tube the entire circumference of the urethra is seen in one image, thus doing away with the constant rotation of the shaft which is necessary when using the other forms of irrigation urethroscopes having an indirect lens system. The beaked obturator makes the introduction of a straight tube into the bladder or deep urethra easy and painless. Furthermore, those instruments having the beak attached to the sheath often cause pain and bleeding when the sheath is rotated in order to view the side walls and roof of the urethra. Sometimes on account of too much fluid distention not all of the circumference is seen at one time; this can be easily remedied by shutting off the flow momentarily and allowing some of the fluid to run out, when a satisfactory view will be obtained.

Fulguration of papillomata and polypi, incision of cysts, and electrolysis of chronically inflamed urethral glands and crypts can be more easily performed with this instrument while the urethra is distended with water. The instruments consisting of a knife, fulguration wire, filiform probe and electrolysis needle, being flexible are easily passed through the catheter outlet, *H*, Fig. 3, which is capped with a perforated rubber tip to prevent leakage. If local applications are to be made, the water is turned off and the telescope removed, after which the urethra is wiped dry with swabs, or the fluid may be aspirated by passing a small catheter attached to a rubber bulb into the sheath. The illuminating device, Fig. 4, is then attached to the distal end of the tube and the application is made in the usual way.

By means of this instrument the opening of an apparently impassable stricture can often be more easily located and a filiform passed through it, when the urethra is distended with water. The instrument is passed to the stricture, the flow is turned on, and the opening of the stricture looked for, after which a filiform is passed through the catheter outlet into the tube and through the stricture opening. The advantage of this is obvious, especially when perineal section is contemplated.

1186 Madison Avenue.

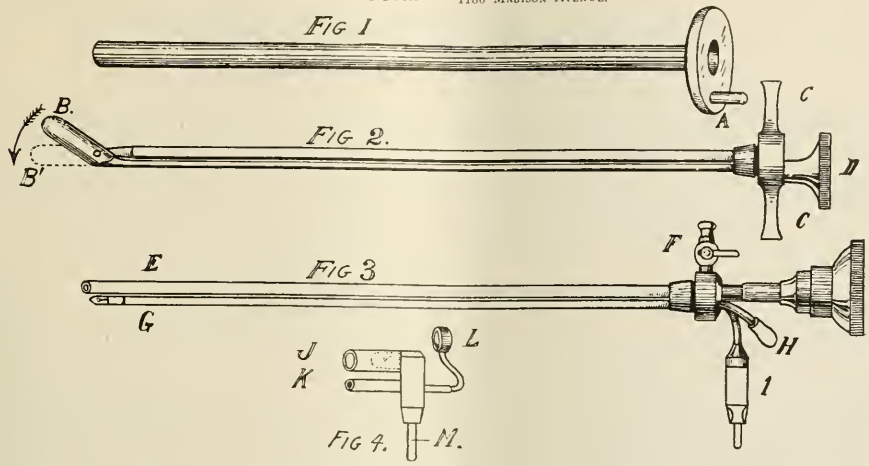

Fig. 1.—Straight endoscopic tube. (A) Pinion to which the illuminating device (Fig. 4) is attached.
Fig. 2.—Obturator with movable beak. (B) Movable beak. (C-C) Handle of obturator. When disk (D) is pressed upon the beak assumes the position (B); when (D) is pulled out, the beak assumes the position (B').
Fig. 3.—Telescope and light carrier: (E) Telescope. (F) Irrigating faucet. (G) Light carrier and lamp. (H) Catheter outlet capped with rubber tip. (I) Electric coupling.
Fig. 4.—Accessory illuminating device. (J) Electric light and condenser. (K) Small socket which fits over pinion (A), Fig. 1. (L) Small lens which intensifies the urethral image. (M) Electric coupling.

A NEW SALVARSAN NEEDLE.

By JAMES H. STEVENS, M.D.,

BOSTON, MASS.

The medical profession has always been willing to accept any article or instrument which tended to render simpler any medical or surgical procedure, and thus broaden the scope by placing it in the hands of the profession generally. In the use of salvarsan and neosalvarsan intravenously, which is the only proper method, certain difficulties have been encountered by all operators. The procedure is simple but there are certain rules which must be observed: first, no air must be admitted to the vein; second, some provision must be made for not puncturing the posterior or lateral wall of the vein. It is here that the main trouble has been experienced. It has been a simple matter to reach the vein, but the sharp surface of the needle often pricks up the posterior or lateral wall when the tourniquet is released, infiltration begins, and the operation has to stop. It was to remedy these defects that the Stevens needle was invented, and I have found it efficient and simple of operation. The needle consists, as shown by the illustration, of a cutting sheath and a blunt cannula which, on introduction, prevents all trouble of picking up the posterior wall of the vein. The main feature is the air-tight lock at the base of the

Fig. 1.—Sheath, Needle A, which is the simpler form, consists of a sheath with a cutting end. The base of the sheath is ground for the accurate fit of the cannula which moves inside the sheath—thus preventing sucking air through the needle into the vein. To accompush this the two surfaces are a perfectly straight and snug fit. The sheath has a set screw at A, thus locking sheath and cannula together.

needle. The illustrations explain fully the method of operating these needles, and the simplicity of their action is their chief claim for general adoption. Not a drop of blood is lost; no air can be admitted to the vein; the sheath of the needle cannot puncture the vein after entrance, and once in, it is in for the entire procedure. All that is necessary is an assistant, who does not need to be especially trained (although, of course, that is better) to snap on the solutions and release the tourniquet.

Technique.—With the arm of the patient scrubbed and the ordinary rubber tourniquet in place, the needle, with the cannula drawn back so that the cutting surface of the sheath is exposed, is locked by the set screw. The needle is connected with the tube of the apparatus, the salt solution is allowed to flow until all air is expelled from the rubber tubes of the gravity apparatus and the clips are snapped shut.

Fig. 2.—Blunt cannula, which runs in the outer sheath, the **ground surface** fitting accurately into the base of the sheath, thus preventing air being admitted where sheath and cannula slide upon each other.

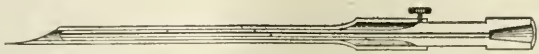

Fig. 3.—Showing the entire needle assembled, the set screw locking the cannula in position back of the cutting surface of the sheath. This position shows the entire needle (when connected with the rubber tube of the salvarsan apparatus) ready to be plunged into the vein. The set screw holds the two parts firmly together for puncturing the vein.

Fig. 4.—Entire needle A, showing the cannula pushed forward into its proper place, after puncture of the vein, the blunt end of the cannula protecting the cutting surface of the needle. The set screw (A) may be set, if required, making the two parts a rigid whole.

With the needle in the right hand, the vein is punctured. The set screw, held by the thumb and forefinger of the left hand, is released the instant blood appears in the glass tube of the apparatus and the cannula is pushed forward into place, protecting the cutting surface. At the same time the assistant snaps on the salt solution and snaps off the rubber tourniquet and the solution flows into the vein. When running freely, the salvarsan is substituted for the salt. The operation is simple and consists of but two movements of the operator's hands. There should be no wobbling of the needle.

A special needle has been devised which is in some respects even easier to work, although more complicated mechanically, known as Needle B. Needle B differs from needle A only in the method of sliding forward the cannula once the vein has been entered. This is done by means of a screw and rack, the cut being sufficient explanation.

With the needle introduced into the vein, the cannula drawn back beyond the cutting surface of the sheath and the whole held firmly in the right hand, it is only necessary to turn the screw on the side of the sheath with the thumb and finger of the left hand, thus pushing the cannula into place, while at the same instant (blood appearing in the glass of the apparatus) the assistant completes the maneuver by snapping on the solution and snapping off the tourniquet.

These needles are purposely made large. There is no necessity for a small needle, and the only difficulty experienced will be in very fat subjects where the veins are hard to distend. After a few hours of study any practitioner will be as competent to do this operation and intelligently treat these cases as the most experienced of his confrères.

Copley-Plaza Hotel.

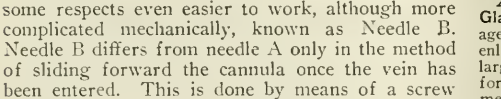

Fig. 5.—Needle B.

Tumor in the Left Maxillary Antrum.—J. F. O'Malley reports the case of a man, aged 54 years, who complained of obstruction in the left side of the nose for four months, pain referred to the teeth, and swelling of the face on the same side. The pain and swelling were lately getting worse. On examination the left nasal cavity was found blocked by a greatly enlarged anterior end of the inferior turbinate, on the size of which cocaine and adrenalin had practically no effect. On the aspect of the turbinate, which was in contact with the septum, the mucous membrane was ragged, and on attempting to pass a probe the bleeding was very free. About the center of the orbital boundary of the antrum a hard mass could be felt, which, when passed on, caused the patient to wince and complain of pain in the left upper teeth. There was no disturbance of vision. Transillumination showed a good crescent on the right side and none on the left. Potassium iodide was given for three weeks without any result.—*Proceedings of the Royal Society of Medicine.*

The Use of Opiates in Childhood.—E. Döheli notes that nursing rabbits are twice as sensitive for each kilogram of body weight as the adult animals, with respect to tincture of opium, pantopon and morphine. The susceptibility to codeine, however, is the same at all ages.—*Monatsschrift für Kinderheilkunde.*

X-Ray Treatment of Suppurating Tuberculous Glands.—E. P. Cumberbatch reports the case of a girl, aged 16, in whom there had appeared five years previously enlarged glands in the neck. A year later they were much larger and had commenced to suppurate, and sinuses formed. They were first treated with fomentations, ointment and other local applications. X-ray treatment was commenced in May, 1911. Improvement set in at once and no more glands became enlarged, and no fresh sinuses formed. The discharge also lessened and the swellings became smaller. In October, 1911, the improvement was steadily progressing, the neck getting smaller in circumference; the glands were less palpable and the sinuses had closed. The patient received the last application in July, 1912; her weight had increased, and she now looked healthy. The neck was not swollen, no glands were palpable, the sinuses had closed, and there were left only a few scars on the skin marking the site of the former abscesses. The dose of *x*-rays had averaged ¼ pastille (Sabouraud B) per week on each side of the neck. The author felt justified in saying that this great improvement was the result of the irradiation; he noted the diminution in size of the neck dose by dose.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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WORK AMONG EXPECTANT MOTHERS.

WORK among expectant mothers was first begun in France and Belgium and was soon adopted and to some extent improved upon in several of the big cities of Great Britain. Dr. Eric Pritchard, at the Marylebone Dispensary, London, has done excellent service for the expectant mother and the infant, and now in all parts of London and in many of the large centers of population throughout Great Britain the poor expectant mother and the newborn child are receiving the care that is their due. At the English-speaking Conference on Infant Mortality held in London on August 4 and 5, Mrs. Fowler, superintendent of the Birmingham Settlement School for Mothers, read a paper on the practical work among expectant mothers done by workers in this settlement. Its aim, as the aim is of all such settlements, is to educate mothers in home and personal hygiene, and feeding, clothing, and general care of infants, with a view to reducing the very high infant mortality rate and of rendering the growing infants more healthy and better citizens. Weekly consultations are held at which the babies are weighed, and those ailing or requiring advice are seen by the honorary medical advisers. The homes are visited as frequently as possible. In 1909 a club for expectant mothers was begun and all savings of 5 shillings ($1.20) or more before the birth of the infant were supplemented by a bonus of 1½d. (3 cents) the shilling (24 cents). By an arrangement made through one of the honorary medical advisers of the school any mother is recommended for free treatment at the Women's Hospital if unable to pay the very moderate registration fee. The Maternity Hospital, which is situated in the district, is also a great boon to the mothers, and those whose conditions make it necessary that they become in-patients learn valuable lessons while quietly watching the daily routine. The out-patients also are taught many very necessary lessons by the midwives and pupils in attendance at their homes. A private society provides any nursing or expectant mother recommended by the school with daily dinners at a charge of 1d. (2 cents) a day, or free of charge if they are very poor. As Mrs. Fowler aptly points out, too much cannot be said with regard to the opportunities given for getting at the very real difficulties of the expectant mothers during these home visits, and valuable lives have been saved by means of the timely aid and advice given.

The above description gives a good idea of the work being done in large British cities, for of course the system is similar in all. The keynote of the conference just held was that antenatal hygiene is most important, even vital, if a healthy race is to be reared. The decrease of infant mortality in Great Britain since the formation of schools for mothers has been remarkable, not to say startling, and provides a valuable object lesson to all countries which contain a large urban population. America fortunately is not, at any rate as yet, in the position of some European countries as regards this question. Her town population, on the whole, is not so poverty stricken nor so ignorant as that of some lands on the other side of the Atlantic. At the same time there is plenty of scope for work of this character. New York, chiefly by the agency of its efficient board of health, is performing excellent service in this direction, and Cleveland, as Dr. H. L. Gerstenberger showed in a lucid paper read at the Conference, is making great progress along the same lines, in many respects pointing the way. But there are many American cities which might with advantage to all concerned learn a useful lesson from the work now being so well caried on in Great Britain, in France, and in Belgium.

URINARY LIPOIDS.

WITHIN recent years the study of the nonsurgical diseases of the kidney has been greatly stimulated. The older classifications based upon pathological anatomy have not always accorded with clinical findings, and the tendency has been to seek a more scientific differentiation of these disorders in the results of so-called functional tests. Schlayer's experiments led him to distinguish between vascular derangements of the kidney, in which the excretion of water and milk sugar is retarded, and tubular disorders in which the excretion of sodium chloride and potassium iodide is retarded. On the basis of these clinical tests Schlayer would classify nephritis into the vascular and the tubular varieties.

Fritz Munk (*Zeitschrift für klinische Medizin*, Vol. 78, Nos. 1 and 2) has recently studied the significance of the lipoid bodies eliminated in the urine, and perceives in the detection of these bodies a means of differentiating an important group of renal disorders of a degenerative type. The microscopical examination of the urinary sediment has usually furnished the basis for a diagnosis of an inflammatory affection of the kidneys, either acute or chronic. Munk believes that the large majority of renal disorders are of a degenerative rather than of an inflammatory type, and that the term "nephritis" is erroneously applied to the former. Müller long ago proposed the word "nephrosis" to designate these degenerative types of renal disorder, but this suggestion has not been heeded. Many forms of renal degeneration have been recognized for a long time. These are the albuminous, the hyaline, the amyloid, the fatty, the lipoid, the glycogenic, and the necrotic, the last resulting from the action of poisons. Not sufficient

attention has as yet been paid to the recognition of fatty and lipoid degeneration of the renal cells.

It was to the study of the lipoid bodies in the urine that Munk especially devoted his attention. These bodies have hitherto escaped observation in the microscopic examination of the urinary sediment because of the fact that they are revealed only under polarized light. The method is a simple one. The sediment is examined with the aid of two crossed Nicol's prisms, which may be attached to any microscope. The lipoids then appear as minute drops with a black axial cross and four brightly lighted segments, the whole presenting the appearance of twinkling stars. The neutral fats are not visible under polarized light.

The great importance of this method of examination resides in the fact that the lipoid bodies appear in the urine only as the result of degenerative lesions of the kidney. They thus furnish a means of differentiating between a true nephritis which is inflammatory in character and a renal degeneration, whether acute or chronic. The lipoids are not found in the urine in constitutional conditions in which neutral fats may be excreted by the kidneys, *e.g.* in pernicious anemia, status epilepticus, cerebral syphilis, scarlet fever, hepatic tumor, and miliary tuberculosis. The lipoids are never found in acute nephritis, but in some cases of this condition when convalescence has been established the appearance of the lipoid bodies in the urine is unmistakable evidence that a chronic degenerative process has set in. This may form the prelude to a secondary interstitial nephritis. Coincident with the degenerative process the general condition of the patient, aside from the existence of a more or less pronounced anemia and the recurrence of albuminuria, remains unchanged. In the later stages of this process the lipoids are present chiefly in the interstitial connective tissue of the kidney, which in the early stages has been the seat of more or less hyperplasia. The early pathological condition is that of the large mottled kidney, in which the pale spots are the lipoids and the red spots are the inflammatory areas. Later on the organ presents the appearance of the secondarily contracted kidney.

The secondary degenerative diseases of the kidney have a different prognosis from that of the purely inflammatory types. The early diagnosis of the former is also of importance. The persistent albuminuria following an acute nephritis may be of benign character, but if this albuminuria is accompanied by a lipoiduria, active therapeutic measures must be employed, such as the administration of iron, the use of appropriate baths, and applications, such as hot fomentations, that produce hyperemia of the kidneys without stimulating these organs. The functional capacity of the kidneys is not disturbed. The point that should be emphasized is the fact that the doubly polarizing lipoids in the urine furnish a criterion whereby one may with certainty distinguish between a nephritis and a degenerative disorder of the kidneys.

Another type of renal disorder in which the lipoids in the urine enable one to reach a definite diagnosis is the acute parenchymatous degeneration of the kidney, the most characteristic stage of which is represented by the large white kidney. In amyloid disease of this organ the doubly polarizing bodies are found, but to a lesser extent than in the above conditions, and they are found even less frequently in the genuine forms of contracted kidney, such as that associated with arteriosclerosis.

The so-called acute parenchymatous syphilitic nephritis was carefully studied by Munk, who finds that this condition is a purely degenerative one with the elimination of lipoid bodies in the urine. The majority of cases occur in women. The presenting symptoms are a pronounced anemia and an edema of greater or lesser degree. The patients complain of fatigue and weakness, occasionally of dyspnea, and seldom of headache. Urinary examination reveals a considerable amount of albumin, a variety of casts, and a great number of lipoid bodies. A syphilitic history and a positive Wassermann reaction are obtained in all of these cases. The question whether the syphilitic virus or the mercury administered to the patient is the cause of the renal condition is answered by the fact that in the early stages at least of a mercurial nephritis the lipoid bodies are never found.

This type provides an interesting subject for study. Clinically it presents the manifestations of an acute nephritis, but pathologically it is a chronic condition of degenerative character. It is interesting to note that in the metasyphilitic disorders of the nervous system, such as tabes, there is a similar lipoid degeneration of the tissues affected.

UTILIZATION OF WASTE MATERIAL.

One of the objections often raised against the naval policy of the great nations is the economic one. Millions of dollars are expended by the United States every year in the building of new ships of war which are obsolete almost from the date of their launching, and in ten or fifteen years are fit only for the junk shop or for targets. A brilliant suggestion, which if carried into action will weaken the force of this objection, was made at the recent International Congress on School Hygiene by Dr. S. A. Knopf of this city. This was introduced in the form of a preamble and resolutions, which were adopted by the Congress, asking the United States Government to give its discarded cruisers and battleships to the several maritime States for use as open-air schools or as tuberculosis sanatoria for children and adults. These ships could be anchored in rivers or quiet harbors away from dust, swept by breezes, and bathed in sunlight.

The plan seems eminently feasible, yet there are two objections which suggest themselves at once. The first is that many of the States could not profit thereby, all those without a seacoast or large navigable rivers being debarred from its benefits. To meet this objection it was proposed that the States presented with ships should pay a small sum therefor, the money so obtained being turned over to the inland States for the establishment of open-air schools and sanatoria in the best obtainable loca-

tions. A second objection is that the cost of transforming these battleships into schools and hospitals would be considerable. That is probable, but it would be less than that of purchasing new sites and erecting proper buildings. Other objections will doubtless be raised by those who are constitutionally opposed to novelties, but those in favor of the plan can be trusted to turn the point of any objection and to advance other arguments in favor of the scheme. One fact which they can advance is that boats have already been utilized for this purpose in New York and elsewhere, and another is that even warships have been so used, the Italian Government having already consecrated three of its discarded men-of-war to the service of the tuberculous. Finally the establishment of sanatoria on water will not arouse opposition in the neighboring communities, this prejudice, based of course on groundless fears, being one of the greatest difficulties to be contended with whenever the establishment of a new sanatorium or hospital for tuberculosis is contemplated.

Nature of Migraine.

Authorities since the time of Day have looked upon this affection as a recurrent "brain storm" (not involving the psyche); as a periodical "discharge" phenomenon, the nearest relative, although far removed, being epilepsy. About this primitive conception there has grown up a mass of subsidiary dogmas which lead nowhere. Of great interest, however, in this connection is the mysterious phenomenon known as scotoma scintillans, which often accompanies migraine yet occurs just as frequently without the latter. Attacks of non-migrainous scotoma occur without any periodicity—one may have two, three, or more attacks daily and then be free for six months or more—yet they are almost always accompanied by a slight boring pain in the occiput, nervous instability, etc. The time appears to be propitious for an anatomical or physical factor to be brought out in this connection. At a recent session of the Aerztlicher Verein of Hamburg (*Münchener medizinische Wochenschrift,* August 5) Auerbach announced that after prolonged study he had come to regard migraine as a syndrome due to the fact that the cerebrum on a given side was too large for the cranium. Given this as a basic factor, any vasomotor disturbance might bring on a hemicranic crisis. The truth of this conjecture has yet to be demonstrated; but as migraine is such a common condition there is plenty of material available for research. In discussion Schmidt emphasized the possibilities of lumbar puncture in this affection. If the latter were due to the closure of the foramen of Monro, lumbar puncture might cause this to reopen.

News of the Week.

Decreasing German Birth Rate.—During recent years the excess of births over deaths has remained at 13 per 1,000 population, but while the deaths have fallen from 26 to 16, the births have also fallen from 39 to 29. The statistics for Prussia show that the number of births per 1,000 population declined from 37 in 1901 to 30.7 in 1910, and that during the past two years they have been even less favorable. In the cities of Prussia, Saxony, Bavaria, and the free State of Hamburg, as well as in Pomerania, there is a decline in the birth rate from 20 per cent. to 37 per cent. in the last decade. At the Congress of the Anthropological Society recently held in Nuremberg, Counselor Luscham, in commenting on these figures, stated that the two-child system already prevailed in the large cities and was making headway in the rural districts. He estimated the number of abortions in the empire as one-half a million per year.

Railroad Casualties.—The report of the Interstate Commission just made public shows that 2,341 persons were killed on American railroads and 47,634 injured from January 1 to March 31, a decrease of 109 killed and 1,157 injured compared with the corresponding quarter of 1912. Train accidents injured 2,086 persons; other than train accidents, which includes employees, passengers, etc., injured 17,194, and industrial accidents on railway premises injured 26,812 persons.

Report of Hookworm Commission in Alabama.—The Hookworm Commission of the State Department of Health announces that it has carried the crusade against hookworm into thirty-five counties of the State and that more than 1,700 physicians have been reached through the State and County Medical societies. School inspection work has yielded interesting results, over 13,300 children in rural schools having been examined. One hundred and seventy-five free dispensaries have been operated and 14,500 microscopic examinations made. About 51 per cent. of this number have shown hookworm infection. Free treatment has been given to 29,900 patients. The commission is keeping an up-to-date photographic record of its work.

Optometrists Form Protective Association.—As a result of numerous prosecutions in the criminal courts the optometrists of Springfield, Mo., have formed a protective association which will afford financial support and protection to any member who is interfered with in the peaceable and legitimate practice of his profession. This is an instance of the hot fight for recognition made by the optometrists for recognition by the law-makers of the State. Optometrists are regulated by law in twenty-four states of the Union and it is believed that it is only a matter of time until Missouri will have laws governing the practice.

New Graduate School of Medicine.—The University of Alabama has just bade its first annual announcement of the new graduate school of medicine. It is stated that the curriculum differs radically from that of other institutions of this kind. The object of the curriculum is to keep each student occupied in either dispensary or hospital work during the entire school day.

Houston, Tex., Takes New Step in School Hygiene.—This city has authorized the employment of a physician to be known as hygienic instructor, whose duties shall be to examine not only the children of the public schools but the teachers as well. All teachers will henceforth have to submit to a physical examination before they can be engaged. It is pointed out that nervous and irritable teachers may do considerable harm in the school room, even to the extent of endangering the health of children committed to their care and teachers belonging to this category will not be employed.

The Air in New York Schoolrooms.—The Committee on School Inquiry of the Board of Estimate

and Apportionment has handed in its final report on the atmospheric conditions in the city schools. The investigation was made under the direction of Professor Paul H. Hanu of Harvard University. In all, some 32 schools were investigated, typical schools in each of the boroughs being chosen. Of three schools without ventilating fans none were satisfactorily ventilated. It was found that some of the best and some of the worst ventilated schools have reached that success in ventilation depended upon the degree of care with which the system was operated. It was found that the condition of the air in the night schools was bad due to the fact that the fans were frequently not run at night and that gas used for lighting vitiated the air. The condition of the air, so far as dust was concerned, was found to be satisfactory, the number of moulds, bacteria, and microbes being small. Out of 1,800 temperature readings only 14 per cent. were above 71° F., indicating that objectionable overheating is rare. The installation of a thermograph in each school building was recommended.

The Utilization of Obsolete Warships.—The following preamble and resolutions, introduced by Dr. S. Adolphus Knopf of this city, were unanimously adopted by the Fourth International Congress on School Hygiene at Buffalo last week: *Whereas,* Nearly a million tuberculous children or children strongly predisposed to tuberculosis are attending our public schools, and there is hardly accommodation for 1,500 to receive instruction in the open air; and *Whereas,* The Congress is convinced that the open air school is one of the most powerful agents in the prevention and cure of tuberculosis in childhood, and it has been furthermore demonstrated that nearly all climatic conditions, providing the air is dust-free, lend themselves to the prevention of tuberculosis in the predisposed and the cure of the afflicted; and *Whereas,* Statistics show that there are not nearly enough hospital and sanatorium accommodations for adults and children afflicted with pulmonary tuberculosis or children suffering with tuberculous joint or bone diseases; and *Whereas,* It has been demonstrated in New York and other cities that discarded vessels lend themselves admirably to transformation into all-year-around hospitals and sanatoria for consumptive adults, sanatoria for children afflicted with joint and other types of tuberculosis, and into open air schools for tuberculous, anemic, and nervous children; therefore be it *Resolved,* That the Fourth International Congress on School Hygiene petition the United States Government to place at the disposal of the various States of the Union as many of the discarded battleships and cruisers as possible to be anchored according to their size in rivers or at the seashore and to be utilized by the respective communities for open air schools, preventoria, sanatorium schools for children, or hospital-sanatoria for adults. Be it further *Resolved,* That the Congress express its appreciation to the Italian Government of the example it has given by consecrating three of its discarded men-of-war to the combat of tuberculosis. Be it further *Resolved,* That this Congress express the sincere wish that other governments may follow the example of Italy; and be it finally *Resolved,* That copies of these resolutions be presented to the American and other governments represented at this Congress.

Government Approves Physicians' Protective Association.—The Canadian Government has approved by order in Council the by-laws adopted by the Canadian Medical Protective Association, which was incorporated at the last session of Parliament. The association offers to protect its members in malpractice suits provided the defense appears meritorious to the executive committee.

Ohio's Health Exhibit.—There has been a preliminary exhibition of the new health exhibit which is to be shown at the State Fair, Columbus, for physicians and educators. At the close of the fair the exhibit will be shown in a number of cities throughout the State

Iowa Starts Health Campaign.—The Public Health Education Committee of the Iowa State Medical Society has been inaugurating a campaign of public education in regard to the house fly and the mosquito. The committee is also agitating public school health problems, and baby contests have been arranged in connection with the State Fair. The State has been divided into five sections and each member of the committee has been assigned to supervise one section.

Personal.—Dr. Thomas Darlington, formerly Health Commissioner of New York City, is a candidate for President of the Borough of Manhattan on the Tammany ticket.

Dr. James N. Campbell of Marissa, Ill., has been appointed superintendent of the State Hospital for the Insane at Watertown, Ill., by Governor Dunne.

Dr. Louise Pearce of Johns Hopkins Hospital has been appointed to assist Dr. Simon Flexner at the Rockefeller Institute of Medical Research in New York City.

Dr. John Van de Erve has resigned the chair of physiology at the University of Alabama and has accepted a similar position at the Marquette University, Milwaukee. He will be succeeded by Dr. Andrew Howard Ryan, former instructor in physiology at the Washington University, Washington.

Gifts to Charity.—By the will of the late Mrs. Jane Elizabeth Grannis, the Presbyterian Hospital receives $5,000 for a bed in memory of her mother. In addition, St. John's Guild and the Daisy Fields Memorial Hospital each receive $1,000.

The will of Fannie King bequeathes $500 each to Mount Sinai Hospital and the Hebrew Benevolent Orphan Asylum of New York City.

The will of Mrs. Mary H. Lawrence leaves $15,025 to the Seton Hospital, Spuyten Duyvil, N. Y.

The will of Marian de Forest Clark makes a bequest of $7,500 each to the Orthopedic Dispensary and Hospital of New York City and to the New York Society for the Relief of the Ruptured and Crippled.

By the will of the late Emma Koch of Philadelphia the sum of $1,000 is bequeathed to the German Hospital, and a like sum to the Ladies' Aid Association of the same hospital, and the sum of $500 to the Kensington Dispensary for the Treatment of Tuberculosis of Philadelphia.

A Pellagra Conference.—The Spartanburg County Medical Society held a conference on Pellagra on August 29 in honor of Dr. Louis Sambon of the London School of Tropical Medicine. About 150 physicians and scientists interested in pellagra were invited.

Pellagra Abroad.—Fifty cases of this disease have been found in England and Scotland and personally investigated by Prof. Sambon; he doubts the maize origin of this disease because, in the British Isles, maize is sparingly consumed.

International Campaign Against Tropical Diseases.—Dr. Wickliffe Rose, who has charge of the medical research campaign of the Rockefeller Foundation and who is director of the Rockefeller Sanitary Commission, has been in England for the purpose of enlisting the interest of medical societies in Great Britain in co-operative work of international scope both for purposes of research and for the institution of sanitary measures directed against tropical plagues.

Health Report of Philippine Government Employees for Year Ending June 30, 1913.—Total number employed, 10,010; Americans, 2,810; Filipinos, 7,200. Deaths from illness: among Americans, 5; among Filipinos, 23: from violence, Americans, 2; Filipinos, 1. Average years of service: Americans, 6.93; Filipinos, 5.47. Average age at death: Americans, 38.93; Filipinos, 32.01. Annual death rate per thousand: Americans, 1.77; Filipinos, 3.19. Annual death rate per thousand for all nationalities, 2.79. All deaths including those from violence, average rate per thousand, 3.09.

Medical Society of the Missouri Valley.—The twenty-sixth annual meeting of this society will be held in Omaha, Neb., on Thursday and Friday, September 18 and 19, under the presidency of Dr. H. B. Jennings of Council Bluffs. Dr. Charles Mayo will deliver the oration on surgery, and Dr. Alfred C. Croftan that on medicine. An interesting program, including a symposium on pregnancy, has been arranged.

Obituary Notes.—Dr. Augustus Maverick of San Antonio, Texas, was shot and killed on August 18, in his home, by a negro who had entered the house with the intent of assaulting one of the maids, a white woman. The doctor, who was in his study, heard the woman's screams and ran unarmed to her rescue and was shot three times by the negro, dying instantly. Dr. Maverick was born in San Antonio, November 12, 1885, and was graduated in medicine from the University of Pennsylvania in 1907. He served a term as hospital interne in Philadelphia and then studied in Vienna. He had recently contributed a series of articles entitled "Blunders Made by Nature" to the Medical Record, the last published only two days before his death.

Dr. James Porter Williams of Princeton, W. Va., a graduate of the University College of Medicine, Richmond, Va., in 1897, died after an illness of two years on August 20, aged 43 years.

Dr. Cleveland Ferris, of New York, a graduate of Yale University, Medical Department, in 1903, a member of the American Medical Association, the New York State and County Medical Societies, the New York Academy of Medicine, and the New York Society of Dermatology and Genito-Urinary Surgery, and assistant genitourinary surgeon at the Post-Graduate Dispensary and at St. Bartholomew's Clinic, died at his home suddenly on August 21, aged thirty-six years.

Dr. Melbourne F. Middleton, of Camden, N. J., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1868, and a member of the Camden Board of Health and Board of Education, died at his home, after a long illness, on August 21.

Dr. Philip S. Fisher died of nephritis at his home at Zion, Pa., on August 19, at the age of sixty-eight years. He was graduated from the medical department of the University of Pennsylvania in the class of 1865. He was Coroner of Center County.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CONFERENCES—INFANTILE MORTALITY—UNIVERSITY EDUCATION—SANITORIA—SUFFRAGISTS ATTACK DOCTOR—FOREIGN DOCTORS AT WOMEN'S MEETING—DOCTOR LEADS DEPUTATION TO PREMIER AFTER REFUSAL TO RECEIVE IT—OBITUARY.

London, August 15, 1913.

The great Congress is over. Most of our guests have gone home, though not a few are prolonging their stay. Medical gossip is largely occupied with its doings, not altogether with the most serious part of the work. But little incidents beneath the notice of the reporters, criticisms of the speakers and comparisons of their methods of presenting their views, speculations as to the real value and use of such assemblies—these and many other points continue to intrude themselves into our conversation. It is said that this is the longest congress of the international series. But the number of arrivals makes no difference to the crowds of London. Take as an illustration this colloquy: Patient—Has your great congress been a failure? Doctor—No; why? Patient—Well, I have only seen one or two foreign-looking gentlemen about. Doctor—Surely you could not expect 8,000 members to be perceptible among the millions? Perhaps not, but this is London. Yes; though your house may occupy the site of your great-grandfather's, no stick or stone of his village home remains; the slip of ground you call garden is bounded by a railway line with a 5-minute service, a station of another line is within a stone's throw, and a motor-bus rushes by your front door continuously. The village has become a metropolitan borough.

The Congress passed a resolution calling upon the various governments to take action respecting the spread of venereal disease, a subject so lately pressed on the British Government by the leaders of the profession in a document which has caused widespread attention be given to it in the lay press.

Among the subsidiary conferences I spoke of last week one of considerable importance which has attracted attention is the fourth English-speaking one on Infantile Mortality. The governments of twenty-three countries and colonies sent delegates and practically all the English-speaking world was represented. Of our local health authorities some 200 were represented, as also were other institutions concerned in the matter, as hospitals, training schools, hygienic societies, and so on.

The president of the local government board, Mr. John Burns, M. P., in an opening address, said this fourth conference had been much enlarged by uniting in its organization other movements by which greater solidarity had been given to it and he was glad that from humble beginnings it had become, in the course of seven years, a worldwide movement. During the last 100 years the English-speaking peoples had originated the great codes of public health. They had similarity of life, aims, ideals, and language. They were colonizers more than any other people, modern Romans whose strength lay in their limbs, not in their swords. Rather in their noble motherhood. Healthy parents, happy children. For this parents must be cleanly wed, children nobly bred, wisely fed and firmly led. The doctors, he was glad to say, had been the backbone of their movement. He then gave some sta-

tistics of infantile mortality in different localities and circumstances. The medical profession was the noblest of all; the mortality of their children 40 per 1,000, as against 100 to 130 among those of artisans, and 150 to 250 of unskilled laborers. In farm laborers, however, only 97, though wages were very low. Thus it was seen high wages did not lessen the mortality of the children—drink was, no doubt, one great cause of this and it always means inferior housing. Much had been done by those conferences and he suggested the next should be not in London but in Lancashire, and he would be happy to preside again if invited.

Mr. Joseph Pease, M. P., presided over the medical section and said the Board of Education (of which he is president) realized that a sound physical condition of the people was an essential preliminary. The reduction in the rate of infantile mortality of late years was perhaps due to the physical state of the mothers, but more than that, he believed, to better care and management, for ignorance was the root of a great deal of preventable infantile mortality, and the Education Board had endeavored to disseminate information through the schools and encourage schools for mothers. There were now 250 such and 100 were doing excellent work. Recently they had provided instruction for girls in the care of infants. Dull and backward girls often responded to this teaching in a remarkable way. He hoped next year to propose that schools and crêches for mothers should be brought into the national educational system.

In the administrative section Dr. Freemantle said among the poor and unemployed infantile mortality was a question of wages. The more perfect became international communications and industrial competition the more impossible it must become to maintain a high standard of public health with at the same time free imports—one or the other must go.

Dr. Hodgetts, adviser to the Canadian Commission, said that some 30,000 infants under five years died annually in Canada mainly through ignorance.

Dr. Caton (Liverpool) said red herring and sausage had often been given to a baby of a week or two old, as also gin and other spirits. He once saw a mother cram pork pie into her baby's mouth.

Mr. Ritson (Sunderland) said one woman was caught giving her baby radishes and tea. On death occurring she said it was Providence.

Dr. L. E. La Fétra (New York) said the most important point in baby saving was natural nursing by the mother. He quoted New York statistics showing that of 10,000 so nursed there died during the first year 580, while of the same number artificially fed 4,588 died.

Dr. Paget Lapage (Manchester) spoke of the profound ignorance prevailing on care of infants, especially in the first year of their life. The birthright of many a modern first-born was often to be the object for an ignorant mother to practise on how to bring up the later born.

The report of the Royal Commission on University Education in London was issued in April and has been under discussion until yesterday, when the president of the board announced that he had appointed a departmental committee to inquire and report on the managements and provisions which may be immediately adopted for carrying out the recommendations of the Royal Commission on the subject.

The Kent County Council has decided to build a sanatorium to provide 100 beds. The amount of the council's contribution to the cost will be £5,000.

The Cornwall Council has decided to seek power to borrow £3,000 to apply towards establishing a sanatorium by the purchase of a hotel, of which they have the pre-emption. The local government board would have to contribute £4,500. It would provide 60 beds in a remarkably fine establishment.

A doctor headed a deputation of fourteen men to the Prime Minister, determined to see him and "nobody else," though twice informed they could not be received. The police stopped them in the street but permitted three to go to the house, where they were told Mr. Asquith was not at home. The leader handed in a protest against the refusal to meet a lawful deputation, and made a statement to the press from which it appears the doctor told his followers that he and some others would buy a Russian dictionary to pick up a few words of the language of the country to which they should belong. Other doctors are wishing him a rapid journey and saying "we can well spare him."

A few foreign medicos responded to an invitation to attend a meeting of the woman suffragists. Mrs. Pankhurst addressed them as scientists desirous of investigating the movement which had swept over the world. She told them the government let her license drop lest they should report to their several countries that the boundaries of humanity were passed by her prosecution. She then discoursed about venereal diseases and the duty of the state as discussed in the medical congress and the recent appeal of medical leaders, adding that the women were "in full revolution and gloried in it."

Four women suffragists released from Holloway prison attempted to assault the medical officer as he crossed the road to enter the building. The public prevented them; four or five other females released at the same time rushed to the defense of the doctor and routed the suffragists, who were glad to take refuge in a passing motor omnibus, although their leader flourished an ivory-handled riding whip.

The death, on August 1, is announced of Dr. Surg.-General Thos. S. Hollingsworth at the age of 85. He qualified at the Royal Surgical College in 1851, joined the medical service of the Army in 1854 and retired in 1880.

Dr. Middlemiss, formerly surgeon-colonel and of the Army Medical Reserve, died on the 4th inst., aged 68. He was M.D., Dur. 1880.

Surgeon R. A. Simpson, late of the naval medical service, died July 31, aged 60.

Dr. Wm. Gayton, M.D., F.R.S., J.P., died on the 7th inst., aged 74. He was a magistrate for the county of London and a member of Gray's Inn in addition to his medical position.

THE INTERNATIONAL MEDICAL CONGRESS.

(From a Special Correspondent)

London, August 21, 1913.

After the rush, turmoil, and excitement consequent on the holding of such a meeting as the recent International Congress of Medicine are over, it is possible to take a dispassionate view of the proceedings. The first thing that struck the visitor was the immensity, and, to some extent, the unwieldiness of the affair, and the next thing perhaps what a wonderful place London itself is. The situation of the headquarters of the Congress was

a remarkable happy one. It not only provided, within easy distance of Albert Hall, commodious and pleasant accommodation for most of the Sections, but it gave to the foreigner a very favorable impression of London. The size and architecture of the buildings in this vicinity, the appearance of spaciousness, the beauty and grace of the parks, the width of the streets, all conveyed an air of imperial magnificence, on the whole, possibly, unduly flattering to the great metropolis. Another point which forcibly struck every visitor was the unbounding hospitality shown on every side. Not only was the official hospitality splendid and profuse, but a similar obviously hearty desire on the part of London medical men was evinced to make the visitor feel quite at home by feeding him and fêting him in the most unstinting manner.

As for the outcome of the Congress from the medical and scientific standpoints, if it was not so fruitful in these respects as some former ones, it was, at any rate, by no means barren of results. The addresses of Chauffard, Cushing, Bateson, and Ehrlich would redeem it from that charge. Indeed, as a matter of fact, the papers read in the Sections were, speaking generally, of a high standard, and in some instances the discussions were of extreme scientific and practical value.

Among the many valuable discussions held in the Section of Surgery, none was more important than that dealing with experimental surgery. The leader of the discussion was Professor Rudolph Matas of New Orleans. He described his method of treating aneurysm, which consists in opening the aneurysm and emptying it. The sac is narrowed by a pleating arrangement, carried out by means of stitches. The original cut is stitched up and the blood is allowed to flow again through the vessel. The gross mortality percentage in his operations, which have been performed chiefly in the lower extremity and in the upper extremity, is 8.4. Mr. C. A. Ballance expressed the opinion that in popliteal aneurysm the old operation of John Hunter gave results as good as the new Matas method, and was very much simpler to do. Dr. Ernst Jeger demonstrated a number of specimens to show what had been achieved experimentally in dogs. He had successfully removed a piece of artery and stitched in its place a piece of vein taken from the same animal. He had transplanted one kidney of a dog from its abdominal position to the neck, joining the renal artery to the carotid artery, the renal vein to the jugular vein, and the function of that kidney was continued unimpaired. Joining on of the cut ends of blood vessels was done by stitching them end to end with the finest needle and silk, sterilized in vaseline or oil. Other experimenters use human hair as stitching material; it really is stronger than some of the very finest silk and is easy to handle. Dr. Dobbowolskaja demonstrated her method of stitching the arteries, and showed several specimens of her laboratory work.

In the Section of Radiology a remarkable address was given by Dr. Robert Abbe of New York, who opened a discussion on radiotherapy for malignant growths. Dr. Abbe said in part that surgery had expended its utmost efforts in cutting out every vestige of disease, or destroying it by cautery, caustics, or freezing. But although these procedures frequently cured the patient, they never cured the disease. For a cure it was necessary to look to forces like organic chemistry or biochemistry, or to agents like the Röntgen rays or radium.

With regard to the power of radium to control the worst types of cancer, Dr. Abbe said he hesitated to speak of actual progress in malignant disease of the tongue and esophagus. In most cases, after judicious use of larger doses of radium, a marked amelioration with reduction of the size of the mass was observed, although the disease gained headway at the last. In the case of uterine cancer the outlook was more hopeful, and it was certain that the immediate effect of extreme radiumization on cancer developed in the uterine cervix or in the scar after operation, altered the disease so as to replace it by sound cicatrix.

Dr. Robert Kienbock raised the question of the possible danger of actual stimulation of the diseased growth by injudicious dosage. He gave some instances of radium cure or amelioration drawn from his own experience, including an inoperable case of sarcoma of the kidney in which the insertion of radium tubes brought about a successful issue. Dr. N. S. Pinzi said that radium rays were undoubtedly very much more powerful and efficient than *x*-rays, but the difficulty was to obtain them in sufficient quantity.

A discussion took place in the Tropical Medicine and Hygiene Section, jointly with the Naval and Military Medicine Section, on the question of sanitary organization in the tropics. Sir Ronald Ross said that he used the word sanitation in its widest sense, including under the term everything which tends to reduce the sickness and mortality of human beings. An effective administrative machinery is necessary for the prevention and treatment of disease, and this can best be secured by attention to the following points: The whole of the sanitary service of a country should be unified and placed under a seperate department of State. The sanitary service should not be subordinated to the medical service, or vice versa; the time had gone by for the predominance of the medical side, for the head of the sanitary or preventive side had many-sided features to fulfill and was occupied with public sanitary legislation, with large and expensive sanitary works, with municipal doings with epidemics and the detailed administration of the whole country. His work required the training of a medical man; but in addition he must have the training, the mind, and the abilities of the statesman. The sanitary engineering department of the province or country must, if the sanitary service was to be effective, be under the control of the chief of that service, and not independent of it as was too often the case. Research laboratories under trained workers should form a branch of the sanitary service, and a statistical department was a necessity. The power granted to even small municipalities whereby almost unlimited control was bestowed on them to deal with the lives of the people might be expedient from a political standpoint, but from a sanitary point of view it could not be commended in the case of tropical villages, where neither highly expert knowledge nor sufficient funds were available. When an epidemic threatened, the head of the sanitary service should be able immediately to send expert officers to the district to deal with the outbreak; and it was important that not only the officers of this department should be efficient, but the sanitary workmen must be trained, for without these it was not possible that the actual details of the measure could be carried out. A minister of public health was an urgent necessity. Dr. von Hintze of the German Colonial Service explained

the organization of the sanitary and medical service in German East Africa, New Guinea, and Samoa. In these countries the military system prevailed at present, but as these colonies progress it would seem probable that a separate civil sanitary and medical service would be established. Dr. von Loghem of Amsterdam brought prominently forward "The Yellow Fever Danger for Asia After the Opening of the Panama Canal." He suggested that there should be a coordination of all countries likely to be concerned to prevent the serious danger to Australia and to the countries bordering on the China Sea, should by any laxity of inspection or control infected ships be allowed to pass the canal into the Pacific.

In the Psychiatric Section the most important discussion was that on "Psychoanalysis." Professor Janet of Paris read a paper scintillating with wit, explaining the doctrine of the new school of abnormal psychology, of which Dr. Freud of Vienna is the apostle, and subjecting his main position to severe criticism. The starting point of the work of Freud, as he has himself stated, was the work of Charcot and of Janet himself. The difference in the work of Freud and Janet appeared at first sight to be principally in the terms used. Janet criticised Freud for borrowing his terms and attaching new meanings to them. Janet pointed out that the originality of the doctrine of Freud lay in the fact that instead of stating that a sexual basis was found in some neuroses, it asserted that it was found in all. The discussion on some points seemed likely to become somewhat acrimonious. Dr. Coriat of Boston strongly maintained the value of psychoanalysis in leading to a cure, while Dr. Walsh of New York said that psychoanalysis had now a large vogue owing to the sex element being introduced, that being to the front in people's minds at present.

Failure of the heart was discussed at considerable length in the Section of Medicine. The discussion was opened by Professor Vaquez of Paris, who gave an account of the means of diagnosing heart failure and of deciding as to the precise way in which it had arisen. Professor Vaquez deplored the fact that it had not been decided which of the various forms of heart failure were immediately dangerous and which were likely to go on to recovery, and this is, of course, the point that both physician and layman would most wish to see cleared up. He referred to the cases of failure of the heart's action met with in the drinkers of large quantities of beer. These cases known compendiously, if not euphoniously, as "Munich beer hearts," or "Tübingen beer hearts," have not been observed in Britain, and seem to occur for the most part in Germany. A very similar condition of cardiac weakness, however, has been recorded in America and other countries as a result of the hard work and privations encountered by soldiers on campaign, and often requires a tedious convalescence before recovery is complete. Professor Wenckebach, who spoke successively in English, French, and German, pointed out the importance of considering the properties of the muscular substance of the heart in patients with heart failure. Many of the speakers drew attention to the injudicious prognoses so often given by medical men called in by patients who believe they have weak hearts. Even the greatest experts may, of course, make mistakes in the matter of cardiac prognosis, but it is satisfactory to learn that those mistakes are nowadays more likely to be mistakes of omission than of commision. Dr. Walsh of New York drew attention to the fact that nothing is more calculated to dishearten a patient than to be told that his heart is gravely affected. A paper was read by Dr. Libman of New York dealing with a subacute or chronic form of heart disease that is usually fatal within a year or two, and has not received adequate recognition hitherto. It has masqueraded under half a dozen different names, and has a certain relation with the heart disease that is so commonly associated with rheumatic fever. However, the particular interest of the matter lies in this, that there is an indication that a group of cases of heart disease due to a definite microbe, a streptococcus, has now to be separated from the unclassified mass of cases known by the noncommittal title of "malignant endocarditis."

Dr. L. F. Bishop of New York read a practical paper on the treatment of cardiosclerosis by a restriction in the variety of proteins in the diet and the occasional use of castor oil.

Naturally, a meeting of the character of the International Congress of Medicine would not be allowed to pass without a full discussion concerning the nature of cancer. In a combined meeting of the Sections of Chemical Pathology and Bacteriology the subject was fully, almost too fully, dealt with. Dr. E. F. Bashford, the Director of the Imperial Cancer Research Fund, gave an exhaustive account of the work done by himself and co-workers during the past year. Dr. Freund, Vienna, told how he had been able to demonstrate substances in the cells of normal tissues antagonistic to the development of cancer cells, and certain substances in cancer cells which stimulate these cells to further growth. The former substances prevent cancer, but the latter destroy the former, and, therefore, remove the bar to an overgrowth of cells and the consequent formation of malignant tumors. Dr. Clowes of Buffalo sketched his views with regard to the development of cancerous tumors. His idea is that the equilibrium of the cell depends on the equilibrium of its membrane, which in its turn depends on the equilibrium of the lipoid contents of the cells, or, in other words, on its electrolytic content.

In a joint session of the Sections of Obstetrics, Pediatrics and Hygiene, a debate took place on the causes of death among infants during the first four weeks after birth. Dr. A. K. Chalmers, Medical Officer of Health, Glasgow, referred to the heavy death rate among children, especially during the first month after birth, and said that two-thirds of the deaths could be ascribed to causes suggesting cell deterioration in the antenatal stage. There was a large group of children "born to die," and this was due to a strain of inefficient preparation for motherhood, or inability to beget healthy children, which was independent of surroundings. Dr. Koplik, of New York, affirmed the importance of prenatal influence and suggested that the low percentage of certified syphilis lay in the difficulties of diagnosis at that early age. Sir Francis Champneys suggested that the State should do more than it has done. Schools for prospective mothers would in the end prove a cheap investment for the State. Dr. Scharlieb urged that women doctors should act as missionaries in persuading pregnant women to submit themselves to systematic examination. Doctors and nurses were to blame for suggesting substitutes for breast feeding, the example of "the highest lady in the land" should be more generally followed. Dr.

John Thompson, Edinburgh, presented a report in the form of a paper dealing with infection of the urinary tract in children by the colon bacilli. Dr. Thompson's paper was perhaps the most valuable contribution to the Section of Diseases of Children, but was too long and too technical to be reviewed as its importance deserves in the space at your correspondent's disposal.

In the discussion on Poliomyelitis and Polioencephalitis Sir Thomas Barlow said that he remembered several years ago some of the familial groups which convinced him of the affinity of poliomyelitis with the infective catarrhs. With respect to the meningitic type he quite admitted that it was sometimes very difficult to discriminate. But he ventured to say that the head retraction in poliomyelitis when it occurred was generally temporary. It was often associated with severe pain in the back. He thought the study of epidemic poliomyelitis was most valuable in drawing attention to the occurrence of mild examples in which the amount of paralysis went to a vanishing point and completely cleared up in a short time. Dr. Gossage wished to call attention to the evidences of inflammation in other parts than the actual central nervous system. Dr. Netter had remarked on the association with meningitis and Dr. Batten had himself discussed the question of the possibility of polyneuritis. The occurrence of polyneuritis in cases of infantile palsy had been recorded by several observers, but the evidence offered of this had not been always conclusive. Mere pain and tenderness in the limbs was not sufficient as this might be due to disease only of the cord. Pathological evidence was wanting. Thus the only conclusive sign of implication of the nerves was the occurrence of anesthesia and this symptom was of great rarity.

A very full and excellently arranged exhibition was held in the Imperial Institute in connection with the Congress, at which all the principal drug manufacturers, surgical instrument makers, and makers of apparatus of every description of a medical or surgical nature were well represented.

With regard to the entertainments, as said before, they were so numerous as to be almost confusing; of those that your correspondent attended the garden party at Windsor Castle takes the first place. The invitations were limited to 2,000, and were balloted for. Visitors were conveyed to Windsor by special trains and on arrival at the Castle the guests were received by the Lord Chamberlain, on behalf of his Majesty. The apartments shown were the entire suite used when entertaining sovereigns paying visits of state. The guests passed out into the Italian Gardens, where the band of the Coldstream Guards was playing. On the East Lawn were large marquees, with champagne, ices, and delicacies of all kinds. The band of the Second Life Guards was playing here. The weather was beautifully fine. One of the most delightful receptions given was that by the President and Council of the Royal College of Surgeons of England, at the college. During the evening the band of the Royal Artillery played in Room 1, and a concert was given in the Lecture Theatre. Refreshments were provided in the Library. The Corporation of London gave a magnificent conversazione at the Guildhall, at which the reputation of the city for hospitality was well upheld. Sir Thomas Barlow as President of the Congress gave a dinner at the Savoy Hotel, at which some two hundred British and foreign members of the Congress were present.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 21, 1913.

1. The Need of Reorganization in the Methods and Teaching of Therapeutics. G. Blumer.
2. Vichy, Royat, Aix-les-Bains. Which? C. Mead.
3. Prognosis and Treatment of Compound Fracture of the Base of the Skull. A. C. Burnham.
4. Conclusions from an Experiment in Teaching Pharmacology. A. C. Crawford.
5. Description of an Abdominal Lumboiliosacral Support and Its Uses, Advantages and Limitations. H. W. Marshall.
6. Report of a Case of Phlegmon Starting as a Peritonsillar Abscess and Extending Downward, as Far as the Second Ring of the Trachea. G. L. Richards.

3. Compound Fracture of the Base of the Skull.—A. C. Burnham presents an analysis of 35 cases of compound fracture of the base of the skull admitted to the Presbyterian Hospital, New York, between June 1, 1908, and January 1, 1913. These cases all presented the classical picture of fracture of the base of the skull to which was added bleeding from the nose, mouth, or ear. Cases which were surely basal fractures, but in which there was some doubt as to the diagnosis of compound fracture, were not included in this report. Of these 35 cases 14 died and 21 recovered, a general mortality of about 40 per cent. Six cases died during the first forty-eight hours, all in primary shock from the injury received. Eight patients died after the third, and before the fifteenth day, after having partially or wholly recovered from the shock of the injury. Of the eight patients, five died of meningitis. Even in those patients who survive the primary shock following compound fracture of the base, there is still a high mortality—in this series 25.5 per cent. The treatment of compound fracture of the base of the skull may be divided into conservative and radical treatment. In the former the indications are to limit the hemorrhage and to combat shock. This is accomplished by rest in bed, usually with the head elevated, and by the employment of the ordinary measures to combat shock due to trauma. In the prophylaxis against infection, and the treatment of meningitis, should it occur, hexamethylenamin should be used. This drug was recommended on purely theoretical grounds by Crowe, in 1908, as specially indicated in the treatment of compound fracture of the skull. The operative treatment of fracture of the base is still in its infancy. In 1908 Cushing reported 15 cases of fracture of the base, on whom a decompression operation was done as routine. In these 15 cases there were only two deaths. He advocates the subtemporal decompression operation through the squamous portion of the temporal bone as a routine procedure in all cases of fracture of the base. Ransohoff, in 1910, reported 10 operative cases, with 7 recoveries and 3 deaths. In the present series four cases were operated on with 3 deaths. However, this procedure was not considered as a routine, but usually only when there were signs of markedly increased intracranial pressure. Quenu reports 7 cases with 7 recoveries, which were treated by daily lumbar puncture. In one case from 12 to 22 c.c. of fluid were removed each day, and eight punctures in all were required. The only other treatment was rest and the surgical care of any wounds which might be present. It would seem that this procedure might give good results and especially where, for any reason, a decompression operation is not advisable.

New York Medical Journal.

August 23, 1913.

1. Topography of the Bladder, with Special Reference to Cystoscopy. V. C. Pedersen.
2. The Modern Diagnosis and Treatment of Gynecological and Obstetrical Patients with Syphilis. J. Bentley Squier.
3. Surgical Indications of Certain Gastrointestinal Symptoms. J. Douglas.
4. The Importance of Serological Analyses in Neurology. D. M. Kaplan.

5. The Respirator: An Appliance for Resuscitation by Producing Enforced Artificial Respiration, Report of 163 Experiments. H. F. Tompkins.
6. Caesarean Section with Hysterectomy in Cases of Positive Infection. J. F. Baldwin.
7. The Appendix and Some of Its Diseases. H. H. Hielscher.
8. Carbon, Oxygen, Hydrogen Group, Plus Nitrogen or Nonnitrogenized and Nitrogenized Food. J. C. Densten.
9. An Unusual Case of Septicopyemia. W. B. Coffey, G. R. Carson, and W. T. Cummins.
10. Some Reasons for Advising No Delay in Operating All Forms of Hernia. J. Frankel.

2. **Syphilis in Gynecological Patients.**—J. Bentley Squier emphasizes the following points: The treatment should be begun at the moment the diagnosis is certain. To assure success it must be as intensive, as the history of the case and the patient's physical condition warrant. The time heretofore wasted in the discontinuing treatment and the performance of the Wassermann test during the early months of the disease may be very well employed, and to the patient's benefit, in endeavoring to eradicate the disease.

4. **Serological Analyses in Neurology.**—D. M. Kaplan concludes that the Wassermann reaction is not present in the spinal fluid in all cases of syphilitic and parasyphilitic disease of the central nervous system. The use of increasing amounts of spinal fluid for the Wassermann test ("Auswertungs Methode" of Hauptmann is a procedure capable of giving rise to nonspecific inhibition in patients who did not come in contact with this disease. Serologically all nervous diseases are divided into two general and easily distinguishable classes, the negative and positive types. The negative type represents the nonluetic nervous diseases, the positive type the syphilitic and the parasyphilitic diseases. In the positive type group further differentiation is possible by serological investigaton in cases in which physical differentiation is difficult, such as between general paresis and cerebrospinal lues. Active and proper treatment markedly alters the serological pictures in many of the positive types. Such alteration may go on to any extent, even to the reduction to a complete negative picture. The greatest change to the negative occurs in cerebrospinal lues and the least in general paresis. In the cell count in tabes may be found an index for or against treatment. Fully developed general paresis is best left untreated. Spinal cord compression from tumors or other causes shows a protein excess and an absence of pleocytosis.

7. **The Appendix and Its Diseases.**—H. H. Hielscher states that if the appendix is an organ at one time connected with digestion it is quite resonable to suppose that in some cases secreting glands still persist that under stimulation are capable of producing a substance as irritating and poisonous as the hydrochloric acid of the stomach. The effect of this fluid, poured into the empty and contracted appendix would be the same as that seen in those cases of fulminating appendicitis in which the reaction is intense. The ordinary case of appendicitis, under the present methods of treatment, is a benign disease. Even with rupture and abscess formation there are comparatively few deaths, but in spite of this fact there are occasionally cases that die before one has really settled down to any plan of treatment. These fulminating cases can be compared with cases of perforation of the stomach or duodenum. The sudden onset, the shock, the small, irregular pulse, the plain and rigidity in the hypochondrium, as the acid stomach contents trickle downward, strongly simulate a severe appendicitis. If the appendix be regarded as a vanishing organ of digestion still capable of producing under stimulation a digestive fluid, the latter may cause death, such as that which results from a strongly irritating chemical poison. There is only one method of treatment for such cases, and that is immediate removal of the appendix. It is a well-known fact that extraordinary results have followed in almost moribund cases in which sluicing with warm saline solution had been resorted to, following removal of the appendix, and even large quantities had been left in the abdominal cavity. This would be a logical treatment, though contraindicated in the ordinary cases of bacterial infection.

Journal of the American Medical Association.

August 23, 1913.

1. The Teaching of Therapeutics. R. L. Wilbur.
2. The Future of the Medical Man. J. G. Adami.
3. Surgical Pathology. W. C. Clarke.
4. Teaching of Otolaryngology. Report of Committee Appointed to Consider the Best Methods to be Followed in the Teaching of Otolaryngology in Undergraduate and Postgraduate Schools. J. S. Wishart, C. W. Richardson, and S. MacCuen Smith.
6. Care of the Umbilical Stump. A Bacteriologic Study. F. L. Adair.
7. Operative Treatment of Cancer of the Stomach. W. J. Mayo.
8. Experimental Transplantation of Intestine after Extensive Excesion of the Sigmoid. J. L. Horsley.
9. The Healing Process of Osteosarcoma under the Influence of the Roentgen Rays. G. E. Pfahler.
10. What Can be Done in Cancer with Roentgen Rays? W. A. Pusey.
11. Roentgenotherapy in Measured Massive Doses. S. Lange.
12. The Minimizing of Insanity. M. L. Neff.
13. Precocious Menstruation. F. P. Gengenbach.
14. The Use of Blood-Agar in the Routine Examination of Milk Sediments. F. W. Hachtel.

6. **Care of the Umbilical Stump.**—By F. L. Adair. (See MEDICAL RECORD, July 5, 1913, page 45.)

7. **Operative Treatment of Cancer of the Stomach.**—W. J. Mayo notes that it may be said that with one's present means of diagnosis, cancer of the pyloric end of the stomach can be recognized sufficiently early to perform the radical operation in at least half the cases. The mortality is about 10 per cent., depending largely on the class of cases accepted for operation. If an early diagnosis has been made and the patient is in good condition, the mortality will be less than 5 per cent. There is a prospect of a five-year cure in about 25 per cent., and of a three-year cure in 38 per cent., in the case of those who recover from the operation. Comparatively few patients who recover following resection fail to get more than one year of relief.

9. **X-Ray Treatment of Osteosarcoma.**—G. E. Pfahler concludes that osteosarcomas heal by a progressive deposit of lime salts in the tumor areas, until the tumor area attains the solidity and density of normal bone. This process usually begins within a month and is progressive for a year or more, continuing long after the roengeno therapy has been discontinued. In twelve cases treated by the author, including the inoperable and recurrent, seven, or over 58 per cent. of the patients have completely recovered and have remained well from five months to eleven years. One other patient had nearly recovered, interrupted treatment, and remained free from symptoms five months, when a recurrence followed traumatism. In only one case was there on improvement. Skilful treatment should be given in any inoperable case and should follow when operation seems advisable. When operation will result in deformity or serious loss of bone, roentgenotherapy should be tried for at least a month. The treatment should be given by some on ewho is familiar with the technique of deep roentgenotherapy.

10. **X-Ray Treatment of Cancer.**—W. A. Pusey believes that the effects of Roentgen rays on cancer tissues and clinical experience indicate the use of the agent in cutaneous epitheliomas, and in localized inoperable cancers near the body surface; and, further, that the same facts constitute a logical demand that the Roentgen rays be used as a measure of prophylaxis after operations on localized cancers near the surface of the body. The author specifies localized cancers near the surface, because experience has shown that in cases in which the disease has become widely disseminated, and in cancers located in the deep cavities of the body, the Roentgen rays are practically without any avail.

13. **Precocious Menstruation.**—By F. P. Gengenbach. (See MEDICAL RECORD, June 28, 1913, page 1101.)

The Lancet.

August 16, 1913.

1. Address in Pathology: On Chemotherapeutics: Scientific Principles, Methods, and Results. Paul Ehrlich.
2. An Address on Heredity. W. Bateson.
3. Address on the Relationship between Medicine and Public Health. John Burns.
4. Theories of Immunity and Anaphylaxis. A. Besredka.
5. The Dosimetric Method of Administering Chloroform. H. W. Buxton.
6. Infection of the Urinary Tract in Children by the Colon Bacillus. J. Thomson.
7. The Clinical Application of Pathological Chemistry. O. Folin.
8. Ophthalmic Progress in Egypt. A. F. MacCallan.

1. **Address in Pathology: Chemotherapeutics.**—By Paul Ehrlich. (See MEDICAL RECORD, August 30, 1913, page 406.

2. **Heredity.**—By W. Bateson. (See MEDICAL RECORD, August 30, 1913, page 407.

3. **Medicine and Public Health.**—By John Burns. (See MEDICAL RECORD, August 30, 1913, page 408.)

4. **Immunity and Anaphylaxis.**—A. Besredka states that in 1907 he wrote as follows: "Anti-anaphylactic vaccination when obtained by the peritoneal or cerebral route is probably a phenomenon of the same class as the disintoxication of the tetanic brain by antitetanic serum performed *in vitro*. Vaccination thus reduces itself to dissensibilization and would cause the guinea-pig to return to its primitive state, the anaphylactic immunity being only the immunity that the guinea-pig normally possesses against the intracerebral injection of serum." Nothing need be added to-day to these words. In fact, since it has been perceived that the anaphylactized guinea-pig became vaccinated immediately, and that after one injection, it became plain that anti-anaphylactic immunity had nothing in common with immunities against microbes and toxins. Antitoxic or antimicrobic immunity is only produced in eight days or so at the least, its permanency corresponds to the number of injections, it is accompanied by the appearance of the antibodies in the serum, and does not protect against inoculations into the nervous centres. Anti-anaphylactic immunity, on the other hand, can be established by one injection, that is to say, it is instantaneous; it is accompanied by the disappearance of antibodies, and extends its influence to the nervous centres of the brain and spinal cord. The single common point between the two immunities, otherwise so diametrically opposed, is their specificity. It is the desire to convey in one word all these characteristics, which are so much opposed to current ideas in immunity, that the term anti-anaphylaxis has been coined; and to avoid confusion the term should be strictly preserved for cases of rapid vaccination, perhaps with one single weak injection, perhaps with a series of "subintrant" injections, and following closely upon each other.

6. **Colon Bacillus Infection of the Urinary Tract in Children.**—J. Thomson, in discussing the treatment of this condition states that in ordinary acute cases the first indication is always to ensure a free discharge of urine, usually by giving large quantities of fluid to drink. If the patient refuses to drink enough, the fluid must be administered through a stomach-tube or by the rectum. The second indication is to see that the bowels move adequately. The best drug for this purpose is probably sodium phosphate, because it helps in the alkalinization of the urine. An occasional dose of calomel is also often beneficial. The other important forms of treatment are: (1) Alkalinization of the urine; (2) administration of antiseptics; and (3) the use of serums and vaccines. The aim of the alkaline treatment is to render the urine alkaline, and to keep it so for a week or two after all the pus has disappeared, and the signs of uneasiness have ceased. Generally one should begin with 60 grains of potassium citrate per day if the patient is under two years old, and it will often be desirable to give double this amount. Occasionally 150 or 180 grains in the day have to be given before the urine becomes definitely alkaline and the temperature falls. Sometimes large doses set up diarrhea; and when this is the case the neutralizing effect on the urine is necessarily weakened. Occasionally the urine becomes alkaline within a day or two after beginning the treatment; generally in four or five days; rarely six or seven days, but never longer. The effect of the alkaline treatment is best estimated by studying the temperature charts; because, when the fever lessens, the other symptoms practically always improve. The fact that great benefit follows the alkalinization of the urine in acute cases of *bacillus coli* infection of the bladder, ureters, and pelvis is quite established. Antiseptics given by the mouth may act beneficially in two ways. In the first place they may lessen the infected state of the urine by their bactericidal action in the alimentary canal. In many cases of pyuria from *bacillus coli* infection a dose of calomel is followed by a distinct temporary improvement. The disinfectant action of the mercury in the intestine apparently improves the state of the urine by lessening the number of bacteria which are leaking into it from the bowel from time to time. Salol, in doses of 2 to 4 grains three or four times a day, is often helpful. It is of most use when given in addition to the alkaline treatment, especially in the later stages. Urinary antiseptics, such as urotropin and its various derivatives, which act directly on the bacteria by liberating formaldehyde in the urine, have proved of great value in the treatment of urinary infection by the typhoid bacillus and certain other organisms. They are, however, disappointingly ineffectual in most cases of colon bacillus infection. Vaccines the author has used in a few cases, but with disappointing results.

British Medical Journal.

August 16, 1913.

1. Address in Pathology: On Chemotherapy. Paul Ehrlich
2. Address On Heredity. W. Bateson.
3. Address on the Relationship between Medicine and Public Health. John Burns.
4. The Necessity for a More Thorough Control of the Milk Supply in Combating Surgical Tuberculosis in Childhood. H. J. Stiles.

1. **Address in Pathology.**—By Paul Ehrlich. (See MEDICAL RECORD, August 30, 1913, page 406.)

2. **Heredity.**—By W. Bateson. (See MEDICAL RECORD, August 30, 1913, page 407.)

3. **Medicine and Public Health.**—By John Burns. (See MEDICAL RECORD, August 30, 1913, page 408.)

4. **Surgical Tuberculosis and the Milk Supply.**—H. J. Stiles has long been convinced that the reason why surgical tuberculosis is so prevalent among children in England is (1) because of the prevalence of tuberculosis in dairy cows, and (2) because it is the exception rather than the rule to sterilize the milk. Now that notification of all forms of tuberculosis is compulsory, and now that the Tuberculosis Order has made provision for a uniform veterinary inspection of cattle throughout England, it will be interesting to compare the incidence of tuberculosis in the cows with the prevalence of surgical tuberculosis in the children of the corresponding districts. The stamping out of bovine tuberculosis among dairy cows will, in the long run, prove to be a more economical method of dealing with surgical tuberculosis than the building of special hospitals for its treatment. The treatment of surgical tuberculosis by conservative means is, on account of its long duration, a very costly procedure, hence the maxim that prevention is better than cure applies with particular force to tuberculosis.

Berliner klinische Wochenschrift.

August 11, 1913.

Treatment of Complications of Gonorrhea with Besredka's Method of Sensibilized Vaccine Virus.—Gruveilhier contributes an original article on this subject from

the Paris Pasteur Institute. This method dates back to 1902 when its author began to test a weakened vaccine in typhoid, plague, cholera, rabies, diphtheria, etc. The present author now reports that the method is of great value in the treatment of the complications of gonorrhea, which conspire together to form "such a fearful malady." After abundant animal experiment had shown the harmlessness of the sensibilized antigonococcus vaccine virus, the latter was tested upon mankind, the serum being prepared from goats' blood. Epididymitis was the first complication tested, and it was learned that the severe pain, the redness, heat, and tension may be controlled within from twelve to forty-eight hours. Several patients were able to resume their work in thirty-six hours after the first injection. The benefit in arthritis seems to have been less marked.

Chemotherapeutic Treatment of Pneumonia in Mankind with Ethylhydrocuprein.—This plan of treatment was thought to have proved a failure both per se and because of a by-effect analogous to quinine amaurosis. However, Vetlesen, of Christiana, has been using it in a series of cases to the extent of limiting its use to the first day or two of the disease. Thus a man aged forty-four was admitted to the hospital with the diagnosis of croupous pneumonia. The chill had but just occurred with the stitch in the right side. Physical signs of beginning pneumonia, sputum not yet rusty, and general conditions not implicated. Pulse, temperature, and respiration high. Ethylhydrocuprein chloride given early on the second day, half a grain t. i. d. Crisis following night. Despite the great improvement the local symptoms were not much influenced. Pain kept on and the physical signs were unaltered for two or more days. Eventually, however, he recovered, having been under treatment nine days. The amount of drug used was 9.5 gm. In eight other patients there was the same early crisis, while another occurred on the fourth day and may be reckoned here. In a single case defervescence did not occur until eight days. The author is inclined to regard failure as indicative of the presence of tuberculous pneumonia. Concluding, the author expresses a high regard for the drug as a jugulator of croupous pneumonia when given early.

Clinical Significance of Spina Bifida Occulta.—Bibergeil concludes that thus far the defects which make possible this malformation have not been sufficiently heeded. This is the more difficult to understand, because the *x*-rays have been available for years for the solution of the problem. Hypertrichosis has often served to throw suspicion on the possibility of spinal defects. The author, however, has found this sign very untrustworthy. Urinary incontinence is evidence of more value, as well as peculiar anomalies of the feet and toes, which cause them to assume unnatural positions, and point to some affection of the lower cord. Yet spina bifida occulta occurs most frequently without any of these stigmata.

Münchener medizinische Wochenschrift.

August 12, 1913.

Rupture of the Uterus Following the Oxytocic Use of an Extract of Hypophysis.—Espeut relates the following case. An viii-para was admitted to the hospital who had been six hours in labor, membranes ruptured four hours before admission. Pelvis slightly contracted, with head fast in pelvic entrance. Pains every ten minutes, not very strong. General condition good, child's life evidently in danger. It was thought that an oxytocic would enable the uterus to clear the obstruction, so that a European extract of hypophysis was injected. The pains, however, were not strengthened in consequence, so that after ninety minutes a second injection was given. Five minutes later pains became very violent causing great agony. She collapsed in the midst of these and the uterus was found to have ruptured. Infant also stillborn. The drug was clearly given on wrong indication, for, despite the slight degree of contraction, the disproportion between head and pelvis was not to be overcome in this manner.

Perforation of the Uterus by a Foreign Body.—Zimbler reports a case of what was once regarded as rare in literature, howsoever often it may be in fact. Patient married and had borne three children. She was not known to be pregnant, although she had gone five weeks without menstruation, which had evidently led her to attempt an interruption of the supposed pregnancy. The author was summoned to treat a miscarriage, but instead found that the long goose quill introduced into the uterus had perforated the latter's fundus, its end in contact with the peritoneum. The author removed the quill and curetted the uterine cavity, bringing forth the remains of an ovum. The woman escaped infection. The singularity of the case lay in the ability of the patient to pass the quill throughout the uterus, and that it lay there for a day or more without causing a reaction. Many forensic authorities have denied such a possibility outright, so that suspicion with them in such a case falls on a second person.

Pathology and Therapy of Diabetes Insipidus.—Benario, an assistant of Ehrlich, sums up his study of this subject as follows: The posterior lobe of the hypophysis is of importance for the pathogenesis of this affection. In a case described a syphilitic gumma in this locality caused a disturbance. The variability of the affection can be connected with the evolution and involution of the gumma. Antiluetic medication may or may not act specifically and when it is ineffective we may understand that the gland has become sclerosed. Syphilitic infection must reach the hypophysis through the lesions of basilar meningitis, but, according to Arnozan, this is not the sole way, for it could also coexist with disease of the sphenoid bone. In tertiary syphilitus with polyuria, the nasopharynx must be carefully examined for this possibility, because of the frequency of gummata in this locality.

Herpes Zoster in the Lumbar Region.—Gueit reports a case of this condition in a fifteen-month-old infant. He points out the rarity of herpes zoster at this age and alludes to the peculiar character of the eruption in his case, in which its confluence into parallel lines gave it an unusual appearance. The eruption ran its course in three weeks without pain or fever. The author attributes the cause of the eruption to a coincident facial eczema and a chronic gastrocnteritis.—*Montpelier Médical.*

Left Recurrent Laryngeal Paralysis, Probably Due to Dilitation of the Left Auricle.—E. D. Davis reports the case of a woman, aged 40, who had well-marked mitral stenosis with hemoptysis and failure of compensation. In 1908 she had been treated for loss of voice, by rest in bed and faradization of the larynx, and after treatment for two months the voice returned. In March, 1911, she again complained of loss of voice and stated that she had been sent to Margate for bronchitis and hemoptysis and that the sputum had been examined for tubercle bacilli with a negative result. She had been in bed for three weeks, but there was no improvement in the voice, though the bronchitis was better. An examination showed more or less complete paralysis of the left recurrent laryngeal nerve with slight adductor movement and a little laryngitis. The *x*-ray screen revealed dilatation and displacement of the heart to the left and an opaque posterior mediastinum. Rest in bed improved the laryngitis but not the paralysis. —*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

The Influence of Vital Statistics on Longevity.—Dr. Watson S. Rankin, Secretary, North Carolina Board of Health, says that vital statistics to increase longevity must be available as a remedy for the treatment of sick bodies politic—sick towns, sick cities, sick countries, and sick States. Applied vital statistics, with all the emphasis on the qualifying term, is the most essential and powerful remedy for the improvement of the health of social organisms, for bringing about sanitary reform, for preventing disease, for postponing death, and for adding years to the duration of the average life we possess. Rankin points out the physiological action of applied vital statistics on a sick social organism, by showing the four effects obtained through this method, together with the corresponding results. The first effect of applied vital statistics on a sick town, county, or state is to restore consciousness. A sick town, city, or community is rarely or never conscious of its illness and has to be awakened to the fact through its individual members and municipal government. The best way in which to apply this remedy is in the form of charts. These should be made for each sick community and published in that community and this failing desired results, the charts should be given to the papers for publication. In this way community pride, where community intelligence is lacking, will be awakened through adverse outside criticism and results obtained. The second effect is the inauguration of sanitary reform. This can be brought about by the passing and carrying out of correct health laws and the publication of monthly bulletins from the various boards of health. The third effect of the remedy is but a consummation of the second effect, a responsible health officer. The physician undertaking the duties of health officer should be required to devote his entire time to the work, to the exclusion of all private practice. The fourth and most important action of the remedy is its effect in furnishing an efficiency standard of health work. Health work that is worthy the name means the prevention of disease; this in turn means the prevention of deaths; the prevention of deaths means one of two things: either the retention of an average death rate or the reduction of a high death rate. Applied vital statistics furnishes the only check the people can have on their health officer, the only means by which they can discriminate between the true and the counterfeit. If at the end of each registration year the counties and municipalities of the state are tabulated in the order of the lowest to the highest death rate and this tabulation published, a restoration of health consciousness will be effected. In the same issue the names of the county and municipal health officers could be published in the order of their influence on the death rate and this means would have a desired influence in maintaining a high standard of efficiency among health officers. In conclusion, Dr. Rankin says, the physiological effect of applied vital statistics on sick social organisms would be (1) to restore the civic health consciousness, (2) to enforce sanitary reforms where such reforms are most needed, (3) to result in the employment of responsible health officials, and finally (4) to apply that great fundamental law of nature, the survival of the fittest, to the selection of health officers.—Association of Life Insurance Presidents, New York City, December, 1912.

Marriage and the Death Rate.—In a recently issued bulletin from the offices of the Equitable Life Assurance Company of New York, a comparison of the death rate of married and unmarried persons is made. The agents of the company have computed that there are in this country 8,102,000 males over 20 years of age who are unmarried, and 9,000,000 unmarried females over 15 years of age, and it is assumed that after due allowance is made for the impecunious, the aged, and the mentally and physically unfit, at least 6,000,000 of these males are capable of assuming the responsibilities of married life. An analysis of the mortality statistics of married and unmarried people shows that the death rate among the unmarried of both sexes is much higher than among the married. The following table is based upon the statistics for New York State with the exception of Buffalo and New York City:

Age.	Death Rate Unmarried Men. Per Cent.	Death Rate Unmarried Women. Per Cent.
20—29	57 greater	18 less
30—39	119 greater	17 greater
40—49	105 greater	22 greater
50—59	69 greater	37 greater
60—69	60 greater	32 greater
70—79	39 greater	34 greater

The Examiner as a Factor in the Conservation of Health.—J. T. Battle, Medical Director, Southern Life & Trust Company, Greensboro, N. C., states that the greatest desideratum in this life is that it may continue. This desire is shared equally by the young man, the man of middle age, and the old man in his dotage. Yet there are few who will learn and live by the laws of health and thus prolong their days. To the insurance examiner is given the privilege as well as the opportunity to spread a knowledge of the physical conditions coming under his observation, and thus to give aid in the early cure or relief of diseases usually not recognized until almost beyond help. In this way he aids decidedly in the conservation of the health of a community. The author contends that the work of educating the examiner is not so much academic in its nature as it is ethical, though the importance of a thorough medical training must not for a moment be lost sight of. Steady, persistent, concentrated effort should be made to drive home the simple fact that life insurance companies are in earnest about wanting thorough, conscientious examinations. The examiner must be made to realize that only such work will obtain with his company. His reports must be based on facts which he, himself, has discovered, by actually propounding the questions in the blank—every one of them—and by such physical tests as he may be called upon to make. So many ways are open to the medical examiner to be of service to his community and not the least of these lies in his knowledge of the occupational diseases. Here he can help the people by preventing sickness and also assist the owners of factories in keeping up the health of their employees. Dangers arising from the dust, animal, vegetable, mineral or chemical, according to the class of goods manufactured, can be pointed out and guarded against; correct methods of ventilation can be shown; the importance of properly built tenement houses and of the correct disposal of sewage can be emphasized.—Medical Section, American Life Convention, February, 1913.

Book Reviews.

Mind and Health, with an Examination of Some Systems of Divine Healing. By Edward E. Weaver, Ph.D., Sometime Fellow in Clark University. With an introduction by G. Stanley Hall, Ph.D., LL.D., President of Clark University. Price $2.00 net. New York: The Macmillan Company, 1913.

This book was written by a layman for the laity and the profession. It is "especially offered to those, on the one hand, who maintain an exclusive religious healing, and to those, on the other hand, who disdain religious healing of every kind." Both classes would do well to read it. They will find a very temperate and fair discussion of the influence of the mind upon health, and an examination into the more important systems of healing of a religious character. The question as to whether the various systems of divine healing and of mental healing have anything in common or are fundamentally at variance is discussed in a comprehensive and judicious way. The scope of the work includes, first, a psychological discussion of consciousness and subconsciousness and the theories of mind. Second, the principles and technique of psychotherapy. Third, value and reality. Fourth, religious systems of mental healing, including Christian Science, Emmanuel Movement, etc. Fifth, what constitutes a valid religious system of healing, and how the church may heal. There is a valuable bibliography at the end of the book covering many of the later works on neurology, physiology, psychology, psychotherapy, value and reality, and miscellaneous books, including philosophical and religious. Both the strong points and the weaknesses of the various systems of "religious healing" and "scientific mental healing" are pointed out in "Mind and Health," and the book seems to serve a definite purpose in an attempt in an unusually broad way to bring some sort of harmony in a field where little may as yet be said to exist.

Freud's Theories of the Neuroses. By Dr. Edward Hitschmann of Vienna. Authorized translation by Dr. C. R. Payne, Westport, N. Y. With an introduction by Ernest Jones, M.D., M.R.C.P., of London. Price $2.00. New York: The Journal of Nervous and Mental Disease Publishing Company, 1913.

In the original text this book has been favorably received, both abroad and wherever German is easily read. It contains in condensed form the present standpoint of Freud's teachings, and is intended really only as a review. The translation has apparently been well made; and the English reader who wishes a quick and accurate orientation of the subject cannot do better than to seek for it here. Freud's theories are really conclusions based on definite data of experience. They are not in any sense subjective opinions. His theories, as well as his methods, have undergone a gradual evolution and probably will continue to do so until eventually psychoanalysis shall come into extended use. Hitschmann has been a veritable Boswell in the reproduction of Freud's views in his book. Freud's own words are employed by him as often as possible. The scope of the work comprises chapters on the general theory of the neuroses; the sexual instinct; the unconscious; the dream; hysteria; the obsessional neurosis; the psychoanalytic method of investigation and treatment; general prophylaxis of the neuroses; and application of psychoanalysis. There is a chronological review of the Freudian writings at the end of the work; also a list of references to publications in English.

A History of Nursing. From the Earliest Times to the Present Day with Special Reference to the Work of the Past Thirty Years. Edited, and in Part Written by Lavina L. Dock, R. U., Secretary of the International Council of Nurses, Graduate of Bellevue Training School, New York City. In Four Volumes. Volumes 3 and 4. With numerous Illustrations. Price $5.00. New York and London: G. P. Putnam's Sons, The Knickerbocker Press, 1912.

Volumes 1 and 2 of this work written by Miss Dock in collaboration with M. Adelaide Nutting, were brought out in 1908, and reviewed in the Medical Record at the time. The first two volumes dealt with the evolution of the methods of care for the sick from the earliest times to the foundation of the first English and American Training Schools for Nurses. Volume 3 continues the narrative except that Miss Dock is sole editor and discusses nursing in Great Britain, in the United States, in Northern Europe, and the evolution of nursing in French hospitals. The fourth volume is concerned with German nursing, with nursing work in Switzerland, Holland, Belgium, Italy, and Spain, Canadian nursing, the nursing sisters of the Orient, and the hospitals and nurses of Cuba and the Philippines. The books provide a fund of information written in an interesting manner, are well and profusely illustrated, and can be recommended from the standpoints of instruction and general interest.

Sviluppo delle Cavità Accessorie delle Fosse Nasale. Dal 1 Sino al 24 Anno. Dimonstro con Sezioni Anatomiche (Development of the Accessory Sinuses of the Nasal Fossa, from the first to the twenty-fourth year. Shown with the Aid of Anatomical Sections). Pel Prof. Luigi Vittorio Nicolai, R. Universitá di Pavia. Con un Atlante di 28 Tavole annesso al presente Fascicolo (With a Supplementary Atlas of 24 Plates). *Archivio Italiano di Otologia, Rinologia e Laringologia*, Torino, March, 1913.

The leading article of the March, 1913, number of the *Italian Archives of Otology, Rhinology and Laryngology* consists of a study by Professor Nicolai of the development of the accessory sinuses of the nose from infancy to adult life. The most valuable part of this important contribution to anatomy and rhinology consists of the atlas of twenty-eight superb plates. The first four of these consist of pen and ink drawings showing the skull and a series of planes cutting it in such manner as to provide various views of the accessory sinuses of the nose. For each year of life up to the twenty-fourth year there is a separate plate showing seven photographs of as many sections of the skull. These sections consist of three transverse vertical, two horizontal, and two anteroposterior vertical sections. With wonderful clearness these photographs show the development of the various sinuses from year to year. The text describes this development for each sinus separately. There is also an explanatory guide to the atlas. Thus it is shown that during the first years of life the frontal and sphenoidal sinuses have not yet developed; the maxillary sinus is in relation to the inner and inferior wall of the orbit; and the ethmoidal cells are disposed in a single plane near the cribriform plate of the ethmoid. The frontal sinus first appears in the third year of life. In this manner, from year to year, there is shown the size, the shape and the direction of the various sinuses and their relation to one another and to surrounding parts. The study is a most valuable one, and the paper and atlas should be in the possession of all who are interested in the subject of the nose and its accessory sinuses.

How to Collect a Doctor Bill. By Frank P. Davis, M.D. Price, $1.00 net. Newark, N. J.: Physicians Drug News Company, 1913.

The contents of this little book fall far short of what the ambitious title would lead one to expect. The second half consists of a digest of the exemption laws and the statute of limitations in each State and therefore possesses a certain value.

Electro-Therapeutics for Practitioners. Being Essays on Some Useful Forms of Electrical Apparatus and on Some Diseases which Are Amenable to Electrical Treatment. By Francis Howard Humphris, M.D. (Brux.), F.R.C.P. (Edin.), M.R.C.C. (Eng.), L.R.C.P. (Lond.), L.M. (R. of Dublin), President of the American Electro-Therapeutic Association, Vice-President of the Brussels Medical Graduates' Association, Fellow of the Royal Society of Medicine, Fellow of the Hunterian Society, Member of the Roentgen Society. Illustrated. Price $2.40 net. New York: Longmans, Green & Co. London: Edward Arnold, 1913.

This small book is not to be regarded as a text book on electrotherapeutics but to give information as to some useful forms of electrotherapy, and to indicate those diseases in which this branch of therapeutics is most generally useful. The chapter on the treatment of obesity is especially good; it is claimed that the Bergonié method for treating this affection not only reduces the superfluous adipose deposit but has a reinforcing effect on the circulation. Referring to blood pressure, or high arterial tension, a condition from which many persons not old in years suffer from nowadays, it is stated that D'Arsonvalization has a wide sphere of usefulness. In the high tension associated with rheumatism, gout, chronic alcoholism, and many other diseases, even in arteriosclerosis, it is claimed that a reduction in blood pressure can be obtained. The book is well printed and illustrated and appears to amply fulfill the purpose which its author intended it to fulfill.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Twenty-fifth Annual Meeting at Washington, D. C., May 5, 6, and 7, 1913.

THE PRESIDENT, DR. JOHN LOVETT MORSE OF BOSTON, IN THE CHAIR.

Second Day—Tuesday, May 6.

Mucous Cyst of the Cecum in a Child Ten Weeks of Age, Producing Occlusion of the Ileocecal Valve, and Simulating a Case of Intussusception. Resection of the Gut. Death on the Twelfth Day.—Dr. A. D. BLACKADER, of Montreal reported this case. He said that the infant had been in good health for the first two months of its life, but since then had suffered from persistent vomiting. A sausage-shaped tumor, three inches in length by one in diameter, freely movable in the lower right quadrant of the abdomen, was recognized and immediate operation advised. Distinct peristaltic waves were recognized traveling toward the site of the tumor. At operation the tumor was found to involve the lower portion of the ileum and cecum. Above the mass the ileum was much distended, while below the ascending colon it was collapsed. Believing that it was an ileocecal intussusception, careful efforts at reduction were made, but failed. A resection was performed with an end to end anastomosis and the abdomen closed. There were no symptoms of shock after the operation and for several days the condition was good. On the tenth day the pulse became weak, the face assumed an earthy hue, and the features became drawn. Death from peritonitis occurred on the twelfth day. The pathologist's report showed that the tumor consisted of the cecum with its contained cyst and the appendix. The cyst measured 2 c.c. in diameter and contained glairy mucoid material. It was situated on the wall of the cecum opposite the iliocecal valve, and obstructing that orifice. The cyst was regarded as a retention cyst arising either from faulty development or from inflammation and occlusion of the mouth of the original gland. No case similar to this had come to the attention of the author, though he had found two cases in the literature that had a certain similarity and several that had an associated interest as the clinical symptoms were similar, though the pathological findings were different.

A Case of Bilateral Hydroureter—Chronic Pyocyaneus Infection.—Dr. HENRY HEIMAN reported this case. Dr. Heiman said that the patient was a child five years of age, who became suddenly ill with fever, headache, and vomiting, and a few days later blood appeared in the urine and stools. He was admitted to Mount Sinai Hospital four months after the appearance of these symptoms. The urine at this time contained many pus cells, but no blood appeared in the stools. The urine showed the presence of the *Bacillus pyocyaneus*. A blood culture taken a week later was negative. After a week the bladder was catheterized and irrigated and the catheter was allowed to remain *in situ* so as to observe whether the immediately succeeding urine was turbid. This proved to be the case. An injection of pyocyaneus vaccine was administered. The blood count had been taken one hour before and one hour after the administration of the vaccine and showed an increase in leucocytes and small lymphocytes, and a slight increase in polymorphonuclears and eosinophiles. A cystoscopy was done a few days later and it was found that the right ureter was slit-shaped and the left ureter had rigid walls and was circular. A purulent fluid was seen to some from the left ureter. The indigo carmine injection was negative on both sides for forty-five minutes. In catheterization of the ureters, obstruction was met one inch from the bladder. Specimens of urine were collected from each side, that from the right being clear, while that from the left showed 0.2 per cent. urea and many pus cells. There were no tubercle bacilli. The treatment consisted chiefly of autogenous vaccines. These were administered at periods of a week or ten days. In all, five injections were given, the first two doses containing fifty millions bacteria, after which the dose was increased the two succeeding times by fifty million, and then on the last occasion by twenty-five million. The child was discharged within a month apparently well. An examination of the bladder made about ten days after his discharge from the hospital showed a moderate degree of diffuse cystitis, and both ureteral orifices were patulous. The left orifice was enormously dilated. From these appearances a presumptive diagnosis of hydroureter was made and the possibility of dilatation of the pelves of both kidneys suggested. After the introduction of argyrol into the bladder an *x*-ray picture was taken which showed the peculiar tortuous course of the left ureter, and the peculiar shape of the renal pelvis. No obstruction was found either by the cystoscope or by the use of a silk catheter. After considering the distinguishing points of congenital and acquired hydroureter, the writer stated that he believed that in this case they were dealing with a case of anomalous dilatation of the ureters and pelves of the kidneys of anomalous origin, or with an acquired type of hydroureter due either to a paralytic condition of the bladder or to an obstruction of the urethra. Results of permanent valve were not obtained by the use of the pyocyaneus vaccine.

Dr. MAYNARD LADD of Boston asked in what position the child was placed when the argyrol was injected into the bladder.

Dr. HENRY HEIMAN of New York replied that the child was in the Trendelenberg position. These cases should not be spoken of as merely pyelitis, but the nature and causation of the infection should be indicated.

Cases of Edema in Infants.—Dr. HENRY DWIGHT CHAPIN of New York said that it was well known that the local and general edemas seen in early life were not all due to nephritis, but had been accounted for in various ways. Some years ago the writer had reported a series of 86 cases, in 75 of which albumin was found in the urine in small amounts. In a series of 57 cases of pulmonary diseases, traces of albumin were found in 49. This did not predicate the presence of actual renal disease, but rather an irritation of the renal tubules accompanying a slight congestion and having no special significance. Edema in infants was not to be considered as due to nephritis simply because a small amount of albumin was found in the urine. Of the 21 cases which the writer now reported, blood examinations were made in 12, and six showed mild secondary anemia; three showed normal or high red blood cell count. The urine was examined in 19 of these cases. Albumin was absent in nine cases, and a heavy trace was occasionally present in one instance. There was no sugar in any of them. There were occasional granular and hyaline casts. The duration of the disease was from three to twenty-one days. There were seven deaths in the series, three from malnutrition, two from bronchopneumonia, and one each from cerebrospinal meningitis and pericarditis with effusion. The cases that might show edema might be roughly classified into those cases of difficult digestion, malassimilation, and diarrhea, which might produce toxins that would induce a vasomotor paralysis. It had been suggested that the condition might be due to the retention of salts in the tissues, but Humes, in observations on two normal cases and two of edema, failed to discover any difference between the salt exchange in the two groups of children. These edemas with intestinal disturbance were probably analogous to the urticarias. The second class of edemas was seen in various exhaustive conditions, such as prematurity, marasmus, extreme secondary anemia, edema neonatorum, and in prolonged debilitating diseases. A third class might be that accompanying constitutional diseases, as syphilis, tuberculosis, pertussis, erysipelas, etc. Or again, it might be of an angioneurosis of vasomotor origin.

Dr. L. E. LAFETRA of New York said that he had met with a number of cases of this condition following digestive disturbances in which the children had been on very thin diet, such as barley water, and, in his opinion, a lack of proteid was a factor in producing the condition. Since *Eiweiss milch* had come into use he had seen fewer of these cases of edema. As soon as these babies were put on skimmed milk they improved rapidly.

Dr. MATTHIAS NICOLL, JR., of New York said that he had seen two cases which were typical of some sort of infection; he felt confident that they were not idiopathic edema.

Dr. A. D. BLACKADER of Montreal said that he had seen a few cases of gastroenteric disease in which edema was a late symptom, and they had seemed to him to be due to a deficiency in proteid feeding. With an increase in the amount of proteid they improved. In these cases there was a definite mortality. Edema coming on late in gastrointestinal disease was a dangerous symptom. He had seen seven or eight cases which had proved fatal.

Dr. H. M. MCCLANNAHAN of Omaha recalled a case of edema in a child seven months of age. The child had had eczema at the age of six months and had been fed on rice water. The hemaglobin was 60 per cent., and the edema seemed to be due to secondary anemia. The child was put on a heavier diet and the condition cleared up and the urine showed no albumen. The edema was due to faulty feeding in this instance.

Dr. FRITZ B. TALBOT of Boston said that owing to the

fact that salt metabolism was not understood it was probable that the answer as to the etiology of these edemas would not be forthcoming for many years. Salt metabolism was so mixed with the metabolism of other food constituents that it was different to say which element in the food was producing the effect. Dr. Talbot cited the case of one child, getting 0.7 salt, who would have drowned of acute edema had not a physician been present who drained the lungs by inverting the child.

Dr. Henry Dwight Chapin of New York said that nephritis presented a number of problems with reference to its etiology. The cases that he had seen in which the condition was the result of digestive disturbances the name applied was a matter of choice between the terms edema, angioneurotic edema, or purpura.

Dr. H. T. Machell of Toronto said that he had had a series of six babies with edema and all recovered but one. The fatal case was the only one which showed any change in the urine. They were practically all feeding cases.

Dr. John Lovett Morse said that he could say with Lord Dundreary that "This is one of the things that no man can find out."

Dr. Henry D. Chapin of New York said that in regard to the question as to whether the condition was due to an obscure nephritis or was dependent upon the blood, it seemed to him that there was evidence that neither the blood nor the kidneys had anything to do with it. He believed that it was due to a condition of exhaustion, but to something else as well. It should be considered as a serious or terminal condition and serve as a warning of a fatal outcome. In a large number of cases it was due to starvation, but before they could understand it they must know more of salt metabolism. It was important that one should watch carefully for the symptoms of this condition and if they appeared feed up the baby.

Needle in the Left Ventricle of the Heart (X-Ray).—Dr. William P. Northrup of New York reported this case. He said that a puny, pale-faced, undersized, female child was brought to the dispensary of Bellevue Hospital. After the examination she was sent up for demonstration purposes as a case of congenital heart disease. There was a purring thrill and the writer thought that the case was one of those exceptional ones in which there was no cyanosis. The murmur was heard everywhere over the front of the chest, but rather loud over the belly of the left ventricle. An *x*-ray plate was made which seemed to show a needle in the ventricle, but the operator thought there must be some mistake and took several other pictures, all of which seemed to show the same thing. There was no hope from an operation and no hope that the child would live without one. While the surgeons were debating as to how they could get the needle the child developed bronchitis. She recovered from this and was sent into the country to recuperate. She returned in a short time with a pneumonia and died within twenty-four hours. The needle was found free in the left ventricle, butt-end downward. The point stuck up between the cusps of the mitral valve. The point that was free in the auricle had scratched the endocardium freely, but only in a small area. The needle was slightly corroded, but there was not much antemortem clot about it. The apex of the heart was adherent to the pericardium over an area the size of a quarter of a dollar; there was also a roughening of the pericardial surface about the adhesions. On the under side of the pericardium was a streak of rust showing the course by which the needle had traveled from the abdominal cavity to the ventricle. The needle had entered the body by way of the skin, presumably at the time of a fall a year previously.

Demonstration of Modified Mackenzie's Ink Polygraph.—Dr. Walter Lester Carr of New York gave this demonstration. He said that the records obtained by the sphygmographic tracings were liable to many variations, particularly in children. These variations were due to the movement of the arm of the instrument and the personal equation incident to the operator. He had found that by enlarging the roll and changing the surface of the paper the excursion of the pen recorded more accurately and lessened the errors. The smoked paper was replaced in this apparatus by a smooth paper that took ink readily, and the recording pens were made larger than the capillary tubes recommended by Mackenzie. The personal equation of the operator could be overcome only by experience and by making the polygraphs under the same or as early as possible the same conditions. This modified Mackenzie polygraph had the advantage over the original instrument in the width of the paper, the three tambours, and the recording pens. With the three tambours, the radial, cardiac, and carotid pulsations might be recorded simultaneously and comparisons made in the cardias and vascular tracings. Like all instruments, it was not absolutely exact, but it should be used to further accuracy in the study of cardiac and vascular disease.

Three Types of Occlusion of the Esophagus in Early Life.—Dr. Thomas Morgan Rotch of Boston read this paper. He said that in view of the rarity of this condition it seemed rather a coincidence that three cases of narrowing of the esophagus should have entered the same hospital wards in such a brief period. The first case occurred in a boy twenty-five months of age. The *x*-ray picture taken after a bismuth meal showed narrowing of the lower third of the esophagus. The stricture was approached by a funnel-shaped narrowing, while the upper part of the esophagus was slightly dilated. The child lost rapidly in weight. The stricture was so small that it seemed dangerous to attempt to dilate it. Gastrectomy offered the only hope of relief. An operation was performed and the child died. This was an extreme case of congenital organic occlusion of the esophagus, a type which was inoperable and almost universally fatal. The second case was of a type more favorable for treatment. It represented a type of probable congenital narrowing, not necessarily of organic lesion in the esophagus, but caused by congenital central spasm resulting in dilatation of the esophagus above the point of narrowing. The patient in this instance was a girl, ten years of age, who gave a history of vomiting and distress. The esophagus was passed and encountered orange pulp in which was entangled a penny. There was marked dilatation of the lower third. The third case was that of a boy, five years of age, who did not vomit so long as he was fed on liquids or soft solids. The bismuth meal and *x*-ray pictures taken at intervals showed nothing in the chest, and the bismuth passed into the stomach and intestine, showing that there was no pyloric stenosis. The stomach tube met with some resistance at a point 24 c.c. from the incisors; the resistance, however, was passed and the tube entered the stomach. The tube was passed once daily for two weeks, after which time food was taken without vomiting. There was a relapse in this case. It seemed that there were two classes of these cases, both congenital, but one dependent on a localized organic condition, while the other was functional.

Dr. J. Crozier Griffith of Philadelphia said that in cases like the first one reported nothing could be hoped from operative treatment, as the esophagus was reduced to a cord and there was a tendency for the body of the esophagus to open into the trachea which caused the child to choke when an attempt was made to swallow.

The Future Study of the Anatomy and Physiology of the Infant Stomach Based on Serial Röntgenograms.—Dr. Godfrey R. Pisek and Dr. L. T. LeWald of New York presented this communication. They stated that all the radiographs were made with the child in the vertical position, with the plate at the uniform distance of twenty-four inches from the anode. The exposures were all instantaneous and taken at the height of inspiration. The bismuth subcarbonate was used mainly, in the proportion of 10 grams to 100 c.c. of feeding. From these röntgenograms it appeared that the form of the stomach depended upon the age of the child, and the character of the food ingested, but on account of the imperfect apparatus they did not find that the *x*-ray gave them any help in studying the functional ability of the stomach. They had tried to determine the normal size and shape of the infant's stomach, its relation to the neighboring organs, the influence of the internal organs on this viscus, its behavior under different amounts of food, the influence of different types of food as liquid or solid, acid or alkaline, its peristaltic action, motility, the passage of food through the gastrointestinal canal, and the application of this knowledge to certain pathological conditions. They had been forced to conclude that there was no definite normal type of stomach in the infant. It was horizontal rather than vertical when compared with the adult types and followed certain rather definite forms. Its shape did not depend directly on the amount or character of the food ingested, but rather upon the amount of gas which the stomach contained or acquired. Its limits were greater than they were accustomed to believe; it extends to the liver on the right and at times filled the entire transverse space from one abdominal wall to the other. In the majority of cases the pylorus was found comparatively high and behind the pyloric third; at times its position could not be determined even though it could be clearly seen that the food passed out of the viscus. They had observed a change from the tobacco pouch to the bagpipe variety af-

ter the intestines had been emptied. In some cases the gas acted as a buffer preventing the overdistention of the stomach with food. In a number of instances bismuth was seen in the duodenum one minute after the food had been introduced into the stomach by gavage, the average time being five minutes. After the greater part had passed through the emptying action became slower. Except in instances where semi-solid food or cream were fed the viscus tended to empty itself with unsuspected rapidity. They also questioned the advice of those who recommended four hour feedings for infants, since a large number of stomachs emptied themselves in one hour. In abnormal cases such as chronic disturbances of nutrition the emptying time was even shorter. In one series of röntgenograms the retarding action of alkalies was shown. Their observations tended to confirm those of Grutzer and Sick that foods in the stomach did not tend to intermix. The normal stomach tended to expel its gas soon after the entry of food; it tended to envelop and surround the food and to diminish in size. There were many observations dealing with food in the intestines which needed close study, particularly in connection with the disturbance of bowel function so frequent in early life.

Dr. Maynard Ladd of Boston said that he wished to congratulate Dr. Pisek on the excellence of his *x*-ray plates. No one could appreciate better than he the difficulties of getting pictures of infants. The amount of work involved was very great, but, on the other hand, the röntgenograms gave a great deal of information in regard to the gastric condition. In his work he had had the child lie on the back or stomach but he had found that the position of the stomach was different according as to whether the child was in the horizontal or the vertical position. The stomach might be emptied to a considerable extent in one and one-half to two hours, but in order to completely empty it the time varied up to four, four and one-half, or even five hours if the child was not subjected to another feeding. The subsequent feeding gave rise to a tendency on the part of the stomach to contract. The stomachs of infants and children showed a great lack of peristalsis; the rhythmical peristaltic waves of the adult were wanting.

Dr. Henry Dwight Chapin of New York said that he had recently studied two babies that had been given the barium meal, after which radiographs were taken at regular intervals. It was found that the barium reached the rectum in eight hours. The ingested meal began to leave the stomach almost immediately, though it was several hours before the stomach was emptied. In studying the bowel it was found that the barium went through and reached the cecum in a few minutes and in one case it even when through the ileo-cecal valve in this short time. Röntgenography had opened a great field for the enlargement of their knowledge of the intestinal tract, both in respect to its anatomy and to its physiological functions.

Dr. Fritz B. Talbot of Boston asked what became of the gas in the stomach when food was ingested, and, also, if the babies cried from handling when they were being prepared for exposure. He said he had heard that crying and coughing made some difference as to time in which the stomach emptied itself.

Dr. David Murray Cowie of Ann Arbor, Mich., asked in what position the infants were just before the pictures were taken. He called attention to the fact that in his picures one could usually see the duodenal cap and one could not see it in Dr. Pisek's pictures. This brought up a point in diagnosis, for duodenal obstruction would not show when the patient was in the prone position.

Dr. Henry Heiman said that he wished to call attention to widely varying capacity of the stomachs of different infants; they varied all the way from a capacity of 30 to one of 180 grams. Dr. Pisek had shown this perfectly.

Dr. A. D. Blackader of Montreal asked if from the emptying time of the stomach any inferences could be drawn as to the type of feeding.

Dr. David Murray Cowie of Ann Arbor, Mich., said that the condition when the test meal had been administered was not comparable to that of the normal stomach. It might be interesting to take pictures when the bismuth was enclosed in a capsule and compare it with those in which it was mixed in the food.

Dr. Godfrey R. Pisek of New York in closing the discussion, said that when food was ingested the gas had a tendency either to be expelled upward or to be forced downward before the food as the stomach contracted on the food. In cases where there was much gas a concentrated food was indicated. It seemed to him that the vertical position gave better röntgenological results than the horizontal. The children were kept in the horizontal position and as quiet as possible before the pictures were taken, but unfortunately he had no record as to which babies were quiet and which one crying just before the pictures were taken. The weight of the bismuth was not a factor. Alkalies had the effect of delaying the emptying time of the stomach. Sometimes there was a deposit of bismuth left and he had tried to withdraw this, but it would just get into the tube, but he could not get it, so he had added water and thus recovered the bismuth and had found that the quantity was very small.

Why Does the Operation for Adenoids Frequently Fail to Relieve Mouth Breathing?—Dr. H. M. McClanahan of Omaha, Neb., read this paper. He stated that the opinion prevailed largely among the medical profession and the lay public that mouth breathing meant adenoids and that their ablation would be followed by certain relief. For many years he had noticed that the relief afforded by adenoidectomy varied greatly in different cases; in some it was very slight, in others very prompt and decided. He concluded that a careful examination of the case before operation would determine with a reasonable degree of certainty the degree of relief that would follow the removal of the adenoids. Where there was a deformity in the superior maxilla, a frank statement of the facts would relieve the operator from unjust criticism. Where anatomical defects existed, the parents should be apprised of the facts and given the opportunity to have corrective treatment instituted by the orthodontist. The best evidence of such defect was mal-coaptation of the teeth.

Dr. Henry Heiman of New York said that they all saw these cases and it was a good thing to send them to the orthodontist for treatment; it usually took from one to two years to have the condition corrected.

Dr. Henry Dwight Chapin of New York said that for some years he had been noting the high gothic arch, and, where this existed, an operation for adenoids did not offer much hope of relief so far as the breathing was concerned. There were many cases which should not be operated upon.

Dr. Walter Lester Carr of New York said that he thought it was unfortunate if the child fell into the hands of the orthodontist first. One point was often overlooked and that was that there was a widening of the throat at the base of the skull with the growth of the sphenoid bone and in the course of developmental changes also of the maxillary bone, and hence some correction would come with the growth of the child.

Dr. L. Emmett Holt of New York called attention to one cause for the lack of success after operations in some of these cases and that was the narrowing of the posterior pharynx by the prominence of the vertebral bodies.

Dr. H. M. McClanahan of Omaha said that for the past six years he had been emphasizing the point that where there was lack of coaptation of the teeth it was advisable to tell the parents that there were other abnormal conditions present beside adenoids and that it was possible that operation would result in failure.

A Case of Hydrophobia.—Dr. Alfred Hand of Philadelphia reported this case. The patient was a young boy and the diagnosis was made before the severer symptoms of the malady appeared because of the inability of the patient to swallow water and the extreme distress that the attempt to drink occasioned.

Dr. Matthias Nicoll, Jr., of New York said that two years ago he had met with a case of hydrophobia in a boy twelve years of age. He had been bitten three weeks previous to the time that Dr. Nicoll had seen him and had one treatment. So far as Dr. Nicoll could see the boy had nothing particular the matter with him, but Dr. Poor saw him and said that the boy had rabies. He had pain in his arm and the upper part of his shoulder. Finally the boy was given a swallow of water whereupon he grabbed his throat and gave a shriek. He said that he had sat by an open window in a car and become chilled and the same thing happened. The boy died later, but the way in which Dr. Poor made the diagnosis had impressed him.

Third Day—Wednesday, May 7.

Parotitis Complicated with Meningitis.—Dr. George N. Acker of Washington, D. C., read this paper. He stated that some of the writers had observed that parotitis was complicated by meningitis when orchitis occurred, yet in children in whom orchitis rarely occurred meningitis had been noted in a number of cases. The classical description of meningitis could not be given to the meningitis complication of mumps. Even when all the symptoms were present they usually took a variable course. Nervous complications were tolerably frequent, due to the involve-

ment of both cerebral and peripheral nerves. A meningeal reaction might manifest itself on the second or third day after the swelling of the parotids appeared, though it sometimes supervened later. The meningitis manifested itself by a rise in the temperature, headache, insomnia, and general discomfort. As a rule the pulse did not increase in rapidity in proportion to the rise in temperature. In exceptional cases the symptoms were more severe. Lesions of the nerves were sometimes consequent to the meningitis and sometimes occurred independently of it. A Monad had proved that in infants attacked by parotitis a lymphocytosis of the cerebrospinal fluid as abundant as that of tuberculosis meningitis was present in six out of eight cases. This disease was capable of determining an appreciable change in the meninges. The fluid was clear with numerous lymphocytes the same as in tuberculous meningitis. There was a small amount of albumen, but no fibrin. In these cases lumbar puncture was useful, not only as a diagnostic measure, but also as a therapeutic measure, the severe symptoms yielding soon after its employment. The quick onset would differentiate this form of meningitis from tuberculous meningitis and by the clear fluid and absence of meningococci it could be differentiated from cerebrospinal meningitis. The meningitis generally disappeared rapidly, though the motor paralysis might last for a long time, but would finally disappear. The deafness and atrophy appeared to persist. This form of meningitis might be followed by the development of very alarming symptoms and by permanent damage to important organs or it might even end fatally. Among the sequelæ of the disease might be mentioned peripheral neuritis and paralysis of the extremities lasting for months. The meningitis of mumps, while not common, occurred often enough to make one employ careful measures during the first two weeks of the disease. Dr. Acker reported two cases of mumps complicated by meningitis that had come under his observation and reviewed the cases reported in the literature.

Dr. JOHN LOVETT MORSE of Boston related a case of mumps with this complication which occurred in the son of a physician. The paralysis came on rather suddenly and one physician had diagnosed it as a poliomyelitis. There was a complete absence of reflexes, but no rise in the temperature and the bladder and rectum were not involved. The condition lasted for two weeks, and by the end of six weeks the child had completely recovered. There were few such cases reported in the literature. With the degree of toxmia so often present it was surprising that they did not get more of them. Some of the cases supposed to be meningitis might be multiple neuritis. The paralysis seemed to be like that of diphtheria.

Dr. MATTHIAS NICOLL, JR., of New York asked Dr. Acker whether a culture had been taken in the second case that he had reported. Dr. Acker attributed the mumps to the diplococcus, but he thought that the cause of mumps had not been definitely established.

Dr. GEORGE N. ACKER of Washington, D. C., said that an examination of the culture in the second case had not yet been made, but that this would be done.

Tumor of the Cerebellum.—Dr. SAMUEL S. ADAMS of Washington reported this case. He said that the patient was a colored boy, nine years of age, whose family history was negative as to tuberculosis, syphilis, and epilepsy. Both parents were alcoholic. On October 1, 1912, he began to complain of loss of appetite and constipation. He soon become stuporous. There was no dyspnea. A few moist rales were noted in the supra and infraclavicular regions, but the boy did not cough. The blood examination showed hemaglobin 100 per cent.; leucocytes 10,300, and red cell count 6,500,000. The knee reflex was absent on the right side, while on the left it was slightly obtainable. Babinski's sign, ulnar reflex, and ankle clonus were absent. Both lower extremities were weak, though not entirely paralyzed. The patient could flex and extend both legs, but not the feet. The muscles in the lower extremities were slightly rigid, but wasting was not noticeable. The muscles of the neck, however, were rigid and there was a torticollis. As to vision, ptosis was marked. The pupils were dilated and did not respond to artificial light. The opthalmoscope showed marked optic neuritis and almost choked disc. The right eye showed opacities so that the fundus could not be seen. Hyperesthesia was marked in portions of the lower extremities and there were anesthetic points over the upper extremities, and the trunk. The spinal fluid contained no microorganisms and no tubercle bacilli. The boy developed urinary incontinence and the stupor lasted for four months, until March 13, when he died. In the latter part of his illness he was found to be a diphtheria carrier. Autopsy showed a condition of great emaciation and contracture of all the skeletal muscles of the extremities. There was a large abscess in the right side of the head, reaching down to the bone and through the periosteum. The heart and lungs were normal. The intestinal glands were infiltrated with what seemed to be tubercles. The brain showed an increase of fluid in the ventricles and in the subdural spaces. There was a large thrombosis in the dural veins. The left lobe of the cerebellum was adherent to the base of the skull. The normal tissue had been destroyed by the inflammatory process, either syphilis or tuberculosis, most likely the latter. The tumor of the cerebellum consisted of a tubercular mass. There was a fungoid mass in the anterior lobe of the cerebellum and the pia arachnoid was thickened, fibrous, and calcareous. The lymph nodes were an extensive tubercular mass.

Dr. WILLIAM P. LUCAS of Boston asked if the Wassermann test had been made.

Dr. SAMUEL S. ADAMS of Washington, D. C., replied that the test had been made and the child had been on specific treatment, but without any effect.

The Retention of Calcium by Infants and the Factors Influencing This.—Dr. JOHN HOWLAND of Baltimore read this paper.

Dr. L. EMMETT HOLT asked what was the probable explanation as to the production of rickets, whether it was the condensed milk alone or with the barley water that was the cause. Almost all children fed on condensed milk showed evidences of rickets.

Dr. JOHN HOWLAND said that undoubtedly there were other factors concerned in the production of the condition known as rickets besides a lack of absorption and retention of calcium. If an animal was deprived of calcium it developed, not true rickets, but pseudorickets. In rickets there was something that compelled the excretion of calcium even when it was ingested in sufficient quantities, but in feeding condensed milk it was received in insufficient amounts. Dr. Howland said that he had no idea as to the essential cause of rickets; it might result from a diet high in any of the elements, carbohydrates, fats, or proteids.

Dr. L. EMMETT HOLT suggested that in his next experiments Dr. Howland should put some children on condensed milk and compare the results with those obtained from other methods of feeding.

Dr. FRITZ B. TALBOT of Boston said that he did not think that children ever acquired pseudorickets, but that animals did.

A Contribution to Our Knowledge of the Excretion of Phosphates in Infancy.—Dr. J. H. MASON KNOX, JR., and MARTHA TRACY of Baltimore presented this contribution. After reviewing the conclusions of other investigators who had studied the subject of phosphorus excretion in infants, Dr. Knox said that their series of observations here reported were made at the Thomas Wilson Sanatorium for Children, and that they added considerably to the published data on this subject. Their object in undertaking the study was to find out if Moll's observations as to the clinical significance of phosphorus excretion in the urine of breast-fed infants would hold good for artificially-fed infants. Moll believed that when there was a low phosphorus excretion conditions were satisfactory, while an increased phosphorus excretion was a sign of digestive or nutritional disturbance. They confined themselves to the study of the nitrogen and phosphorus excretion of the urine, in correlation with the phosphorus and nitrogen in the diet. For phosphorus determination the uranium titration method was employed throughout the uranalyses. The author presented a table showing the intimate bearing of the diet on the phosphorus excretion. In the cases in which the phosphorus and nitrogen of the urine were not parallel an unusual dietetic reason was present. Their experience in many of their cases had impressed upon them the value of at least one twenty-four-hour metabolism bed observation on every child admitted to the hospital. Only in this way could accurate knowledge of the kidney function be obtained. They were confident that in a number of instances a toxic condition was properly related to the kidney insufficiency rather than to the intestinal condition only by the metabolism bed procedure. Such a routine practice in a large hospital for babies demanded a large staff of competent nurse maids, but the accurate diagnosis thus obtained warranted the care involved.

Experimental Scorbutus and the X-Ray Diagnosis of Scorbutus.—Dr. FRITZ B. TALBOT, with the assistance of Drs. Walter Dood, Chandler Foote, and Hugo O. Peterson of Boston, made this study. Dr. Talbot said that Holst, von Fürst, and Frölich, Scandinavian investigators, had made innumerable experiments on guinea-pigs in an effort to determine the cause of scorbutus. They had produced typical microscopic and macroscopic lesions which corresponded with scurvy and scorbutus in the human being. Other writers had criticised their work, saying that

their results were due to inanition and not to scurvy. They had answered this objection by producing inanition in guinea-pigs without causing scurvy. Clinically the guinea-pigs' teeth became loose, the gums swollen and reddened, and hemorrhage eventually appeared around the bones and in the muscles. The pigs died in from four to seven weeks after the diet was instituted. The writers of this paper had repeated this experiment in order to get rontgenograms showing the white line which was found in infantile scorbutus and which they considered diagnostic of the condition. This white line was first described by Frankel and ran transversely across the lower end of the long bones. This line might be straight or crooked and corresponded pathologically to that obtained by the x-ray. Under the microscope it appeared as an area of increased density. It could not be obtained when there was a complete union of the epiphysis and diaphysis. For this reason it was obtained on only one or two of the younger guinea-pigs. The very young guinea-pigs that weighed under 300 grams died before there was any evidence of scurvy. The writers had also repeated the work of Dr. Hart with monkeys and had obtained changes which were pathologically very suggestive of scurvy. They had also obtained a very definite and typical white line at the diaphyseal junction. (X-ray illustrations were shown.) When scurvy was complicated by rachitis the end of the diaphysis was ragged and had a teased-out appearance as though it had been teased with a needle. There was also enlargement of the ends of the bone. This condition was typical of rickets and presented a condition which had no connection with scurvy. The white line was typical of scurvy, but had no connection with rickets. This white line was probably the most important and the earliest means of diagnosing scurvy.

Dr. Henry Heiman of New York said that in children of all ages scurvy was caused by the lack of fresh food; it was a disease of imperfect metabolism and was somewhat paralleled by beriberi, which was caused by a diet of polished rice and had a predilection for the nervous system. Dr. Heiman asked how this line differed from that seen in hereditary lues.

Dr. William P. Northrup of New York asked Dr. Talbot if, in his innermost mind and to his best judgment, he believed that this was a reliable test for scurvy. If it was made with controls, and if one felt sure that rickets was not present it might be reliable. Was it really of early diagnostic value?

Dr. Fritz B. Talbot of Boston said that the white line under the microscope took on a deep blue stain very different to the stain in normal bone and a stain that represented increased density. He had been under the impression that beriberi was caused by the lack of some chemical substance in the rice grain. He had not seen the white line in hereditary lues, but accepted the authoritative statements on that subject and believed that it did come in hereditary lues. He also believed that this was a practical diagnostic sign in scurvy and was of practical value in cases that did not have the clinical signs. In some cases it was a question whether one was dealing with a low-grade rachitis, osteomyelitis, or scorbutus. Rachitis and scorbutus were so often associated that it was difficult to get the condition on the plate alone without the broadening and teased out appearance of the long bone.

Therapeutic Measures in Cardiac Cases.—Dr. W. P. Lucas of Boston read this paper, which was a study of the effects of strychnine and caffein upon the heart in children. He stated that digitalis had been tested both experimentally and clinically, and there was little doubt as to its value. There was conflicting evidence from the side of the pharmacologist and the clinician in regard to the value of strychnine. In his study he had experimented with normal children and with those suffering from endocarditis, the result of rheumatic fever. The children having endocarditis were given little or no medication for the first few days after admission to the hospital for the purpose of observing the effects of rest. They were given some one cardiac stimulant for a definite period, sometimes digitalis and sometimes strychnine. All the effects were carefully noted, and it was found that strychnine was practically of no effect when given in the ordinary doses in which it is prescribed for children. It was only when doses amounting to one-tenth of a grain or more were given (either in one dose or in a quick succession of smaller doses) that any appreciable effect was noted, and then the effect appeared within thirty minutes and disappeared in two hours. In four cases he had studied the effect of caffein sodium benzoate as a stimulant. In ordinary doses of one-fourth to one-half a grain hypodermatically or by the mouth it produced no apparent effect; only in doses of two or more grains given hypodermatically did it produce any appreciable effect, and then the effect was slight and of short duration. Dr. Lucas concluded that strychnine and caffein in the doses usually employed for cardiac stimulation were of no value. It was only when the maximum doses were used that they obtained an effect, and this effect was usually of short duration. Whether this was a beneficial effect was even questionable in children with cardiac involvement. It might be as Dr. Sollman had suggested, that strychnine stimulation made the heart work harder and that it should not be used as a cardiac stimulant. Its effect in conventional doses on respiration was of no value; in large doses it did not appear to slow respiration to a point where there were toxic symptoms of increased hypersensitiveness of the reflex arc, or where the heart action became more rapid and the blood pressure fell. Dr. Lucas in his blood pressure experiments in normal children obtained results which were similar to those of Cook.

Dr. William P. Northrup of New York said that at the New York Foundling Hospital where the ages of the children ranged from birth to twelve years, he had done, perhaps, two thousand autopsies, and, including the work of his associates, from four to six thousand had been done, and yet they had observed but one case of acute endocarditis. That one seemed to be due to general bacteremia. No matter how bad the first attack was there was hope for recovery and the prognosis was good. Young hearts were strong and recovered easily. In recurrent attacks it is another matter. He cited one case in which the endocarditis was so severe that it might have been called a panendocarditis, and yet the boy entirely recovered and was today a long-distance runner and a swimmer.

Dr. Linnaeus E. LaFètra of New York said that the prognosis was better in the early years of childhood than later, because it was easier to keep the young children in bed and quiet and to impress the parents with the necessity of this course than when older children were concerned. Aside from aortic lesions, it made little difference about the others. Sometimes there were several lesions combined. In regard to the effect of frequent attacks as relating to fatal termination, attention had not been called to the relation of these attacks to tonsillitis. If one could get the tonsils in good condition the recurrent attacks might be forestalled. In most of these cases the tonsils ought to be entirely enucleated.

Dr. Henry Heiman of New York said that tonsillitis, rheumatic fever, and chorea were three diseases that had a seasonal incidence, being more frequent in the spring and fall, and also conditions in which one attack predisposed to another. The principal manifestation of rheumatic fever might be acute endocarditis and portal congestion. He believed that in rheumatic fever the relapses were due to reinfection just as the relapses of typhoid fever were due to reinfection.

Dr. H. M. McClanahan of Omaha said that one important question in this connection had not been discussed and that was the influence of cardiac conditions on the general body growth. Another point that no one had called attention to was that in the cases that had apparently recovered the area of cardiac dulness was larger than in normal hearts.

Dr. Charles Hunter Dunn of Boston, in closing the discussion, said that the average age of the children was nine years. Fifty-five out of 173 died, but there were 58 cases of pericarditis, and in these there was a mortality of 31 per cent. In those cases of the series due to other causes the murmur disappeared, but in the rheumatic cases it had not disappeared and the area of dulness persisted. As to the tonsils he had omitted them from his paper, but he advocated their removal after the first attack of endocarditis.

Studies on the Incubation Period.—Dr. David Murray Cowie of Ann Arbor, Mich., read this paper which was limited to the study of the incubation period of serum sickness. Dr. Cowie thought that the following conclusions might be drawn: 1. The clinical incubation period of serum sickness was characterized by two stages, a preallergic and an allergic stage. 2. The same biochemical phenomena occurred in all individuals injected with horse serum whether or not cutaneous symptoms were seen. 3. A small dose of horse serum sensitized an individual to a subsequent injection as determined by the intradermal test, but a large initial dose caused a greater sensitization up to a certain point, beyond which sensitization apparently might not be increased. 4. An individual who had once passed the preallergic stage almost invariably reacted promptly to a second injection of horse serum as

shown by the intradermal test. 5. Horse serum particles floated in the blood stream unchanged for many days, at least its *allergen* portion.

Election of Officers.—The following officers were elected for the year 1913-1914: *President*, Dr. Samuel McC. Hamill of Philadelphia; *Vice-President*, Dr. Matthias Nicoll, Jr., of New York; *Secretary*, Dr. Samuel Adams of Washington, D. C. *Treasurer*, Dr. C. H. Dunn of Boston; *Editor and Recorder*, Dr. Linnaeus LaFétra of New York.

The next place of meeting will be New London, Conn.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

COLORADO STATE BOARD OF MEDICAL EXAMINERS.

April, 1913

ANATOMY.

1. Describe the upper end of the tibia.
2. Name the bones of the carpus and describe one of them.
3. Describe the temporomaxillary articulation.
4. Name the muscles attached to the radius.
5. Give the origin, insertion and nerve supply of the following muscles: masseter, tensor vaginæ femoris, diaphragm, soleus, sternomastoid.
6. What spinal nerves enter into the formation of the anterior crural nerve and what muscles does it supply?
7. Give a brief description of a cross-section of the spinal cord in the cervical region.
8. What are the relations of the right kidney?
9. Name the valves of the heart and describe one of them.
10. Describe the prostrate gland.

PHYSIOLOGY.

1. What purpose is served by the valves in the veins, and where are they most generally placed?
2. (a) Describe respiration and what keeps it going? (b) What is its object? Define complemental, reserve, and residual air.
3. Describe the location at which the different heart sounds can be heard the plainest and tell what produces each sound.
4. Why does the normal temperature of the body remain the same during cold and warm weather?
5. What are the principal morbid effects of division of the fifth cranial nerve?
6. Give the origin, shape, size, and functions of the white corpuscles.
7. What are starches, how, when and where digested and carried into circulation?
8. Distingnish serous from mucous membrane, give example of each.
9. Describe the construction of the eye, and give the physiology of vision.
10. Mention the various methods of eliminating waste products of the body.

CHEMISTRY.

1. Define and give examples of (*a*) Organic Chemistry; (*b*) Inorganic Chemistry.
2. Give the formula, preparation, and a test for nitrate of silver.
3. Give the sources of oxygen, and its relation to combustion and to life.
4. What are aldehydes? Give their properties and principal derivatives.
5. Give the general properties of alkaloids.
6. Give an explanation of the formation of ammonia in urine.
7. Give two chemical tests for blood.
8. Define bilirubin, with test for its presence.
9. Give test for excess of hydrochloric acid in gastric contents.
10. How is an excess of urates determined?

TOXICOLOGY.

1. If you were called in to a case with the following symptoms what would be your diagnosis as to cause?

Immediate loss of muscular power; giddiness, person staggers and falls to the ground; respiration hurried and gasping; pupils dilated and insensible to light; eyes glassy and protruding; extremities cold, and sometimes convulsions; breathing performed in sobs; face pallid; jaws spasmodically closed; frothing at the mouth; death occurs by violent convulsions.

2. Having thus diagnosed the above case, what would be your treatment if you saw case before death?
3. What do you understand by neurotic poisons? Explain.
4. What are the symptoms?
5. Give symptoms of poisoning by chloral hydrate.
6. Treatment and post mortem appearances.
7. Give symptoms of one asphyxiated by burning charcoal.
8. Give post mortem appearances.
9. Give symptoms of one poisoned by oxalic acid.
10. Give treatment of one poisoned by oxalic acid.

SYMPTOMATOLOGY.

1. Describe vesicular breathing; contrast it with bronchial breathing; tell where each may be heard in health. What is the significance of bronchial breathing in an area in which vesicular breathing is normal?
2. What are the causes, symptoms, and signs of purulent pleurisy?
3. Name the animal parasites of man, and tell what symptoms they cause and how their presence is proved.
4. What are the causes of hematemesis; how is it distinguished from hemoptysis?
5. Describe the symptoms and complications of scarlet fever.
6. Give the symptoms, complications, and diagnosis of cerebrospinal fever.
7. What is natural immunity? Acquired immunity? Discuss the nature of immunity.
8. Give the symptoms of arthritis deformans.
9. What are the causes, symptoms, and physical signs of dilatation of the stomach?
10. What is the symptomatology of acute endocarditis?

ANSWERS.

ANATOMY.

1. The *upper end of the tibia* is expanded into the two tuberosities (internal and external), which articulate with the condyles of the femur. Between the two superior articular surfaces is the spine of the tibia. On the anterior surface, immediately below the tuberosities, and centrally placed, is the tubercle of the tibia, to the lower half of which is attached the ligamentum patellæ. Posteriorly the tuberosities are separated by the popliteal notch, in which are inserted the posterior crucial ligament and posterior ligament of the knee joint. To the inner tuberosity is attached the Semimembranosus muscle; to the outer tuberosity, the Tibialis anticus, Extensor longus digitorum, and Biceps.

2. The *bones of the carpus* are: Scaphoid, semilunar, cuneiform, pisiform, trapezium, trapezoid, magnum, and unciform. The *trapezoid* is the smallest bone in the second row; it is wedge-shaped, the base forming the dorsal surface, and the apex the palmar surface of the bone. It has four surfaces, the upper articulates with the scaphoid, the lower with the second metacarpal, the external with the trapezium, and the internal with the os magnum.

3. The *temporomaxillary articulation* is a ginglymoarthrodial joint formed, *above* by the anterior part of the glenoid cavity of the temporal bone and the eminentia articularis, and *below* by the condyle of the lower jaw. A plate of interarticular fibrocartilage lies between the bony surfaces. The ligaments are the external lateral, internal lateral, stylomandibular and capsular. There are two synovial membranes, one above and the other below the interarticular fibrocartilage. The movements are: Depression, elevation, forward and backward movement of the lower jaw.

4. The *muscles attached to the radius* are: Biceps, Supinator brevis, Flexor sublimis digitorum, Flexor longus pollicis, Pronator quadratus, Pronator radii teres, Supinator longus, Extensor brevis pollicis, and Extensor ossis metacarpi pollicis.

5. MASSETER. *Origin:* From malar process of superior maxilla, and zygomatic arch. *Insertion:* Into angle, outer surface of ramus and coronoid process of lower jaw. *Nerve-supply:* Inferior maxillary division of fifth cranial nerve.

TENSOR VAGINÆ FEMORIS. *Origin:* From crest and anterior superior spine of ilium and from fascia covering gluteus medius. *Insertion:* Into the outer side of the thigh between the two layers of the fascia lata; it is continued down to the external tuberosity of the tibia as the iliotibial band. *Nerve supply:* The fourth and fifth lumbar and first sacral nerve through the superior gluteal nerve.

Diaphragm is *attached* to the ensiform, to the internal surfaces of the lower six costal cartilages, to the bodies and intervertebral discs of the first, second, and third lumbar vertebræ. *Nerve-supply:* The phrenics, lower intercostals, and the phrenic plexus of the sympathetic.

Soleus. *Origin:* From back of head of the fibula, and upper part of the posterior surface of shaft of fibula; from oblique line of tibia, and middle third of internal border of tibia. *Insertion:* Into lower part of posterior surface of os calcis. *Nerve supply:* Internal popliteal and posterior tibial.

Sternocleidomastoid. *Origin* Upper and anterior part of manubrium, and inner third of upper border and anterior surface of clavicle. *Insertion: Mastoid* process of temporal bone and outer half of superior curved line of occipital bone. *Nerve supply:* Spinal accessory.

6. The anterior crural nerve is *derived from* the second, third, and fourth lumbar nerves (sometimes also the first and the fifth). It *supplies* the Iliacus, Pectineus, Sartorius, Vastus externus, Vastus internus, Crureus, Subcrureus, and Rectus femoris.

7. The *spinal cord, in the cervical region.* In transverse section the outline of the cord is transversely oval; in the middle of the cervical swelling the transverse diameter being nearly one-third longer than the anteroposterior diameter. The posteromedian cleft is very deep and extends beyond the center of the cord; the anteromedian cleft is shallow. The gray matter is greatly increased in quantity in the cervical swelling, the anterior horn is thick and massive, the posterior horn being slender in comparison. The lateral horn is only evident above the level of the fourth cervical nerve. The formatis reticularis is strongly marked. The white matter is in great quantity and is especially massed in the lateral and posterior columns. The posterior paramedian groove and septum are well marked. The central canal is considerably nearer the anterior surface than the posterior surface of the cord. (From Cunningham's *Anatomy.*)

8. Relations of the right kidney. *Above* the suprarenal body; *below,* the iliac crest; *anteriorly,* the right lobe of the liver, the second part of the duodenum, hepatic flexure of the colon; *posteriorly,* the Diaphragm, Quadratus lumborum, Psoas, Transversalis, and lumbar fascia, the iliohypogastric, ilioinguinal and last dorsal nerves, the pleura, last intercostal space, twelfth rib, and first lumbar artery; *externally,* the liver, and the posterolateral wall of the abdomen; *internally,* the ureter, and renal vessels and nerves.

9. The *valves of the heart* are: Mitral or bicuspid, tricuspid, aortic semilunar, pulmonary semilunar, Eustachian, and coronary.

The *tricuspid valve* is situated in the right ventricle, and guards the right auriculoventricular opening. It consists of three cusps formed by a reduplication of the endocardium; there is also some fibrous tissue enclosed. The bases of these flaps are fastened to the fibrous ring which surrounds the auriculoventricular orifice, and to their free ends are attached the chordæ tendineæ.

10. The prostate gland is about the size and shape of a horse-chestnut, and surrounds the neck of the bladder and first part of the urethra in the male. It is surrounded by a dense capsule, and consists of three lobes (two lateral and one middle); it is pierced by the ejaculatory ducts and by the urethra. Its base is attached to the base of the bladder, and its apex is in relation with the posterior layer of the triangular ligament and the compressor urethræ muscle. The posterior surface of the prostate gland is in relation with the rectum and is about an inch and a half from the anus.

PHYSIOLOGY.

1. The *valves in the veins* serve to aid in the venous circulation by preventing the blood from flowing backward; the veins permit the blood to flow only toward the heart. Valves are not present in all veins; they are most numerous in the veins of the extremities, particularly in the veins of the leg.

2. *Respiration* means the taking in of oxygen and the elimination of carbon dioxide. The respiratory act consists of inspiration and expiration. The origin of the impulses is at the respiratory center in the medulla. The phrenics and intercostals are the chief nerves conveying the impulses; and they are distributed to the diaphragm and intercostal muscles, respectively. External respiration is the interchange that takes place between the blood and the gases in the lungs; internal respiration is the interchange that takes place between the blood and the tissues of the body. Respiration causes changes in the air as follows:

	EXPIRED AIR.	INSPIRED AIR.
Oxygen	16.6 per cent.	21 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon Dioxide	4.4 per cent.	0.04 per cent.
Other gases	Often present.	Rare.
Watery vapor	Saturated.	Variable.
Temperature	That of the body.	Variable.
Volume	Diminished.	Varies.
Bacteria	None.	Always present.
Dust	None.	Always present.

Complemental air is the air which can be taken in beyond what is normally inspired in ordinary breathing. It measures about 100 cubic inches.

Reserve air is the air which can be expelled at an extraordinary expiration. It measures about 100 cubic inches.

Residual air is the air which still remains in the lungs after the deepest expiration. It measures about 100 cubic inches.

3. The first sound of the heart is heard best at the apex, in the fifth left intercostal space; the second is heard best at the base of the heart, over the second right costal cartilage.

The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculoventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall. The *second* sound is caused by the vibration due to the closure of the semilunar valves.

4. The heat of the body is *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost. *Heat is produced in the body* by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord. *Heat is given off from the body* by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

5. The functions of the fifth cranial nerve. *First, ophthalmic branch* supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal glands, mucous membrane of nose. *Second, or superior maxillary branch,* supplies sensation to skin and conjunctiva of lower lid, nose, cheek, upper lip, upper teeth and alveolar processes, and palate. *Third, or inferior maxillary branch,* supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, lower lip, and skin of the lower part of the face. This branch, in addition, supplies motion to the muscles of mastication (Masseter, Temporal, External Pterygoid, Internal Pterygoid), also Mylohyoid, and anterior belly of Digastric. Division of the nerve will cause loss of sensation to the parts mentioned above, and paralysis of the muscles of mastication.

6. The *white blood cells* are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. Their size varies, but they may be said to average about 1/2,500 of an inch in diameter. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells. Their functions are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

7. Starches are carbohydrates of the composition $(C_6H_{10}O_5)x$; they are converted into sugars in the mouth by the ptyalin of the saliva and in the small intestine by the amylopsin of the pancreatic juice. As sugars they are absorbed by the veins and carried by the portal vein to the liver.

8. *Mucous membrane* lines those parts which communicate with the exterior of the body; it contains glands, basement membrane, connective tissue support, blood and

nerve supply, and epithelium. *Found* in digestive, respiratory, and genitourinary tracts.

Serous membrane lines closed cavities (except peritoneum in the female); it contains a basement membrane and endothelial cells, but no glands. *Examples:* Pericardium, pleura, peritoneum, tunica vaginalis of testis, and meninges.

9. The eye is made up of the following membranes, arranged in a concentric manner, from without inward: The sclerotic and cornea; the choroid and iris, and the retina. Within these are enclosed the refracting media: The aqueous humor, the crystalline lens, and the vitreous humor; the cornea is also a refracting medium. These media "have different refractive indices, which, when acting together, refract all rays of light in such a manner that they come to a focus on the retina, and so prevent chromatic aberration. In the emmetropic or normal eye adequate refraction is secured by the mechanism of accommodation, as follows: (*a*) Rays of light which fall on the lens in parallel lines are refracted in such a way that they are brought to a focus in the retina. These rays come from a point infinitely far away. (*b*) If the rays of light come from a near point they diverge as they pass to the lens, and if the lens retained its shape they would be brought to a focus behind the retina. But as the eyes converge to look upon the near object, a stimulus passes up from some unknown stimulated point to the nucleus of origin of the third cranial nerve, and is reflected back along the third cranial nerve to the ciliary muscle which contracts. This pulls forward the choroid, to which is attached the hyaloid membrane, which becomes continuous with the capsule of the lens. The lens capsule thus becomes slacker, and therefore the lens, in virtue of its elasticity, bulges chiefly forward. Hence its anterior surface becomes more convex, *i.e.* capable of refracting the divergent rays in such a manner as to bring them to a focus on the retina." (Lack's *Introduction to Physiology.*)

10. Waste products of the body are eliminated by the lungs, the skin, the kidneys, and the intestine.

CHEMISTRY.

1. *Organic chemistry* is the chemistry of the carbon compounds; such as the chemistry of alcohols, ethers, phenols.

Inorganic chemistry is the chemistry of such substances as do not contain carbon; such as the chemistry of sulphuric acid, the halogens.

2. NITRATE OF SILVER. *Formula:* $AgNO_3$. *Preparation:* By dissolving silver in nitric acid. *Test:* Solution of sodium chloride gives a white precipitate.

3. Oxygen may be derived from certain oxides, and compounds rich in oxygen, such as manganese dioxide and potassium chlorate. It is a supporter of combustion and is essential to life.

4. *Aldehydes* are the first oxidation products of primary alcohols; they are intermediate between the alcohols and organic acids; they are readily converted into alcohols by reducing agents, or into acids by oxidation. *Derivatives* are: Formaldehyde, acetaldehyde, chloral (trichloraldehyde), paraldehyde.

5. Alkaloids are, as a rule, solid bodies; contain carbon, hydrogen, nitrogen, and oxygen; have very complex constitution; react with acids to form salts in the same way that ammonia does; are of vegetable origin, as a rule; are extremely poisonous; are optically active, generally levorotatory.

6. "It is believed that the ammonia which is eliminated in the urine represents that fraction of the product of protein decomposition which has escaped conversion into urea, presumably in the liver. One cause which would operate to prevent such conversion would be the combination of ammonia in the form of ammonium sulphate or phosphate, which are not convertible into carbonate, as are the ammonium salts of organic acids. With a deficient nitrogen intake the elimination of ammonia is unchanged in absolute amount, or is sometimes diminished, while its relative amount is increased. With excessive consumption of fats, which also occurs in persons with a large amount of adipose during starvation, more or less complete, there is marked increase in the elimination of urine ammonia. The ammonia-content of the urine is also increased by interference with the aeration of the blood, and it is supposed that in such cases the ammonia combines with the excess of carbon dioxide in the blood." (Witthaus' *Manual of Chemistry.*)

7. *Two chemical tests for blood.* (1) To a solution containing blood, KOH solution is added; the mixture is then heated, but not boiled; a red precipitate is produced. (2) The addition of freshly prepared tincture of guaiacum and some ozonic ether to a solution containing blood will, if agitated, strike a blue color.

8. *Bilirubin* is a coloring constituent of the bile. It occurs as an amorphous reddish powder or crystals. *Test.* Put 3 c.c. of HNO_3 in a test tube and add a piece of wood, and heat until the acid is yellow; then cool. When cold, the liquid containing bilirubrin is floated on the surface of the acid, a green band is formed at the junction of the liquids, and this is succeeded by a play of colors.

9. *Topfer's Method of estimating free HCl in stomach contents* "Three samples of 10 c.c each are separately titrated with N/10 NaHO solution; in (1) using phenolphthalein as an indicator, and carrying the addition of alkali to a distinct red, not to faint pink, as is usual. This gives the total acidity (A), made up of free HCl (L), protein HCl (C), and organic acids and salts (O). In (2) alizarin is used as an indicator, to pure violet. This gives the acidity due to (L + O), and, therefore, the result of (2), subtracted from that of (1), leaves the value of (C) = protein HCl. In the third sample (3) dimethylamidoazobenzene is used as an indicator, to yellow. This gives the value of (L) alone, *i.e.* free hydrochloric acid. If the value of (O) be desired, it may be obtained by subtracting the result of (3) from that of (2). In each of the above titrations the number of c.c of alkaline solution used, multiplied by 0.0365, gives the result, expressed in percentage of HCl." (Witthaus' *Manual of Chemistry.*)

10. There is a heavy deposit, of a pinkish color, which dissolves if the urine is warmed. Microscopically, it is generally amorphous, but crystalline forms are found. In the presence of excess of urates, the addition of nitric acid will produce a deposit of nitrate of urea.

TOXICOLOGY.

1 and 2. The case may be one of poisoning by hydrocyanic acid or by nicotine.

In either case, if seen before death, the stomach should be emptied; stimulants, such as ammonia, alcohol, and strychnine, should be administered; warmth should be applied to the body. Artificial respiration may be indicated. In hydrocyanic acid poisoning, a mixture of ferrous and ferric sulphates is antidotal.

3 and 4. *Neurotic poisons:* "Under the general heading neurotics are included a series of poisons which have specific action upon the great nerve centers, the symptoms which they present being those dependent upon their action upon the brain and spinal cord, such as drowsiness, headache, delirium, coma, convulsions, or paralysis. *Subdivisions of neurotic poisons* are: cerebral neurotics, including anesthetics and depressants; spinal neurotics or tetanics; and cerebrospinal neurotics or deliriants. The dividing line between these various classes of poisons is not always a clearly defined one and cannot be sharply drawn." (Dwight's *Toxicology.*)

5 and 6. CHLORAL HYDRATE POISONING. *Symptoms:* "Deep sleep, with the vessels of the head and neck greatly congested, accelerated pulse, widely dilated pupils, and deep though irregular respiration. Later the face becomes blanched and livid, the pupils contracted, the circulation and respiration fail, and the temperature falls. In some cases death occurs in from one-quarter to one hour in a condition of collapse. The usual fatal period is 8 to 10 hours." *Treatment:* "Stomach tube. Artificial respiration, flagellation, faradism. No chemical antidote is known." (Witthaus' *Essentials of Chemistry.*)

Postmortem appearances: Hyperemia of the brain; the odor of the drug may be observed; there are no characteristic lesions.

7 and 8. In asphyxiation by burning charcoal there may be symptoms due to carbon monoxide and carbon dioxide; the former is the more active and gives the following: "Great muscular weakness, accompanied by dizziness, ringing in the ears, with tumultuous action of the heart, are among the first symptoms noticed. The face is flushed and an irresistible desire to sleep comes on. There may be tremors, twitching of the muscles, and convulsions. The violent action of the heart often continues during the stupor and coma which now succeed. The breathing becomes slower and stertorous, sometimes falling as low as 3 or 4 per minute. The skin becomes anesthetic and the patient dies from paralysis of respiration. If the inhalation has been prolonged dilatation of the peripheral blood vessels takes place, giving rise to large red spots on the skin. Coma of several hours' or even days' duration does not always indicate a fatal termination." *Postmortem appearances:* "The bright red color of the blood and rose-colored spots over the surface of the body is the most characteristic. In poisoning by carbon dioxide the blood is venous in character and appearance, while in poisoning by the monoxide it is arterial in appearance. Where the two gases occur together the distinctive features of both may be disguised. There is generally a tendency to rapid

decomposition. The brain is soft and edematous. Other appearances are much the same as in poisoning by the dioxide." (Riley's *Toxicology.*)

9 and 10. Oxalic acid poisoning. *Symptoms:* "These vary much in character, according to the amount and degree of concentration of the dose. With large doses in concentrated solution, the corrosive action of the acid is the more prominent; with smaller amounts its truly poisonous effects are more apparent. The sour taste of the acid is rapidly followed by a burning pain, increasing in intensity, in the mouth, throat, and stomach; and persistent vomiting of a dark, 'coffee-ground' material. The pulse becomes small and imperceptible, and the patient dies in collapse, preceded frequently by convulsions, within half an hour. If the case be prolonged, swallowing becomes very difficult and painful; there are numbness and tingling of the skin; twitchings of the facial muscles; convulsions, frequently tetanic; delirium, and lumbar pain. Death occurs in some cases within three to ten minutes, sometimes almost immediately, and in some cases it is delayed for several days." *Treatment:* "Magnesia (magnesia usta), or slaked lime suspended in a small quantity of water, or mucilaginous liquid, should be given as soon as possible. If vomiting do not occur, and if the symptoms of corrosion be not marked, an emetic should be given. The stomach tube should not be used, nor should the alkaline carbonates be depended upon as antidotes." (Witthaus' *Essentials of Chemistry.*)

SYMPTOMATOLOGY.

1. *Vesicular breathing* is the breathing that may be heard in health over the left infraclavicular space, or anywhere over the lungs at a distance from the trachea and larger bronchial tubes; it is of a slightly rustling character and of low pitch, heard during inspiration. *Bronchial breathing* is that which is heard normally over the trachea, larynx, or large bronchi. It is characterized by an entire absence of all vesicular quality; inspiration is high pitched and tubular; and expiration is longer, higher, and of greater intensity; there is an interval between the two sounds. If bronchial breathing is heard over an area where vesicular breathing is normally expected, it denotes consolidation (exudate, or compression) of the lungs, pneumonia, tuberculosis, or pleural effusion.

2. Purulent pleurisy. *Causes:* Wounds, injuries, pleuropneumonia, direct extension of a suppurative process in the lung, abdomen, or neck. The bacteria will vary with the cause: diplococcus pneumoniæ is the commonest; tubercle bacillus, staphylococcus, streptococcus, colon bacillus may also be present. *Symptoms and signs:* High and irregular fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis. Absolute diagnosis is made by aspiration, showing the fluid to be pus.

3. The *chief animal parasites of man* are. Tape worms (tænia solium, tænia mediocanellata, bothriocephalus latus); tænia echinococcus; round worms (trichina, filaria, ankylostomum duodenale, ascaris lumbricoides, oxyuris); flukes; pediculi; spirochetes; treponema; trypansomes; plasmodia. The symptoms may be slight or very severe, and it is manifestly impossible to detail the symptoms of each in the space at our disposal. The diagnosis rests upon detecting the parasite, or its ova, or young, or some of its products; this may be done with the naked eye or with the aid of the microscope.

4. *Causes of hematemesis:* Ulcer, cancer, cirrhosis of liver, purpura, chronic heart disease, traumatism, yellow fever, toxic gastritis, rupture of an aneurysm into the stomach.

HEMATEMESIS.	HEMOPTYSIS.
1. Preceded by nausea or sense of weight in epigastrium.	1. Preceded by saltish taste in mouth.
2. Blood dark brown, often contains particles of undigested food; acid reaction.	2. Blood is bright red, frothy; alkaline reaction.
3. Blood is vomited.	3. Blood usually coughed up.
4. Pain in epigastrium.	4 Physical signs show disease of lungs or heart.
5. Stools often darkened by blood.	5. Stools unaffected.

5. Scarlet fever. *Symptoms:* "The onset is sudden and is attended by vomiting, chilliness, headache, sore throat, rise of temperature (103°-104° F.), and a rapid, wiry pulse. Prostration is marked and delirium and convulsions may be present. The tonsils, pharynx, and fauces are red and congested, and minute macules of a dark red color may be seen upon the hard and soft palate. The efflorescence appears in from 12 to 36 hours, upon the neck and upper part of the chest, and rapidly extends over the whole body. The rash is bright scarlet in color and punctiform in character. Rarely it is hemorrhagic. Intense itching and burning accompany the eruption, which reaches its height in about three days and then gradually fades. Desquamation occurs about the seventh day, lasts from two to five weeks, and is scaly in character. The temperature gradually declines after about the fourth day, and reaches normal in from five to six days. The 'strawberry' tongue in which the papillæ are enlarged and reddened is also a symptom. The constitutional symptoms include anorexia, thirst, somnolence with delirium or restlessness, constipation or diarrhea, and scanty, high-colored urine, which may contain albumin. The affection may be mild and have only a rash, or it may be malignant and terminate fatally in 24 hours, or linger for two or three weeks, and death result from exhaustion or septicemia. *The complications* are nephritis, hyperpyrexia, sloughing or ulceration in the pharynx, purulent otitis media, cervical adenitis, endocarditis, pericarditis, ophthalmia, chorea, and joint affections." (*Pocket Cyclopedia.*)

6. *Cerebrospinal fever* begins with a chill, vomiting or convulsions, and rise of temperature. The pulse is full and strong. There are hypersensitiveness to light, sound, and touch, and excruciating pain in the head, back, and limbs. A petechial rash appears and sometimes herpes is present. Leucocytosis is the rule. The urine is scanty, high colored, and may be albuminous. If the meninges of the brain are most involved, delirium, stupor, semi-consciousness, paralysis of the ocular muscles, disturbed vision, and deafness may be present; if those of the cord are most affected, there will be opisthotonos, hyperesthesia, paresthesia, rigidity and tremor of the extremities, localized spasms, and convulsions. *Kernig's sign:* The patient should be propped up in bed in the sitting posture; then, on attempting to extend the leg on the thigh, there is contraction of the flexors, which prevents the full straightening of the leg. In the recumbent position the leg can be extended. *The diagnosis* is made by the history, mode of onset, character of the eruption, absence of physical signs, symptoms, and lumbar puncture. *Complications:* Pneumonia, endocarditis, paralysis, otitis media, and mental impairment. (*Pocket Cyclopedia.*)

7. *Natural immunity* is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The conditions which give immunity are: (1) a previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

The nature or mechanism of immunity is unknown; the following theories have been held at different times: "(1) *The abstraction theory* (*Pasteur's*) is to-day only of historical interest. It was believed to be due to the fact that the pabulum necessary for the life of the specific bacteria had been consumed, and that these bacteria could no longer live in the animal. (2) *The retention theory* (*Chauveau's*), in which it was supposed that microorganisms left in the system certain substances which were antagonistic to their further growth, is still worthy to-day of some consideration. (3) *The theory of phagocytosis* (*Metchnikoff's*), by which immunity was supposed to be due to the action of the white blood corpuscles, which have the power of absorbing and destroying bacteria, is not tenable to-day in its original entirety. That the leucocytes play a certain part in the immunizing process cannot be denied, but the phagocytic property is more probably due to the fact that the animal is immune than the cause of immunization. (4) *Ehrlich's side-chain theory.*—Ehrlich, studying the effects of antitoxin on toxin, concluded that a definite chemical combination, with an inert body as the product, resulted from the union of one with the other. It was his further opinion that the specific nature of such reactions—tetanus antitoxin uniting only with tetanus toxins, diphtheria antitoxin only with the toxin of diphtheria—showed that certain special atom groups in each of these substances possessed an affinity for each other. These atom groups are represented on

one side in the cell protoplasm and on the other in the food, toxin, or other substances introduced into the blood. As the number of these substances was varied, Ehrlich suggested the theory that each cellular molecule was made up of a central atom group and numerous side atom groups or chains, which he called receptors. Under the influence of the stimulation of any toxin the special receptors are overproduced, and it is their increased presence in blood which produces immunity." (Archinard's *Bacteriology.*)

8. *Symptoms of arthritis deformans:* Swelling and tenderness of the interphalangeal joints, the joints become stiff, there may be moderate fever, muscular atrophy, and anemia. On the dorsal aspect of the second and third phalanges Heberden's nodosities are found.

9. DILATATION OF THE STOMACH. *Causes:* Motor insufficiency of the stomach wall; obstruction of the pylorus by cancer, or cicatrix from ulcer; pressure on duodenum from without by tumors or adhesions; pyloric hypertrophy.

Symptoms and signs: Dyspepsia; emaciation; thirst; constipation; pain, and vomiting at long intervals of large quantities of sour and fermenting fluid, which contains particles of food taken several days previously; yeast cells and sarcinæ may be present in the vomitus. The outline of the stomach may be seen to be enlarged; percussion and auscultation show enlargement also, and artificial inflation of the stomach may also show increased stomach area.

10. *Symptoms of acute endocarditis:* "Occurring, as it does, in the course of some other disease the subjective symptoms of acute simple endocarditis are usually masked by the manifestations of the primary condition, until disturbances of the circulation direct attention to the heart. Increase of temperature, precordial distress, cough, slight dyspnea, and more or less persistent vomiting may be present. The action of the heart is increased and often tumultuous. The carotids throb and there are noises in the ear. As the inflammation progresses, the cardiac action and pulse become less frequent, and venous stasis and more or less pulmonary congestion occur. The attack lasts from one to three weeks." (Hughes' *Practice of Medicine.*)

(*To be continued.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†		
Alabama*	W. H. Sanders, Montgomery	Montgomery		
Arizona*	J. W. Thomas, Phoenix	Phoenix	Oct.	7
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov.	11
California*	C. B. Pinkham, 929 Butler Building, San Francisco	Los Angeles	Dec.	2
Colorado	David A. Strickler, Empire Building, Denver	Denver	Oct.	7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov.	11
Delaware	J. H. Wilson, Dover	Dover	Dec.	9
Dist. of Col'ba	Geo. C. Ober, Washington	Washington	Oct.	14
Florida*	I. D. Fernandez, Jacksonville	Jacksonville	Nov.	12
Georgia	C. T. Nolan, Marietta	Atlanta	Oct.	14
Idaho*	O. J. Allen, Bellevue	Boise	Oct.	7
Illinois		Chicago		
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan.	13
Iowa	G. H. Sumner, Des Moines	Des Moines	Sept.	—
Kansas	H. A. Dykes, Lebanon	Topeka	Oct.	14
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec.	11
Louisiana	A. B. Brown, Cusach's Bldg., New Orleans	New Orleans	Oct.	27
Maine	F. W. Saerle, Portland	Portland	Nov.	11
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.	9
Massachusetts*	W. P. Bowers, State House Boston	Boston	Sept.	9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct.	14
Minnesota	W. S. Fullerton, St. Paul	Minneapolis	Oct.	7
Mississippi	S. H. McLean, Jackson	Jackson	Oct.	14
Missouri	J. A. B. Adcock, Jefferson City	Kansas City		
Montana*	Wm. C. Riddell, Helena	Helena	Oct.	7
Nebraska	C. P. Fall, Beatrice	Lincoln		
Nevada	S. L. Lee, Carson City	Carson City	Nov.	3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan.	6
New Jersey	H. G. Norton, Trenton	Trenton	Oct.	21
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe	Oct.	13
New York	H. H. Horner, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Sept.	23
N. Carolina	B. K. Hays, Oxford	Raleigh	June	9
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	Dec.	9
Ohio	Geo. H. Matson, Columbus	Columbus	Dec.	9
Oklahoma	J. W. Duke, Guthrie	Muskogee	Oct.	14
Oregon	B. E. Miller, Portland	Portland	Jan.	1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Harrisburg Pittsburgh	Dec.	—
Rhode Island	G. T. Swarts, Providence	Providence	Oct.	7
S. Carolina	H. E. Boozer, Columbia	Columbia	June	1
S. Dakota	L. G. Hill, Watertown	Pierre		
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville	May	—
Texas	W. L. Crosthwaite, Waco	Houston	Nov.	11
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct.	6
Vermont	W. Scott Nay, Underhill	Montpelier	Jan.	13
Virginia	Herbert Old, Norfolk		Dec.	—
Washington*	F. P. Witter, Spokane	Spokane	Jan.	6
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	Nov.	10
Wisconsin	J. M. Beffel, Milwaukee	Madison	Jan.	13
Wyoming	J. B. Tyrrell, Laramie	Cheyenne	Oct	15

Miscellany.

A Reform in Consultations.—In an article entitled "As Others See Us," a practitioner who writes under the abbreviated cognomen "S," presents a number of interesting reflections, which are rather more critical than commendatory, upon consultants. He believes that the common practice of "having a talk with the doctor" or "hearing about your case" before seeing the patient is inadvisable. This practice suggests a judge listening privately to the view of counsel before hearing personally the evidence of the witnesses. It happens only too frequently that statements and facts gathered by and transmitted through the mind of the doctor form a great bulk of the evidence on which is based the opinion of the consultant. However careful the physician may be in gathering together the factors which seem important in a case, almost inevitably, although unconsciously, a winnowing process is at work in his mind and some signs and symptoms are not reported to the consultant because their importance is not seen by the original medical attendant. The author makes the following plea: An altogether fresh and unbiased view should be obtained personally by the consultant, who should independently question the patient and the latter's friends, and should make a thorough investigation of the patient's physical condition. Not until this has been done should there be an exchange of views between the medical attendant and the consultant.—*The Universal Medical Record*, June, 1913.

Appointments with Patients.—It would be interesting if physicians who have a fairly large office practice would investigate the actual percentage of patients who for some reason or another fail to return on the specified date appointed by the physician. Whether this failure to return is to be attributed to dissatisfaction, forgetfulness, or complete recovery of the patient, there can be little doubt that a large percentage of office appointments are not "kept." Certain practitioners who are methodical and punctilious in their business methods hand to the patient a printed appointment slip on which are filled in the patient's name and the date and hour of the appointment. This paper carried away by the patient seems to have associated with it a certain degree of authority and insistence which the spoken word of the physician does not seem to possess, while it obviates at the same time the excuse of forgetfulness. The patient should be made to understand, if he does not already realize, that the physician's concern for the patient does not end with the office call, and that even the complete recovery of the latter entitles the physician at least to the courtesy of a return visit. This at any rate cannot but be of advantage to the patient, for it enables the physician to gauge the value of a particular line of treatment and the mode of response on the part of the patient—which may all be of inestimable value in a future illness. It is not likely that the intelligent patient, if told to "come in again" on a certain date even though he may be better, will disregard this instruction if he be told that there are a number of important matters concerning his future mode of life and preservation of health that must be fully discussed. Patients past middle age particularly should be impressed with the importance of periodical physical examinations, including not only an analysis of the urine for albumin, sugar, and indican, but also a determination of the blood pressure.

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Original Articles.

ORAL SEPSIS.*

By FRANCIS P. KINNICUTT, M.D.,

NEW YORK.

Oral sepsis is an interesting subject. Its importance, both from the pathological and clinical standpoint, can be but briefly indicated in the present paper, whose purpose it is to present some striking clinical evidence of the profound disturbance of health that may be produced by the existence of this condition.

Hunter, beside various publications in which he considers the probable causative relationship of oral sepsis to grave forms of anemia, especially brought the subject to the attention of the medical profession in his monograph on oral sepsis published several years ago.

In the past few years I have had the opportunity of observing several cases of oral sepsis more or less similar to those which I shall describe, in which with the removal of the cause, the results have been similar. I cannot too strongly call your attention to the fact that the symptoms in the form of local discomfort and pain are often insignificant, while the local signs on superficial examination seem inadequate to explain the systemic disturbance. The obvious local signs may consist in no more than a dental caries of one or several teeth, a contiguous gingivitis, and not infrequently an associated diffuse pyorrhoea alveolaris of varying intensity. Such were practically the local signs in the cases to be related. It has apparently been dmonstrated, however, that the organisms of dental caries are especially virulent, and it is only the natural resistant powers possessed by the tissues of the mouth that prevent their effects from being more commonly disastrous. The degree of resistance varies greatly in individual cases. I need not call your attention to the opportunity of concealed oral sepsis in the modern system of "capping," "bridging," etc., and to the long duration of one of the most common and potent sources of this condition—pyorrhœa alveolaris—which is frequently overlooked because painless.

My experience is wholly in accord with Hunter's; many slight, ill-defined disturbances of health, as well as grave systemic disturbances may be traced to oral sepsis. My first observations of its possible effects were made ten years ago. Two cases were observed and studied by me at about the same date. In one, fever of a remittent type with a daily temperature range from 99° to 102.5°-103° had been present for seven weeks. The illness had caused much anxiety because of its undetermined nature. Several diagnoses had been suggested. Careful investigation of the previous oral history brought out the fact that several months previous a single tooth had given much trouble to the patient. Its root canals had been treated in England, efficiently it was believed. At the date when my advice was sought the tooth was causing no subjective symptoms, and an examination revealed only a limited but severe gingivitis. In the absence of the physical signs of organic trouble, in connection with various negative laboratory tests, I suggested that the symptoms might be due to a *concealed* oral sepsis and advised a thorough investigation by a dental surgeon. On first inspection he expressed a very positive opinion that the oral conditions could not be the cause of the constitutional symptoms, but, on removing the filling of the tooth, a foul-smelling alveolar abscess was discovered. With extraction of the tooth the temperature fell to and remained normal after forty-eight hours, and all other constitutional symptoms disappeared.

The second case had suffered from undefined ill health for two or three months. Systematic temperature observations showed the presence of slight daily fever; normal temperature in the morning, 99.5° to 100.5° in the late afternoon. An unrecognizable tuberculous infection was feared. Here, too, there was a suspicious oral history, and there were local signs in the form of a moderate gingivitis and pyorrhœa alveolaris. A thorough investigation and treatment of the oral condition was rapidly followed by the complete disappearance of the constitutional symptoms and by a return to usual health.

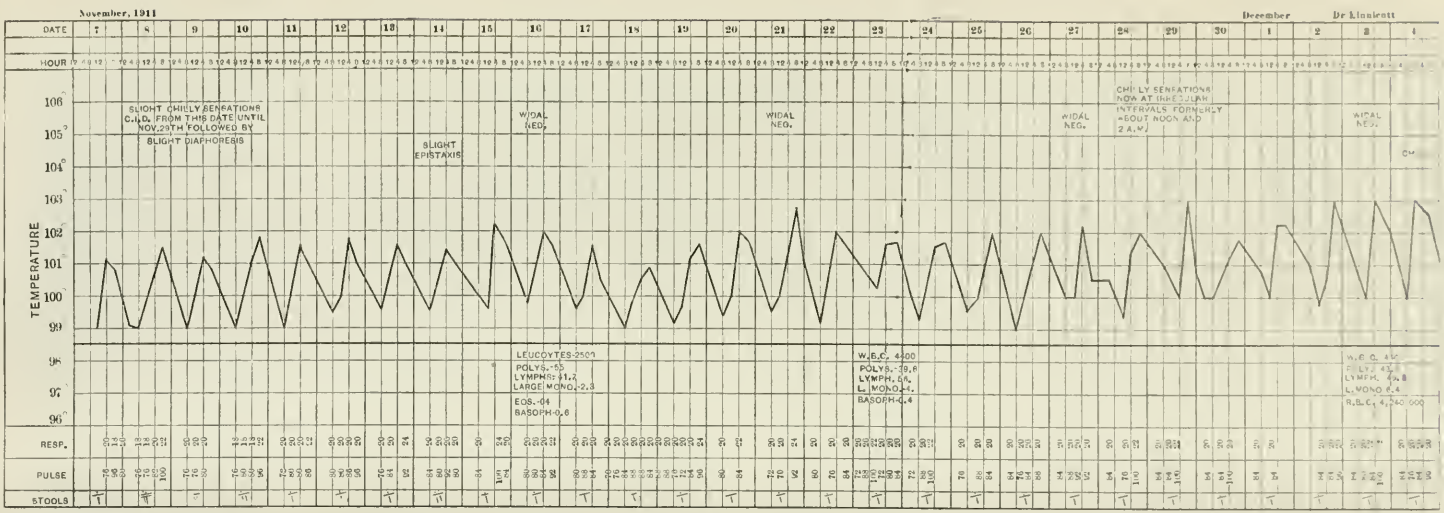
In the period that has elapsed since the above observations were made, greater attention has been paid to oral sepsis, both by the clinician and the dental surgeon, and much has been learned. Its great frequency, its causative relation to many minor disturbances of health and to grave systemic infections are happily more generally recognized, and, finally, its deterring influence in the natural physical and mental development of the child is exciting widespread attention and action.

In the past year two cases of oral sepsis of great interest have come under my observation. I shall give their clinical pictures in detail, with graphic charts of their salient points.

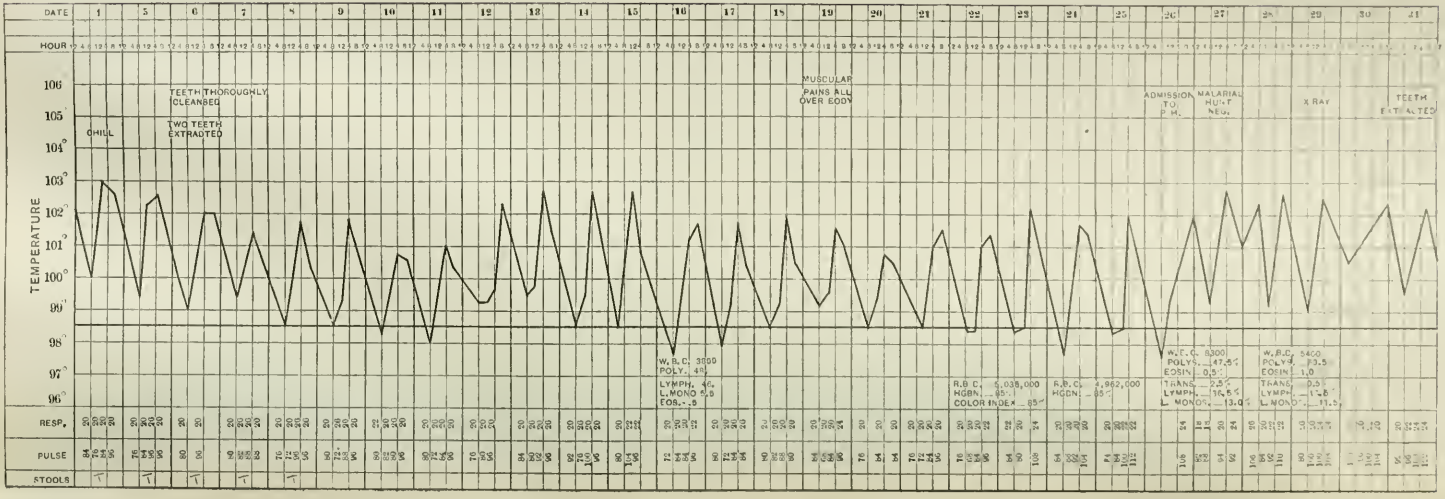
Case I.—Dr. G. W., 56 years old, was admitted as a patient to the private corridor in the Presbyterian Hospital on December 26, 1911. The previous history, up to August, 1911, was unimportant beyond the record of a brief period of suffering from a carious tooth, in the latter part of 1908. On August 3, 1911, there developed an attack diagnosed as grippe, in which both antra were said to be involved. Local treatment was used and the more pronounced symptoms disappeared. The patient was at work again from August 18, until October 20, but did not feel well; thought he had a little fever and there were night sweats. On October 20, the afternoon temperature was found

*Read at a meeting of the Practitioners' Society of New York, May 2, 1913.

Dr. G. W.—Case No. 1.



December, 1911.



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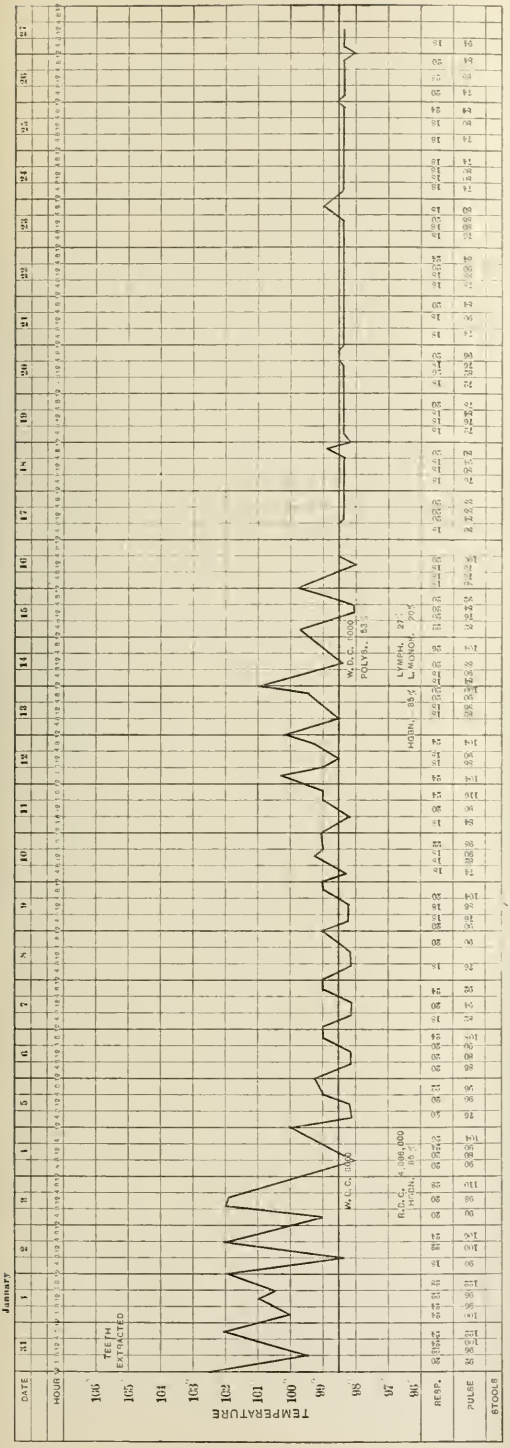


to be 101°, and on the same evening a sharp chill occurred. From the 20th to the 26th there was a step-ladder rise of temperature to 104°. On the latter date it fell suddenly to normal where it remained until November 3, when there was again a slight rise of temperature. From this date for nine weeks there was continuous fever of a remittent type, the daily range being from 99° minimum, usually in the morning, to 103° maximum, in the afternoon. There were associated general myalgic pains, on one or two occasions slight epistaxis, frequent slight chills, occasional sharp ones, frequent sweats with marked prostration and loss of weight (forty-five pounds). The liver gradually enlarged and was finally palpable five cm. below the costal arch in the midclavicular line. The spleen was also easily palpable considerably below the costal arch. For a number of weeks the patient was believed by the several physicians who saw him to be suffering from typhoid fever, although repeated blood examinations gave a negative Widal test. Blood cultures were not made owing to lack of laboratory facilities, the patient living in the country. A number of blood counts uniformly showed a leucopenia, a diminution in the polynuclear cells, an increase in the lymphocytes. The absence of physical signs in lungs or heart, of all organic signs other than those of enlargement of liver and spleen, and the blood counts were thought to support this opinion. Later it was suggested that the infection was of a paratyphoid type.

I was asked to see the patient on December 3, the eighth week of his illness. A very careful physical examination of the various organs was entirely negative beyond showing the hepatic and splenic enlargements referred to. Finally an examination of the mouth was made; widespread dental caries, a moderate amount of gingivitis and a diffuse pyorrhoea alveolaris were revealed. These conditions, however, were unattended with any personal discomfort to the patient and were apparently unknown to him. I expressed the opinion that the patient was suffering from a systemic infection of oral origin, and strongly advised examination and treatment by a dental surgeon. The patient was seen directly by a distinguished dental surgeon of this city, who, recognizing the oral condition, was yet disinclined to believe that the local sepsis was sufficient to produce so pronounced systemic infection. The teeth and gums were cleaned, the bacterial deposits removed, and two markedly carious teeth were extracted. A slight improvement followed but was not maintained. Ten days later the patient was seen by my colleague, Dr. Walter B. James, who, after a careful examination, expressed an opinion similar to my own. Finally on December 30, he was brought from his home to the hospital. Physical examinations revealed no other signs than those described. The various laboratory findings were as follows:

Malarial organisms, absent.			
Widal, typhoid,	macroscopically,	1-40	negative
	"	1-100	"
	microscopically,	1-20	"
Paratyphoid A	microscopically,	1-20	negative
	"	1-100	"
B	"	1-20	"
	macroscopically	1-20	"
	"	1-100	"

Feces and urine, negative as regards typhoid and paratyphoid organisms.

Blood Counts:

27th day of charted temperature, W.B.C. = 2,500

Polynuclears,	48.5%
Lymphocytes,	48.2%
Large Mononuclears,	2.3%
Eosinophiles,	0.4%
Basophiles,	0.6%

34th day of known fever, W.B.C. = 4,400

Polynuclears,	39.6%
Lymphocytes,	56. %
Large Mononuclears,	4. %
Basophiles,	0.4%

44th day of fever, W.B.C. = 4,400

Polynuclears,	43.8%
Lymphocytes,	49.8%
Large Mononuclears,	6.4%

56th day of fever, W.B.C. = 3,800

Polynuclears,	48. %
Lymphocytes,	46. %
Large Mononuclears,	5.5%
Eosinophiles	.5%

71st day of fever, W.B.C. = 5,400

Polynuclears,	69. %
Lymphocytes,	18.5%
Large Mononuclears,	11. %
Transitionals,	.5%
Eosinophiles,	1. %

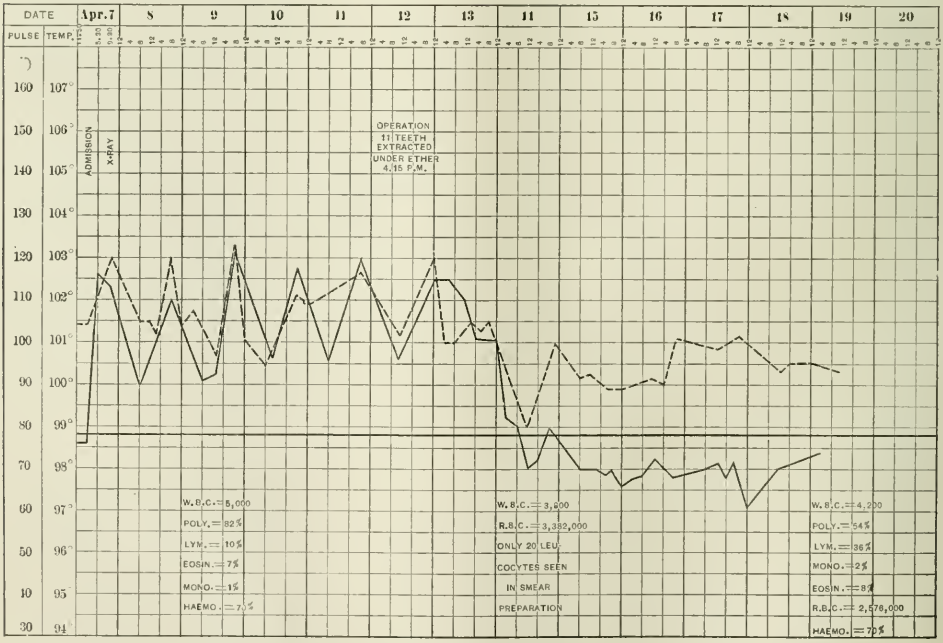
Blood cultures, sterile.

Wassermann reaction negative. Drs. Lamb and Soper.

On completion of the various examinations, the opinion of the oral origin and source of the systemic symptoms was reaffirmed and treatment to remove the local septic conditions was directed.

On December 31 fifteen teeth were extracted. On January 1, 2 and 3, the maximum temperatures were 102°; on January 4, 100°; on January 5, 99°. From this date, with coincident and marked improvement in the patient's general condition, the temperature was normal for seven days. There was then a slight rise for two or three days, accompanying rather prolonged and painful oral treatments, followed directly by a fall to normal. The temperature did not again rise. There was a coincident subsidence of all constitutional symptoms, a rapid gain in weight and strength, and an equally rapid disappearance of splenic and hepatic enlargements. The patient was discharged from the hospital on January 27, in excellent health, which has since been maintained. On his discharge neither spleen nor liver was palpable.

Case II.—Mrs. B., aged 68 years, was admitted to the private corridor in the Presbyterian Hospital on April 7, 1913. The previous history was one of a very active life with exceptional health previous to June, 1912, aside from some gastric symptoms, said to be due to hyperacidity. At this date she began to suffer from pain in the left shoulder joint, with disturbance of function, and later from pain in the course of the distribution of the nerve trunks of the brachial plexus of the left arm, and also from intermittent stiffness and discomfort in the right shoulder. Gradually there was great disablement and appreciable wasting of the shoulder muscles and upper arm. In addition to the arthritic symptoms there was a condition of ill-defined ill health during June and July, 1912. In August she was a patient at the Battle Creek Sanitarium. During this month she suffered from daily chilly sensations and is positive that she had fever, although she has no graphic records in confirmation of her belief. After leaving the sanitarium, she states that she had daily fever with continuous loss of strength and weight, until January, 1913, when she was in Boston seeking a diagnosis of her disease and treatment. During



Case No. 2.—Mrs. B.

her stay there her temperature chart showed a constant remittent type of fever—minimum morning, 99°+, maximum evening, 103°. Physical examinations and laboratory tests, among others, for typhoid and paratyphoid organisms, were negative, and no diagnosis was made. Immobilization of the shoulder joint for several weeks gave marked relief of the arthritic pain, but in no other respect was there improvement in the symptoms or condition; the patient returned to her home in February. From this date until she was admitted to the Presbyterian Hospital there was continuous fever, of the remittent type mentioned, with similar daily excursions and an increasing prostration.

On admission the patient showed marked signs of prostration. The morning temperature was 100°, the evening, 102.6°; and this curve, with slightly higher evening temperatures, was maintained until the removal of the foci of infection. Careful physical examination of the various organs showed the liver edge to be palpable 1-5 cm. below the costal arch in the midclavicular line, an increase in the area of splenic dulness without a positive palpability below the arch. Aside from these signs, the examination was practically negative. The left shoulder was painful on palpation and there was marked limitation of its function, apparently chiefly from pain. There was wasting of the shoulder muscles as well as of those of the upper arm. Measurements at shoulder, left, 24 cm.; right, 28 cm. Measurements 10 cm. below shoulder, left, 22.4 cm.; right, 23.5 cm. Radiograms showed intact cartilage and absence of bone changes. An examination of the mouth showed all the upper teeth to be false, a plate being worn; in the lower jaw, eleven teeth, severe and widespread gingivitis, the gums tender and bleeding at the slightest touch, bacterial deposits abundant about the edge of the teeth, moderate pyorrhoea, and some obvious dental caries. No sinus was discovered. Radiographic films showed plainly the presence of two alveolar abscesses and evidence of alveolar absorption at several points.

The history and laboratory findings, both positive and negative, closely resemble those of Case I. Before the radiographic films showed the presence of aveolar abscess, I ventured to express the opinion that the systemic infection was of oral origin. With the completion of the laboratory examinations, the removal of the remaining teeth in the lower jaw was directed. Immediately before extraction the temperature was 102.5°; at the end of twenty-four hours the evening temperature was 100°, and in thirty-six hours it was normal. It did not rise again. There was a rapid disappearance of all constitutional symptoms and in forty-eight hours the patient was out of bed, and with a sense of well-being she had not experienced for many months. Improvement in the joint symptoms was rapid, and on leaving the hospital on April 19, twelve days after admission, the patient was able to arrange her hair, which had not been possible for many months. On her discharge the area of splenic dulness was normal; the edge of the liver was still palpable 1.5 cm. below the costal arch in the midclavicular line. The laboratory findings are appended, together with Dr. Vaughan's report:

Laboratory reports. Doctor Soper.
Urinalyses, practically negative.
Blood:—On admission, W.B.C. = 5,000.
Hemoglobin, 70%
Polynuclears, 82%
Lymphocytes, 10%
Eosinophiles, 7%
Mononuclears, 1%
On discharge, W.B.C. = 4,000.
Hemoglobin, 70%
Polynuclears, 54%
Lymphocytes, 36%
Eosinophiles, 8%
Mononuclears, 2%

Blood cultures, sterile.

Extraction of Tooth: One loop of material from tooth socket, following extraction, inoculated in 1.5 c.c. of broth. Plates made, each from 2 loops of this inoculated broth. Anäerobic plates; Blood Agar and Ascitic Glucose Agar, no growth. Aerobic plates; Ascitic Glucose Agar and Blood Agar. Blood Agar shows a large number of colonies, about equally divided between a streptococcus and a gram negative pleomorphic coccobacillus which is not identified. Streptococcus grows in fairly long chains, is non-encapsulated. Culturally there is no green formation on Blood Agar plates, only a deep brown pigmentation in and about the colonies. Inulin, not coagulated. Ascitic Glucose Agar shows moderate precipitation. No solution in bile. Gram negative cocco-bacillus stains rather irregularly with Gram. The reaction, however, is predominatingly on the negative side. There are no capsules. Litmus milk is acidified and coagulated. Glucose broth, no gas formation. Lactose broth, no gas formation. Ascitic Glucose Agar, strongly precipitated. Slight growth is obtained anerobically in gelatin. There is no liquefaction. Morphologically, many of these bacilli are club-shaped and there are many large cocoid forms.

Doctor Vaughan's Report: The pulp of the left lateral incisor was dead and a small alveolar abscess had formed around the apex of the root without external drainage. Between the left canine and first biscupid a deep infected pocket was found, extending down about two-thirds the length on each root. There was a general chronic gingivitis and pyorrhea.

In these cases, aside from the long period of fever, and its very rapid and complete subsidence together with all other constitutional symptoms upon the removal of the oral foci of infection, the presence in Case II. of an arthritis resembling the early stage of an arthritis deformans is of interest.

There is a growing belief among clinicians that some forms of chronic rheumatism and also arthritis deformans are of an infective nature, and that some streptococcal strain, chiefly, is the infecting organism. Reports of foci of infection, found not only in the mouth but elsewhere in the body in these cases, are appearing with increasing frequency, and the benefit derived in some cases from autogenous vaccines obtained from the foci of infection cannot be denied.

The scheme of the present paper precludes more than a general reference to ill-defined disturbances of health and to grave anemias due to oral sepsis.* My clinical experience in the past few years both in hospital and private practice has taught me that such instances are numerous and their origin often unrecognized.

*A case of severe oral sepsis associated with grave anemia and combined sclerosis of the cord has recently been under my observation in the wards of the Presbyterian Hospital.

CLINICAL STUDIES ON THE CURATIVE ACTION OF LEUCOCYTE EXTRACTS IN INFECTIVE PROCESSES.*

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In the past most workers have, in their study of infections and their search for biological therapeutic agents, directed their energies to the production of specific antisera and have, with few exceptions, neglected to approach the question of the treatment of infections from the side of the intracellular resisting agents of the system. In many infections, however, the ultimate weapons of defense of the system are the leucocytes, either in their normal state, acting as phagocytes, or possibly when breaking down in the circulation or in exudates. Four years ago Hiss[1] investigated the effect of leucocyte extracts† on infections artificially produced in animals and, with his assistants Drs. Allen and Zinsser,[2] tested the extracts on human patients suffering from various infections. The conclusion drawn from these tests was that the leucocyte extract is an aid in overcoming infections due to such organisms as streptococci, staphylococci, the pneumococcus, meningococcus, and even other infections, in which the leucocytes are not known to play such an important part in the resistance offered by the system to such invasion. Stimulated by these reports other investigators have tested this method of treatment and have published reports confirming the results of Hiss and his coworkers. Floyd and Lucas[3] treated lobar pneumonia patients and reported very favorably on the use of such an extract. Alexander[4] treated a series of various infections with favorable results, and in 1910 Dwyer[5] published a clinical report of six cases so treated, and attributed the success attained in these cases to the influence of the extract.

Since their reports the writers have treated a series of over three hundred patients suffering from various infections, and the results have served to confirm the conclusions originally drawn as to the favorable influence of the extract on the course of such infections.

In the present paper the results obtained in the treatment of erysipelas will alone be considered and analyzed.

Erysipelas is a streptococcus infection which, as one of us has elsewhere stated,[6] is an ideal infection to study, as the chief lesion is in plain view, and there is usually a sharp temperature reaction in the infection. Moreover, a well-marked train of symptoms, undoubtedly toxic in origin, is generally present, and as the leucocyte extract seems to act primarily, at least in combating toxemia, we have, therefore, a compartively reliable means at our disposal of judging of its effects, both on the lesion and systemic symptoms.

The mortality rate of erysipelas is given as about 10 per cent. in adults; in children as 75 per cent., and in infants under one year as almost 100 per cent. Erysipelas, therefore, cannot be counted as a light infection. Nevertheless, the opinion does not seem to be rare that erysipelas is a trivial self-limiting disease that can safely be left to run its course under local treatment. During the last two years we have had reports of twelve fatal cases of erysipelas occurring not in patients of the extremes of age, but for the most part in strong, healthy adults. The need for more efficient therapeutic measures is therefore evident.

The series of erysipelas infections treated with the leucocyte extract comprises 148 cases of all types and grades of severity. The majority of the infections were secondary to operative measures and might be classed as surgical erysipelas, while the others were of the so-called idiopathic form, as the origin could not be traced to any contributing trauma or known lesion. As regards severity, they were nearly all severe infections, and the great majority of them were of the most severe type that occurs. This was due to the fact that we were usually not consulted until the ordinary remedies had been tried, by which time the infection was well established and the systemic symptoms marked. Thus, with the exception of a few, the lesion had been present for a time, varying from several days to two weeks. Such cases, therefore, probably offer as fair a test of the value of a therapeutic agent as could be devised.

The results obtained have been so uniformly beneficial, constant and marked that judging from them it would seem that in this disease we can almost prognosticate the results following the use of leucocyte extract. In every case there was a marked reaction following its use, which in most cases was shown by a fall in temperature and a rapid improvement in the general condition.

In an average case of erysipelas, one of moderate severity, the constitutional symptoms, due to the absorption of the toxins, are well marked: headache, nausea, vomiting, delirium, sometimes active but usually of a low, muttering type, and a sense of extreme depression. The local subjective symptoms are also marked and are very an-

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†The method of obtaining these substances as used in animal experiments and the treatment of human subjects is at present as follows: Rabbits, of 1,500 grams weight or heavier, received intrapleural injections of aleuronat. This is prepared by making a 3 per cent. solution of starch in meat-extract broth, without heating, and adding to this, after the starch has gone into thorough emulsion, 5 per cent. of powdered aleuronat. This is thoroughly mixed, boiled for five minutes and filled into sterile potato tubes, 20 c.c. into each tube. Final sterilization is done preferably in an autoclave. The rabbit injections are carried out by injecting 10 c.c. into each pleural cavity in the intercostal spaces at the level of the end of the sternum, in the anterior axillary line, great care being exerted to avoid puncturing the lungs. The rabbits are left for twenty-four hours, at the end of which time a copious and very cellular exudate will have accumulated in the pleural cavities. After killing the animals, this is removed by opening the anterior chest wall under rigid precautions of sterility, and pipetting the exudate into sterile centrifuge tubes. Immediate centrifugalization before clotting can take place then permits the decanting of the supernatant exudate fluid. To the leucocytic sediment is then added about 2 c.c. of sterile distilled water, and the emulsion is thoroughly beaten up with a stiff bent platinum spatula. Smears are now made on slides, stained by Jenner's blood stain, and examined for possible bacterial contamination. It is well also to take cultures. Sterile distilled water is then added to each tube, about ten volumes to one volume of sediment, and the tubes are set away in the incubator for seven or eight hours. At the end of this time the sterility is again controlled as above, and further extraction in the refrigerator continued until the extract is used. So far as at present determined, the preparation remains active indefinitely. Before use the preparation is thoroughly shaken to disseminate the sediment, which is then drawn into the syringe and injected along with the fluid into the animal or patient.

noying, the heat, burning, and itching. In practically all the cases the symptoms disappeared within a few hours following the first injection of the extract; the headache, nausea, and vomiting disappeared, the mind became perfectly clear and from a low, depressed, apprehensive state the patient passed into a state of comparative comfort, free from anxiety. The effect on the temperature varied with the class of patient and with the time that had elapsed beween the onset of the lesion and the beginning of the treatment; in those treated early, within twenty-four or forty-eight hours of the onset, there was a sharp fall in the temperature curve and the disease ended practically by crisis, the accompanying symptoms disappeared and the rash ceased to spread. In the cases treated later in the course of the disease there was not usually such a marked effect on the temperature, but the change in the general condition was just as marked and the course of the disease cut short. Locally, in all cases whether treated early or late, the burning and aching pain disappeared in a few hours. Subjectively, the patient was soon in an entirely different state.

As regards the effect of the extract on the local lesions, there was generally some further spreading, but the character of the lesion changed. The bright, vivid, crimson rash, usually seen in an otherwise healthy patient, soon ceased to spread and faded. The dull purplish rash, seen in the deeper erysipelas infections or in the asthenic type of patient, soon gave way to the bright crimson form, which change we take to be evidence of increased resistance, and this in turn faded away gradually. In the latter class of patients, where a severe infection was present with the corresponding systematic symptoms and a low temperature curve, a moderate rise of temperature at times occurred after the infection. This we looked upon as a favorable sign and as an evidence of increased resistance.

The duration of an average case of erysipelas under the routine measures of treatment is about ten to fourteen days. In our series of cases the average duration, whether treatment with the extract was instituted early or late, was 3 1/10 days after treatment was begun.

In practically all cases following the use of the leucocyte extract, had it not been for the mere physical presence of the diseased focus, the patient would have been considered well.

The extract took the place of all stimulation, and patients suffering from the most severe infections have been kept entirely comfortable by the use of the extract alone, with a pulse rate usually not rising above ninety, thus showing the saving of the human economy.

With postoperative or surgical erysipelas one point is worthy of special mention. Most of these infections were complications of operations on the eye, ear, nose, and throat. The point to be noted is that under this treatment the healing, instead of being delayed as usual, was hastened and was complete in a much shorter time than in an uncomplicated case. We refer especially to mastoid wounds. This is directly contrary to the usual experience with such wounds, as very often following erysipelas it is necessary to do a secondary operation to clean out the flabby, unhealthy granulations. The same would hold true with operative measures on other parts of the body.

The foregoing general description of the effects of leucocyte extract on erysipelas represents not only our own conclusions from the observation of patients so treated, but is based largely upon conclusions drawn by physicians and surgeons under whose care many of these patients were.

For the purpose of analysis little would be gained by giving the histories of all the patients treated. The cases fall into more or less distinct groups, which may be illustrated by a few histories and charts from the different types.

We give, therefore, in some detail the histories and charts of some typical cases to illustrate the effects and method of use of the extract in the different stages and forms of erysipelas.

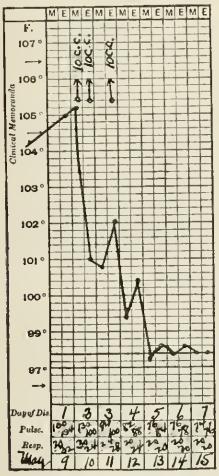

Chart I.—Patient No. 14.

Case I.—Patient No. 14 treated within twenty-four hours of the onset. Early stage. (Patient of Dr. Evans Evans.) Mrs. B., age 56; had always been healthy. No previous attacks of erysipelas. May 9, 1911, she noticed a small area of redness around the right ala nasi. This area gradually became larger and by evening of the same day had spread over the side of the face. By evening the patient was restless, complained of intense headache; had had several attacks of nausea and vomiting; temperature at 9 P. M. 105°; pulse 130. During the night patient was delirious at times, muttering to herself; prostration marked. May 10th, 10 A. M., temperature still 105°, pulse 134. Patient in a stupor, can be roused, but immediately becomes somnolent again; refuses all nourishment. Rash has spread to right ear and down side of neck; right eye closed; some edema of the scalp; prostration marked. At 10 A. M., 10 c.c. leucocyte extract injected beneath right breast. Patient seen again at 2 P. M. Great difference in mentality marked, even at this time. Patient says she feels comfortable, has asked for milk. At 6 P. M., 10 c.c. leucocyte extract injected beneath left breast. Slight spread of rash has taken place during day. Temperature has dropped to 101°, pulse to 100. Patient bright and cheerful and wishes to get up. Headache, nausea and vomiting have disappeared. May 11, 9 A. M., patient had good night and feels perfectly well; no further spread of rash. Desquamation starting on area first covered. As a precautionary measure 10 c.c. leucocyte extract was injected although temperature and pulse are practically normal. After history uneventful.

Case II.—Patient No. 47. Treatment with the leucocyte extract within thirty-six hours of onset. Early stage. (Patient of Dr. J. C. Vaughan.) Mrs. M., age 71. Previous personal history: has had aortic regurgitation for over forty years; compensation good; no other serious illnesses. Urine contains hyaline and granular casts, and about 3/10 grams of

albumin to the liter. Present illness: on April 27, 1911, developed facial erysipelas and by the evening of the same day the rash had involved both eyes and the scalp over the anterior part. Both eyes closed. Temperature 103°, pulse 52, and under considerable tension. Patient

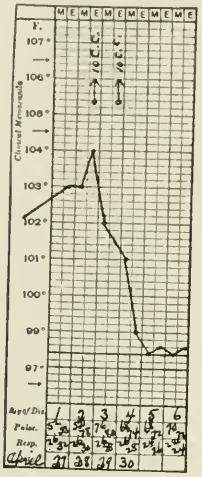

Chart II.—Patient No. 47.

delirious with the low muttering type; refused nourishment; has vomited several times; prostration marked.

April 28, 1.30 P. M., patient stuporous, roused with difficulty. Rash has spread to both ears and to one-half the scalp. Temperature 103°, pulse 52. 10 c.c. leucocyte extract injected beneath the breast. 9 P. M. temperature has risen to 104°, pulse to 72. Mind clear, feels perfectly comfortable. Pulse of much better quality. The improvement subjectively and objectively was so great that no more extract was administered that day.

April 29, patient had a good night—perfectly bright and cheerful—erysipelas rash has spread but there is a distinct difference in its character—rash has changed from a dull purplish one to the bright crimson form; desquamation starting in area first attacked. 10 c.c. leucocyte extract in-

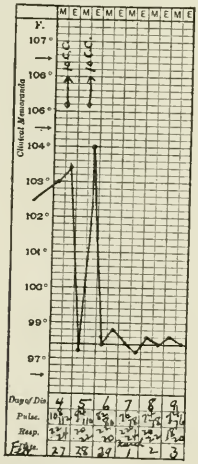

Chart III.—Patient No. 17.

jected as a precaution. The convalescence was uninterrupted.

Erysipelas occurring in such a patient is a serious disease. The age, constitution, cardiac and renal conditions were all unfavorable factors, and yet the erysipelas had run its course in practically two days.

Case III.—Patient No. 17. Treatment started four days after onset. Moderately late stage. (Patient of Dr. John H. Larkin.) Miss Clara M., age 29. Previous personal history: no previous illness, with the exception of an attack of erysipelas five years ago. On Feb. 23, 1911, she noticed redness and swelling of the nose and on that evening had a chill lasting fifteen minutes. During the next four days the rash gradually spread over face and into scalp; patient semi-delirious at night; refused to eat; complained of intense frontal headache. On admission to the City Hospital, Blackwell's Island, on the fourth day of the disease, the temperature was 103°, pulse 108; face entirely covered with the rash and scalp very edematous. On this day 10 c.c. leucocyte extract was injected by Dr. J. H. Larkin at 10.30 A. M. Next morning all the symptoms of toxemia, which had been marked, had disappeared; the temperature had dropped to normal and there was a distinct remission in the spreading of the rash. Same evening, temperature up to 104°; slight spread of rash; patient feels entirely comfortable; no itching or burning; 10 c.c. leucocyte extract again injected. Temperature next morning was normal and remained so; rash has ceased to spread; no subjective symptoms. After history uneventful.

Case IV.—Patient No. 36. Treatment started six days after onset. Moderately late stage. Very severe infection. Miss E., age 22 years. Previous personal history negative as to any serious illnesses. Present illness: two weeks previous to present attack, was operated upon for mastoiditis. One week after operation, patient began to run a septic course, but the focus could not be definitely located. This continued for six days, when a deep-seated cellulitis developed in area of operation. Seen on March 18, 1911, patient in a dull stuporous state, wishes to be left quiet; temperature 105.2°; rash involves right side of face, neck and the whole scalp is extremely edematous. Vomits every time food is taken and complains continually of nausea. 20 c.c. leucocyte extract immediately injected (3 P. M.) March 19, had restless night, but mentality much improved; rash still spreading, but no itching or burning; vomiting entirely ceased; retained all nourishment. 10 c.c. leucocyte extract given at 8 A. M. and again at 8 P. M. Redness still spreading, but patient entirely comfortable. March 20, feels much better; rash has only spread over small area. 10 c.c. leucocyte extract injected. March 21, continued im-

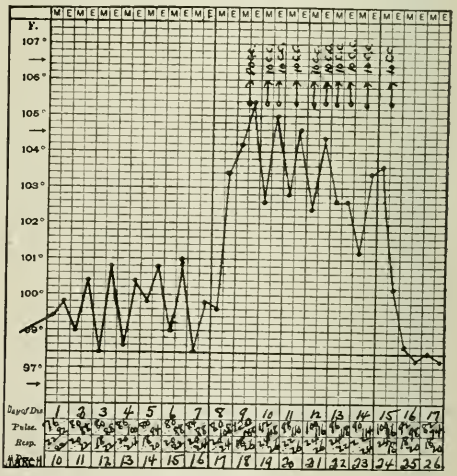

Chart IV.—Patient No. 36.

provement noted; desquamation starting over area first attacked. Redness gradually disappearing; edema of scalp tissues getting progressively less. No subjective symptoms. 20 c.c. leucocyte extract injected. From this time nothing further of note is to be recorded.

Here we have an example of the most severe form of erysipelas, the deep or cellulitis form, and it is in this form that multiple incisions are recommended to relieve the tension and provide outment; headache and prostration marked; mentally dull, sluggish. 10 c.c. of the leucocyte extract were at once injected. Within four hours there had been a slight drop in temperature, a distinct improvement in the general condition, and a clearing up of the confused mental state.

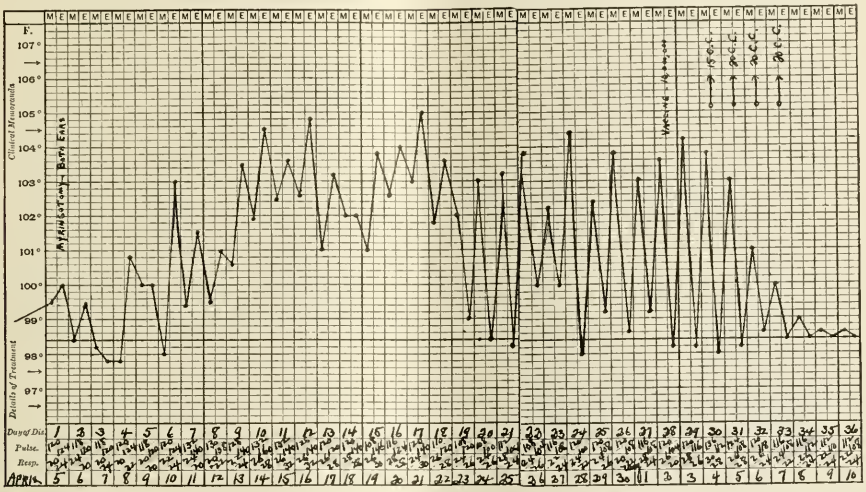

Chart V.—Patient No. 11.

lets for the pus. We think that in this case the use of the leucocyte extract was instrumental in preventing the formation of pus, and thus obviated the necessity of further operation.

Case V.—Patient No. 11. Treatment commenced after twenty-seven days. Very late stage. Baby N., age 2 years, had always been healthy up to the time she developed double mastoiditis, which necessitated the performance of a double mastoidectomy. Following this the child developed a very severe attack of erysipelas which had its inception at the site of operation and gradually spread until it covered the whole body. The rash would disappear from one spot only to reappear on the same spot in two or three days. The general condition of the child became progressively worse and no measure seemed to have any effect. Dr. Dwyer was called to this case after the child had thus been infected for three weeks. Fortunately we are able to present the chart of this patient from the beginning of its infection and a study of it will show that the condition was rapidly approaching that of typical septicemia, the daily variations in the temperature curve presaging this termination. A stock vaccine had been used but seemingly without effect. The general condition of the child was extremely serious, its powers of resistance were apparently rapidly being exhausted. The leucocyte extract was immediately injected, as noted on the chart, and the change for the better was so marked in a few hours that the patient did not seem like the same child. The change in the temperature curve is quite well shown and within two hours after the first injection, improvement set in, the rash began to disappear and convalescence was uninterrupted. In this case the change in the condition of the mastoid wounds was very striking, the pale, flabby, unhealthy granulations gave place to bright red, firm granulations, and the healing of the wounds was uneventful. The child was practically free from all symptoms in four days. The change in the condition coincides so markedly with the use of the extract that there can be little doubt of its action in this case.

Case VI.—Patient No. 27. Treatment started very late. Severe infection. Doctor L., age 32, although of delicate build, had never been severely ill until he developed the present attack of erysipelas in February, 1911. Facial erysipelas, of the idiopathic kind, so far as known, set in and when he was seen five days after the initial onset, the lesion had spread to the scalp, over the face and down the chest. The toxemic symptoms were very marked; he had been vomiting for the past four days and now refused all nourishment. Owing to the pain of the injection, the patient being in an intensely nervous state, refused further treatment. Seven days later Dr. Dwyer was called again on account of the rapidly increasing septic condition of the patient, and a reference to the chart will show that just as in the last case the condition was approaching that of typical septicemia. The erysipelas had just commenced to cover the area first attacked for the third time; the tissues of the scalp were markedly edematous; the patient drowsy and stupid and did not recognize Dr. Dwyer, although he knew him quite well. The injections were started, as shown on the chart, and just as in the last case the results were marked; the rash ceased to spread, the temperature gradually dropped; the mental condition cleared up and practically after the first dose the patient became bright and cheerful and went into a refreshing sleep, the first in some days. The after history of this case is uneventful; recovery was complete in a few days. Here again the

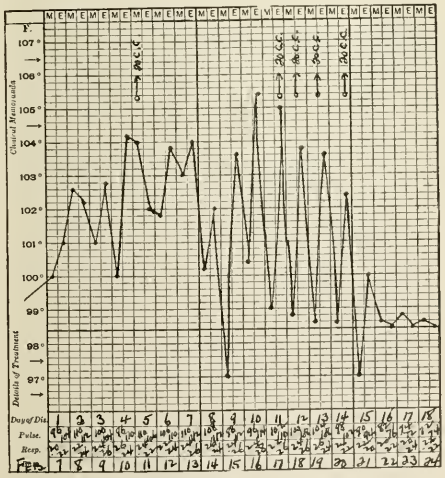

Chart VI.—Patient No. 27.

change for the better is markedly coincident with the use of the extract.

The next two histories, Cases VII and VIII, (Patients Nos. 48 and 49) are patients who were un-

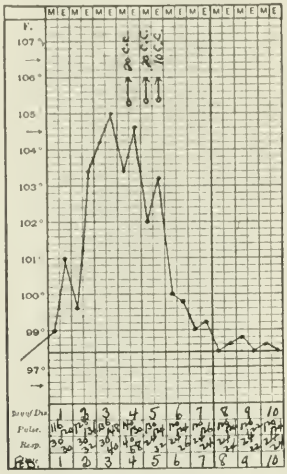

Chart VII.—Patient No. 48.

der observation at the same time, the first one of which was treated with leucocyte extract, the second was not. These two patients were in adjoining beds in the same ward and apparently were infected with erysipelas from the same source, as Patient 48 developed erysipelas within twenty-four hours after Patient 49, and the two patients were isolated together. The difference in the course of infection in these patients was very striking. The untreated child was six months younger than the treated and was not as vigorous, but otherwise the conditions were parallel.

Case VII.—Patient No. 48. Treated within four days of onset. Patient of Dr. Edmund Prince Fowler. Isodore L., age 2 years. Several weeks previous to admission to hospital, had had a mastoidectomy performed on right mastoid. Wound healed kindly, but on February 1, 1911, patient was admitted on account of swelling over site of previous operation. Kept under observation two days and then a second mastoidectomy was performed on same side. Within twenty-four hours the whole side of face, neck and scalp were covered with an erysipelatous rash. Seen February 4, 5 P. M., temperature 104.3°, pulse 158; child practically unconscious, and moaning; refuses all nourishment; vomiting every hour or so. 20 c.c. leucocyte extract immediately given subcutaneously in the abdominal wall. Feb. 5, 9 A. M., had very restless night, no vomiting since injection of extract; retained all nourishment taken and crying for more; mentality clear; slight spread of rash; temperature fallen to 102°; 10 c.c. leucocyte extract injected. Feb. 6, practically free from disease; no subjective symptoms; rash rapidly disappearing. Feb. 7, out of quarantine and back in ward.

Case VIII.—Patient No. 49. Not treated with leucocyte extract. Infection probably from same source as Case VII. Baby N., age 18 months, was convalescing from a mastoiditis that had necessitated a mastoid operation and was in the crib next to Case VII. Twenty-four hours after Case VII was isolated this child developed erysipelas around the site of operation, the sources of infection being probably the same in each case. The chart shows well the course in this case; reinfection after reinfection occurred and during the three weeks that this child was in the hospital, it was covered four times all over the body and when taken home, without the permission of the attending physician, it was still infected and in all probability in a state of septicemia. The child was lost sight of and the after history was unknown.

Here the comparison between the two is very striking, and is well shown on the clinical charts. Further comparison is unnecessary, as the charts speak for themselves.

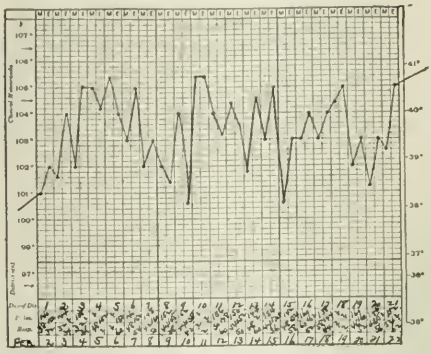

Chart VIII.—Patient No. 49.

The following history is that of an infant under one year of age. Erysipelas in this class of patient is extremely fatal. The mortality rate under routine method of treatment being reported by some as practically 100 per cent. A reference to the statistical analysis of our cases, given later, will show that eight out of twelve infants under one year of age treated with leucocyte extract have recovered, *i.e.* 66.6 per cent.

Case IX.—Patient No. 19. Infant, treated within three days of onset. Gussie L., age 7 months, was admitted to the Manhattan Eye, Ear and Throat Hospital, service of Dr. Duel, Dec. 15, 1911, and was operated on the same day for mastoiditis by Dr. Philip Kerrison. Child small and ill-nourished. Child's temperature immediately rose and erysipelas made its appearance, starting in the edges of the wound and rapidly spreading over the face and down the neck. The organism, isolated from the mastoid pus, at time of opera-

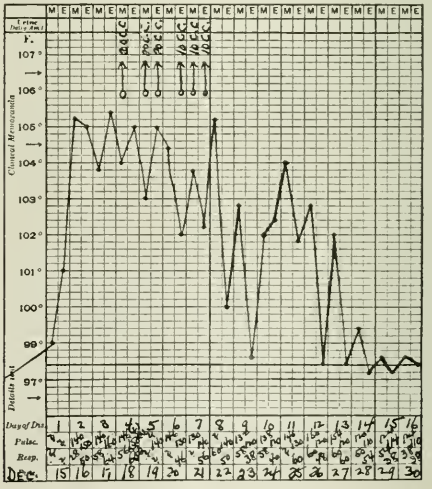

Chart IX.—Patient No. 19.

tion was streptococcus. On the fourth day, Dec. 18, the injection of leucocyte extract was begun. At this time the child was very severely ill: the pulse-respiration rate could not be counted; refused all nourishment, and the erysipelas had involved the whole of the head, scalp and

face, and was extending down over the chest. At 3 P. M. 20 c.c. of leucocyte extract was injected subcutaneously in the right breast. Dec. 19, 9 A. M., child in much better general condition. Pulse rate varies but pulse is of much better quality. No change in the temperature. Child has taken all its feedings since 6 P. M. the previous evening. Had best night since illness started. Rash still spreading over chest but clearing over original area covered. 20 c.c. leucocyte extract given at 11 A. M. 10.30 P. M. patient very weak, takes nourishment by medicine dropper. 20 c.c. leucocyte extract injected. Dec. 20, 9 A. M., child had very good night, took all feedings at 2.40 P. M., 20 c.c. leucocyte extract is injected in abdominal wall. 10 P. M. has had best day since illness began; very bright and cheerful; took all feedings. Rash has practically ceased to spread. Dec. 21, seen at 9 A. M., not so good a night but slept four hours. Took all feedings voluntarily without dropper. No spread of rash. Some distention of abdomen present. 10 c.c. of leucocyte extract given at 11 A. M. and again at 5.15 P. M. Had very comfortable day, abdomen still distended and tender. Dec. 22, temperature dropped suddenly at midnight to 100°; abdomen still distended; rash practically gone. Patient taking feedings regularly. Dec. 23, marked improvement in the whole general condition; child bright and cheerful; rise of temperature slight. From this time the convalescence was uninterrupted.

In reviewing any series of cases treated with such an agent, conclusive judgment as to its value can be formed only on a twofold basis: on the one hand there is the statistical evidence, based on a comparison of a large series of the untreated, and on the other hand there is the more valuable evidence of the daily observation of the case, taking into account all the details of the clinical picture and allowing for the favorable or unfavorable features of the disease as manifested in the individual patient. The latter is the better and the more convincing. A chart conveys a very poor conception of the course of a disease, and especially so here, as the striking results were obtained, not so much in the factors that can be shown on a chart as in the improved general condition of the patient. Another point to be noted is that erysipelas that progresses to a fatal termination generaly develops into a septicemia. When a true septicemia is established the chances of recovery are small, since the organisms have so habituated themselves to the host and have become so resistant that the response of the system to curative measures—efficient in the earlier stages—is not sufficient to effect a cure in most instances. This is borne out by our experience and our statistics; hence the advisability of the earliest application of proper therapeutic measures in this disease.

In addition to these cases Dr. Adrian Lambert in his wards at Bellevue Hospital has treated about fifty cases of erysipelas by this method with extract supplied by us. While the history of these cases will be published in detail by Dr. Lambert, his conclusions are as follows:

Leucocyte extract will abort infections which are treated with the extract within the first four eight hours.

It will ameliorate the course of older infections and may abrubtly terminate them: the longer the infection has existed the less likely is the latter to take place, but it tends to shorten the course of the disease.

The toxic symptoms, delirium, headache, nausea, and vomiting are modified and relieved: local pain is lessened.

The rash does not disappear immediately but is apt to be localized.

The spreading intractable lesions of the back and body are apparently affected as readily as those occurring on the face and head

Pus formation is aborted and sequelæ are rare, if they occur at all. About 50 per cent. of babies under one year of age have recovered from the erysipelas.

Our conclusions are practically the same as these, although we show even a more favorable outcome of the treatment in babies under one year of age.

STATISTICAL ANALYSIS OF ERYSIPELAS CASES

Age of Patient	No. of Cases	Time of Treatment		Average Duration of Treatment		TERMINATION OF CASES	
						Recovery	Death
Infants (up to 1 yr.)	...	Early*	5	4	days	3	2
	12	Late	7	6	"	5	2
Children (1-15 yrs.)	...	Early	5	1.5	"	5	.
	14	Late	9	3	"	9	.
Adults (15-50 yrs.)	...	Early	44	2.2	"	44	
	110	Late	66	3.5	"	66	
Over 50 yrs.	12	Early	5	1.5	"	5	
		Late	7	3.7	"	6	
Total	148	Early	59	2.3	"	57	2
		Late	80	4.05	"	86	3

*Early—Treatment begun within 3 days of appearance of lesion.
Late—Treatment begun later than 3 days after appearance of lesion

RECAPITULATION

Total number of cases treated = 148; recovered 143; mortality 3.39%.
General average duration of treatment = 3.18 days.
Number of recoveries under 1 year old = 8 out of 12.
Percentage of recoveries under 1 year old = 66.6%.
General mortality rate = all cases) 3.39%.
Mortality among patients over 1 year = .73% recoveries = 99.27%.

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INTESTINAL HEMORRHAGE IN THE TUBERCULOUS.

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BLOOD in small quantities in the stools of patients suffering with pulmonary tuberculosis is not an uncommon occurrence, but a hemorrhage of any size is a rare complication of the disease. Guyénet said,

in 1892, that since the first observations reported by Tonnele in 1829 he could find in literature only fifteen cases of intestinal hemorrhage. In a careful search of the literature since 1892 I have been able to collect ten additional cases, which, taking into account the case reported by Guyénet, makes twenty-six cases of intestinal hemorrhage in the tuberculous that have been reported.

In going over the records of the ward cases that have been in the Henry Phipps Institute, about sixteen hundred and twenty cases, I found four cases of intestinal hemorrhage of over 300 c.c. of blood. There were twenty other cases that showed a small amount of blood in their stools at different periods, in quantities up to 68 c.c. at a time. Among these twenty cases were two cases of purpura, one an undoubted case of purpura hemorrhagica, and the other a simple purpura.

Since the great percentage of patients dying of pulmonary tuberculosis have more or less numerous ulcers of the intestinal tract, it is remarkable that there are not more cases of hemorrhage from the bowels, but it must be remembered that in all tuberculous processes there is an obliterative endarteritis, and in this way the victims of the disease are saved from more frequent fatal hemorrhage, not only intestinal but pulmonary. How often cases that never had the least amount of hemoptysis come to the autopsy table and their lungs are found riddled with cavities.

Guyénet divided the intestinal hemorrhages into the mechanical, or those due to rupture of a vessel in the site of the ulceration, and into the dyscrasic, or those not due to a rupture of a vessel, but rather to a diapedesis caused by some alteration in the blood as well as in the vessel wall. The mechanical is undoubtedly the more common, and very frequently the hemorrhage is due to rupture of the capillaries or small-sized vessels rather than to rupture of a vessel of large calibre, because, as in typhoid fever, the bleeding point is very seldom found. In none of my four cases was any definite point found that could be said to have been the source of hemorrhage. In the literature, Hanot reports the only case in which the bleeding point was discovered, quite a large-sized vessel in the site of an intestinal ulceration. The dyscrasic form of hemorrhage could be said to occur only when there was no ulceration along the intestinal tract, but it is hard to imagine a hemorrhage of any size in which there is not a rupture of some vessel. Undoubtedly there must be some dyscrasia in the cases which Guyénet classifies as mechanical, as the consensus of opinion is that these hemorrhages take place in the course of an acute tuberculosis, particularly in the typhoid form, or in the acute exacerbations of chronic tuberculosis.

The occurrence of hemorrhage is frequently preceded by more or less marked symptoms of intestinal trouble, diarrhea, or small amounts of blood in the stools, or both, although this is not always the case. All my four cases had diarrhea preceding the accident: this is the history in the majority of the cases reported, and some have shown blood in the stools before the occurrence of the hemorrhage. One showed no intestinal symptoms until the sudden appearance of the hemorrhage. The symptoms are not so typical as in hemorrhage occurring in typhoid fever, and vary greatly, depending upon the condition of the patient and upon the size and the number of hemorrhages. In cases Nos. 7791 and 4345, both extremely sick men, there was no particular change in the symptoms, except the appearance of the hemorrhage and rapidly progressing weakness, followed by death within twenty-four hours. There is usually pallor, more or less marked, often coldness of the surface and extremities, frequently accompanied by sweating. Sometimes there is vomiting of blood, as in the case reported by Atkin. The temperature does not show the drop so typically as in typhoid, because normally there are such variations in the temperature of an advanced case of tuberculosis. The same holds true of the pulse, which often before the hemorrhage occurs is rapid and weak. In only one of my cases was there a rise in the pulse rate, and that was in case No. 5102, when only one hemorrhage of 384 c.c. occurred. The character of the blood passed will often suggest from which portion of the intestinal tract the hemorrhage comes. This is determined by the intimacy of the mixture of the feces and the blood, and by the color of the blood itself. Hemorrhage from the small intestines is intimately mixed with the feces and is dark in color, frequently looking like tar and often extremely malodorous. When coming from the colon the blood is reddish in color, often found in clots, and is more on the surface of the feces and not intermingled with them.

The prognosis of this condition, occurring as it usually does in a person already extremely ill with advanced tuberculosis, is extremely grave, and the accident is usually the closing scene of the drama. Peters and Bullock report three cases, two of their own and one of Bonney's, who made good recoveries and apparently suffered no ill effects from the bleeding.

The most essential thing in the treatment of this condition is rest. This is best secured by the hypodermic use of morphine. The patient should be disturbed as little as possible and all abdominal manipulation omitted. A light ice-bag may be applied to the abdomen. All food should be discontinued for a time, and then nothing but a liquid diet should be given until all signs of hemorrhage have disappeared. Calcium lactate in doses of ten grains three times a day may be given to try to increase the coagulability of the blood. Saline infusions should not be used unless the patient is ex-sanguine and in collapse. The infusions seem to have a marked tendency to increase or start again the bleeding. It is very doubtful if any benefit is derived from the administration of adrenalin, although its use is advocated by many. Stimulation should be used most cautiously for the same reason that saline infusions are to be feared.

Case I (No. 7791).—A white man thirty years of age was admitted to the wards on November 10, 1909. He had had tuberculosis for some years and had lost about thirty pounds. On admission he appeared a sick man and examination showed advanced disease of both lungs. He had very slight diarrhea, bowels moving one to three times a day. His temperature varied between 100° and 102°, and his pulse between 110 and 130. On the 25th of the month he had a hemorrhage of 500 c.c. from the bowels. The hemorrhage was dark and clotted and of a foul odor. At about 9:30 o'clock the same evening he had another hemorrhage of 450 c.c. and the next morning at 8:30 another hemorrhage of 2000 c.c. or more. He was stuporous and continued so until he died at 4:30 o'clock in the afternoon of November 26. The morning of the 26th his temperature was 98°, about 2° lower than it usually was in the mornings. There was no increase in the pulse rate. The autopsy performed on the 27th showed tuberculosis of both lungs with cavity formation on the left. The jejunum and ileum contained thirty ulcers. There were four ulcers at the ileocecal valve,

three in the ascending and two in the transverse colon. The entire colon was filled with fluid, the greater part of which seemed to be blood, giving the appearance of coffee grounds.

Case II (No. 4345).—A white man twenty-three years of age was admitted to the wards August 9, 1906. Both his parents had died of consumption. He had been a sufferer with the disease for five years and had lost over fifty pounds in that time. On admission the patient was extremely weak. The examination showed very advanced disease in each lung, cavity formation in the upper and middle lobes of the right lung and in the upper lobe of the left lung. The lower lobe in each lung showed more or less infiltration. The liver was enormously enlarged, extending down to the umbilicus. He gradually lost strength and had a slight diarrhea, having from one to four stools a day, but never any signs of blood in them. His pulse fluctuated between 90 and 130. His temperature varied between about 97° in the mornings to about 100° in the evening, his highest temperature being 100.6°. About the 4th or 5th of September his temperature began to have less variation between the morning and evening and after the 14th of the month the temperature did not go above 98 2/5°. The pulse all this time continued as high as ever. At 7:15 o'clock in the evening of September 19 the nurse gave an enema of 500 c.c. of normal salt solution. At 7:45 P. M. patient had a hemorrhage of about 1000 c.c. and at 2:45 A. M. there was another hemorrhage, followed at 4:15 A. M. by the third and last.

The patient grew gradually weaker and died at 9:35 o'clock in the morning of the 20th. The autopsy performed the same day showed, among other conditions, chronic pulmonary tuberculosis with cavity formation, congestion and amyloid disease of the liver. The small intestines were partly filled with fluid and clotted blood. The mucous membrane was swollen and showed numerous areas of ulceration. The cecum and colon contained numerous typical tuberculous ulcers.

Case III (No. 1490).—A white man thirty-eight years of age was admitted to the wards on September 24, 1903. He had had tuberculosis for several years and in that time had lost sixty pounds. On admission the patient was pale and emaciated and examination showed advanced disease of both lungs, but no cavity formation. He had occasional attacks of diarrhea lasting only for a day or so at a time. His temperature varied between 97° to 101° and his pulse between 90 and 120. On the 14th of December he had a tracheotomy performed upon him, on account of his difficulty in breathing. He stood the operation very well and showed no ill effects from it. On the morning of the 19th of December he passed about 500 c.c. of blood in his stool. There was no change in his pulse rate or temperature. He had been growing weaker for some time and continued losing ground. On January 9th there was a small amount of blood in the stool. He died on the 9th of February. At the autopsy, performed on the 10th of February, there was found tuberculosis of the lungs with cavity formation. The ileum showed half a dozen ulcers. At one point it was curled upon itself and bound down by dense adhesions. On breaking these adhesions there was found an ulcer the size of a dime opening on the peritoneum. The large intestines contained no ulcers and appeared normal.

Case IV (No. 5102).—A white man thirty-two years of age was admitted to the wards May 7, 1907. He had had tuberculosis for one year, and in that time had lost about thirty pounds. On admission the patient was emaciated and the examination showed advanced disease. The whole right lung was involved, with numerous cavities in the upper lobe. The upper half of the left upper lobe was infiltrated. He had a slight diarrhea, having from two to six stools a day. He ran a septic temperature, fluctuating between 98° and 103°, and his pulse varied between 100 and 130. On June 15th he had a hemorrhage from the bowels of 384 c.c. of blood. There was no appreciable change in the temperature, but the pulse jumped to 150. In a few days his pulse was down to what it had been before the accident, and he continued in about the same condition except gradually he lost strength until July 26th, when he died. At the autopsy, performed the same day, there was found chronic tuberculosis of the lungs with cavity formation. In the ileum were found one large ulcer about four feet from the ileocecal valve and four small ones near the valve. The whole head of the cecum was one mass of ulcers and hypertrophic tissue.

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CHRONIC MESENTERIC ILEUS, WITH A REPORT OF THREE CASES.*

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The subject of chronic mesenteric ileus has received little attention in English medical literature. We have been able to find but few articles on the subject in our American journals,[1, 2] although a steadily increasing number may be found by French and German authors attesting its interest and importance.

The three cases reported later were seen by us in the short space of eight days, and lead us to feel that this condition must be much more common than is now supposed.

Conversation with our friends in the medical profession shows that chronic mesenteric ileus as a disease entity is known to but few physicians, while it is essentially one that should be recognized and treated by the general practitioner and not relegated to the limbo of surgical curiosities.

Historical.—Rokitansky, in 1842, first called attention to the condition in which one portion of intestine which is firmly attached to the unyielding posterior abdominal wall is pressed upon by another portion of intestine or its mesentery.[3] And in the third edition of his text-book he distinctly states[4] that obstructions can be brought about by compression of the duodenum. "As experience teaches," he says, "it is the movable small intestine with frequently a diseased and elongated mesentery which descends into the pelvis and by means of its mesentery presses upon another portion of intestine. Under this heading comes the compression of the transverse portion of the duodenum by the mesentery of the intestines, and especially by the superior mesenteric artery with its nerve plexus running in the root of the mesentery."

Schnitzler made the first bedside diagnosis and first instituted postural treatment.[5]

Descriptive.—We wish it to be distinctly understood that this condition is not the same as those ordinarily described under the name acute dilatation of the stomach, acute arteriomesenteric ileus, gastroenteric paresis, etc. These usually consist of a primary paralysis of the stomach and duodenum, probably due to disturbance of the pneumogastric and sympathetic nerves and a secondary obstruction of the duodenum at the point where it underlies the mesentery; when death occurs it is usually within a short time.

The condition we are describing as chronic mesenteric ileus is primarily an incomplete obstruction of the duodenum by the root of the mesentery. It is usually accompanied by only moderate secondary dilatation of the stomach. The obstruction is not

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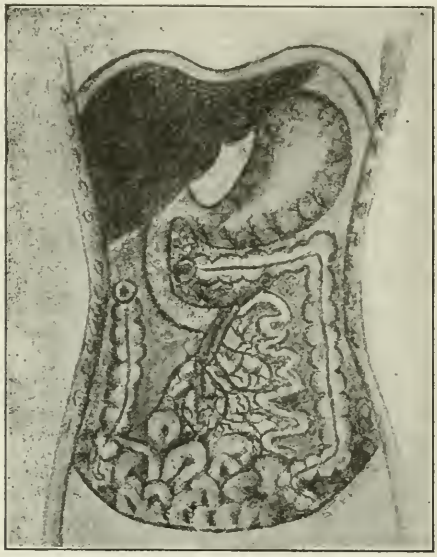
absolute. It may be intermittent, and if death results it is after a comparatively long period of time.

Of course, there may be border-line cases of a type combining the features of both the acute and chronic forms.

The dilatation of the stomach in the chronic form has been attributed not only to mechanical difficulties in emptying itself, but also to the reflex inhibition of gastric peristalsis by the dilated duodenum.[6] Dilatation of the stomach may be absent.[7]

Anatomical.—The anatomical facts of importance are briefly these: The transverse portion of the duodenum as it crosses the spinal column at the level of the third or fourth lumbar vertebra is firmly and immovably attached to the structures behind it. The two leaves of the mesentery of the small intestines arise from the anterior surface of the pancreas just above the duodenum and, sweeping over the front of the duodenum, enclose the superior mesenteric artery, vein, and nerve plexus which



Showing moderate dilatation of the stomach, great enlargement of the duodenum as far down as the root of the mesentery and prolapse of nearly all the small intestines into the true pelvis. The root of the mesentery and the superior mesenteric artery and vein are shown constricting the duodenum.

pass downward in the mesentery at an acute angle to the spinal column and may be said indolently to lie upon the duodenum as they cross it.

Etiology.—The immediate cause of mesenteric ileus is the pressure upon the transverse duodenum of the mesentery and its contained structures. Sufficient constriction to cause symptoms can be brought about only by the presence of the collapsed and empty small intestines in the pelvis, making traction upon their mesentery in a backward and downward direction. It is more frequent in women between twenty and forty years of age.

The predisposing factors are given as follows: (1) Relaxation and thinning out of the mesentery into a cord-like structure. (2) Muscular weakness of the stomach and duodenum as a result of prolonged wasting disease, as typhoid fever. (3) The prolonged dorsal position. (4) The lower position of the stomach in enteroptosis. (5) The influence of enteroptosis upon the position of the duodenum and the root of the mesentery. (6) Low-lying transverse duodenum. (7) Marked lumbar lordosis. (8) Anomalies of position produced by forcible fixation, as by a plaster jacket. (9) Congenital anomalies of development, as in Salomon's case.[8] (10) Presence of intestines in a hernial sac, causing intermittent mesenteric ileus.[9] (11) Relaxed abdominal wall.

Symptoms.—Vomiting is the chief symptom. It may occur once or twice a day or at frequent intervals. It may be intermittent and months elapse between attacks. It is usually more a regurgitation than an expulsive effort. The vomitus is usually green in color and without marked odor. It should be borne in mind, however, that Schlesinger[10] says that material retained in the duodenum for a long time may acquire a fecal character. Hiccough may occur.

Vomiting may be the only symptom of importance, but frequently there is also a more or less constant pain in the right hypochondrium in the region of the duodenum. Occasionally this pain is cramp-like and epigastric in situation. Instead of pain there may be only a sense of oppression and distress in the upper abdomen or a feeling of suffocation.

During attacks the loss of flesh and strength is rapid; constipation is pronounced, although bowel movements occur either spontaneously or in response to enemata. The temperature is normal and the pulse in the early stages is not accelerated. The urine is scanty and acetone and diacetic acid may be present.

It is said that in the milder forms eructations of gas and epigastric distress may be the only symptoms.

The physical signs are a flat lower abdomen with or without a distended upper abdomen. The stomach may or may not be dilated and tenderness and slight rigidity may or may not be present. We are inclined at present to believe that chronic mesenteric ileus will never be found associated with marked distention of the lower abdomen. The differential diagnosis should be made by means of postural treatment.

Treatment.—Prophylaxis consists in a liberal diet and forced feeding in all wasting diseases, as typhoid fever, septic conditions, etc. The prolonged dorsal position should also be avoided. Frequent changes from side to side and over upon the abdomen are better.

In every case of repeated vomiting where the diagnosis is at all obscure the abdominal and knee-chest positions or the elevation of the foot of the bed should be faithfully tried.

Schnitzler saved two patients by putting them over upon the abdomen.[11] Kayser,[12] Walzberg,[13] Landau,[14] and others, saw wonderful results from this also. Two cases of Walzberg's received benefit from both the left and right side positions.[15]

As the intestines follow the law of gravitation and sink to the lowermost point of the abdomen available, the knee-chest position, with or without elevation of the foot of the bed, would seem to be the one most likely to give quick results.

Operative measures should be used only when postural treatment fails, or in those cases characterized by repeated attacks of mesenteric ileus with free intervals between.

Two methods of operation have been used with success. The first is the ordinary posterior no-loop gastroenterostomy. The second is a duodenojejun-

ostomy. This would seem to be the more rational procedure and the one to be preferred if it were not for the fact that the technique is much more difficult because of the deep position and lack of mobility of the duodenum.

It has occurred to us that greater safety might be obtained by thorough lavage of the duodenum, by means of a stomach tube guided through the pylorus after the abdomen has been opened, and before opening the duodenum. The careful application of gauze pads to prevent soiling of the peritoneum would also be necessary. The anastomosis is made below the transverse colon. The portion of jejunum used is about one foot from the duodenojejunal flexure.

To summarize the treatment: Patients have died from mesenteric ileus and the diagnosis has been made only at autopsy. Cases suffering from it have been operated upon and the condition has still remained unrecognized and death has resulted. Some have been operated upon and a gastroenterostomy done and death has supervened.

Others have recovered from postural treatment alone, or from a gastroenterostomy, and one at least has been cured by a duodenojejunostomy which, we think, will eventually be adopted as the best method for curing this disease if a satisfactory and safe technique can be proven by a sufficient number of cases.

Case I.—Ellen S., age 33, female, married. Hosp. No. 46089, service of Dr. Spence. When admitted to the medical service of the M. E. Hospital Feb. 28, 1913, patient had been acutely ill for 7 days with chills, a cough, expectoration and abdominal pain. It was impossible to obtain any history from her because of her critical condition. She was cyanotic and dyspneic and had a terrified expression. There was dulness over the right apex as far down as the second space anteriorly, and the breath sounds were broncho-vesicular over the entire right anterior chest. Moist crepitant rales were heard over both lungs, but were present in larger numbers on the right side. The heart sounds were rapid and of poor quality. The pulse was imperceptible at the wrist. The abdomen showed some tenderness in the fossae but no masses or rigidity. There was a bright red discharge from her right ear and there was a slight red vaginal discharge. Temp. 98.6°, pulse 120, resp. 36, on admission. She complained of pain in the region of her stomach.

Second day, shortly after midnight, a 2½ months fetus was expelled, with relief from the stomach pain. Some headache and pain in the chest were present. In the evening a large amount of greenish fluid with curds was vomited. Other vomiting also occurred several times during the night. The discharge from the ear was now purulent.

Third day. Vomited four times—greenish fluid with curds; quantity was large the last time. Urine port wine color, amphoteric, 1020, heavy cloud albumin; no sugar; many red blood corpuscles; no casts; some epithelial and renal cells.

Fourth day. Vomited six times. Raisins given at 10 P.M.

Fifth day. Test breakfast in the morning showed watery fluid with partially digested starch and a small amount of mucus. Acid reaction. No raisins. Free acid 2, combined 37, total acid 49; lactic acid not present. No blood. Temperature has not been above 100°, and is practically normal to-day. Pulse from 85 to 100. Respirations below 30. Vomited three times.

Sixth day. Vomited twice. Last vomitus blood-streaked. Complaining again of pain in the stomach.

Seventh day. Pain in stomach relieved by vomiting. Vomited four times. *X*-ray taken; the first plate, immediately after a bismuth meal, showed a fishhook-shaped stomach, slightly dilated, whose greater curvature was one inch below the navel and presented an irregular outline. The duodenum did not contain any bismuth. Vomited after first plate was taken. Second plate, 4½ hours later, demonstrated a faulty clearance of the stomach. Considerable bismuth still present. Greater curvature still about one inch below navel. Abdomen to-day shows marked resistance over upper two-thirds. Some tenderness is present above and to the right of the umbilicus and slight sensitiveness also over the tenth dorsal spine and to the right of it. No mass felt. No epigastric distention. Lower border of stomach is at navel. Upper border midway between xiphoid and navel. No splashing. Patient says that she has had pain for the past ten years. It is sharp, but can be borne. Comes on two hours after eating, over the stomach. Has belched gas and had eructations of sour fluid for ten years off and on. The pain is made worse by hard work or a heavy meal. Is worse at night and when lying on the back. It is relieved by rest, light eating, sodium bicarbonate and food. It is easier in the daytime and when lying on the stomach. Belching of gas, passing sour fluid, vomiting and lavage give relief.

Eighth day. Urine shows a cloud of albumin and an occasional granular cast; no indican. Blood not present in feces. Bowels have moved almost daily—sometimes oftener than once. Evacuations have been brown and semi-formed—or at times green and fluid after saline irrigations. Complains of severe pain in center of upper abdomen above umbilicus. Given raisins at 8 P.M. No vomiting to-day.

Ninth day. Test breakfast removed at 8.45 A.M. Raisins found; much mucus and greenish food residue. Reaction acid; no free acid, total acid 75, no lactic acid; no blood; undigested starch, mucus. No vomiting. Urine amber, acid, 1035—cloud of albumin, no sugar; many red and white blood corpuscles. Rare granular cast.

Tenth day. No pain or vomiting.

Eleventh day. Vomited once. Complains of pain.

Twelfth day. Vomited five times; streaked with blood; uncomfortable. Had green and black fluid evacuations following irrigation of colon.

Thirteenth day. Is hungry, but vomited three times. Temperature has been normal for past week. Seen by Dr. Graham and operation advised because patient is receiving no nourishment and is perceptibly failing. Probable diagnosis—gastric ulcer, but the opinion is expressed before operation that an ulcer case in which vomiting is the chief symptom is likely to be proven something else.

Transferred from medical to surgical service. Operation by Dr. Spence. Right rectus incision in upper abdomen. The stomach was only moderately dilated, the pylorus easily admitted two fingers, the duodenum was two or three times its usual size. Nothing abnormal was found in gall-bladder or pancreas. There was no evidence of an ulcer. A posterior no-loop gastrojejunostomy was performed and a running Lembert suture was used to narrow the pylorus. The abdomen was closed as usual without drainage.

Following operation vomiting continued, the pulse steadily increased in rapidity, the abdomen became distended, and death supervened.

Autopsy by Drs. Smith and Graham. The contents of the entire upper abdomen are bathed in pus. The stomach and first portion of the duodenum are more distended than at operation. The gastroenterostomy opening easily admits two fingers. The suture line is absolutely tight and no point of leakage can be found anywhere in stomach or intestine. The pylorus admits a lead pencil. No ulcer is present in stomach or intestine. The gall-bladder is normal—as is the pancreas. The one marked feature is the distention of stomach and duodenum down to the region which underlies the mesentery of the small intestines. Beyond this the duodenum and rest of the small intestines are collapsed. Most of the empty small intestines are gathered in a ball deep down in the true pelvis. With difficulty the finger was passed along the duodenum under the root of the mesentery and traction made in a forward direction. After considerable force had been exerted the intestines came out of the pelvis with a pop like that made in withdrawing a cork from a bottle.

The kidneys were normal. And an examination of the entire intestinal tract in situ and later removed and split open revealed nothing else abnormal. The condition was undoubtedly one of mesenteric ileus.

Great care was used during the operation to prevent soiling of the peritoneum, and none occurred except the unavoidable soiling which always takes place along the suture line in a gastroenterostomy.

This is the first gastroenterostomy that we have lost from peritonitis in a rather large series of cases, so we feel justified in attributing it to the devitalized tissues of the patient, which, as a result of prolonged disease, were unable to protect themselves to the necessary extent. Earlier operation in

these cases would tend to lessen the number of such occurrences.

Case II.—We are indebted to Dr. W. A. Sherwood for permission to report this case, which we both saw before and at operation. M. B., female, age 19, nurse; M. E. Hospital, No. 40,128; service of Dr. Sherwood. For nearly a year the patient has been suffering off and on with pain in the right hypochondrium. There have been several acute exacerbations of the pain, accompanied by nausea. Five months ago she had a severe attack of pain, nausea, and vomiting. The pain was acute and situated, as before, midway between gall-bladder and appendix, and a little rigidity was present on the right side. Tenderness was marked over the right side of the abdomen and in the right loin. Renal trouble was suspected, but the urinary findings were negative. She was seen at this time by Drs. Spence, Campbell, and Sherwood. No positive diagnosis was made, but operation was advised. Operation by Dr. Sherwood. A moderately congested appendix was removed. The stomach and entire duodenum were much dilated. Following operation there was much distention of the upper abdomen, frequent vomiting of large quantities of green fluid, and a temperature of 104° to 105°. These symptoms subsided under lavage and enemata, and thereafter convalescence was uneventful.

Following this she was quite well for three months, and then began to have pain again of the same character and in the same place—low down in the right hypochondrium. This was constant, but worse when she was on her feet. Taking of food had no effect on the pain. She steadily became worse, and finally for three weeks was confined to her bed, taking little or no food without pain and vomiting. There was obstinate constipation, and belching of gas. Urine—clear amphoteric 1,020, faintest possible trace of albumin, no sugar, uric acid precipitate; occasional red blood cell; epithelium; no acetone or diacetic acid.

An *x*-ray picture immediately after a bismuth meal showed a small fishhook-shaped stomach in normal position, but physical examination always showed a moderately dilated stomach; no bismuth in duodenum. Tenderness was always present over the right side of the abdomen from the free border of the ribs to well below the umbilicus, and also around in the lumbar region.

Second operation by Dr. Sherwood on the day following the operation on our first case. The stomach was about twice its normal size, and the duodenum about 2½ times its normal diameter as far down as the point where it was crossed by the root of the mesentery; beyond this it was collapsed and small. There were a few adhesions near the pylorus joining it to the liver and the great omentum was adhered to the appendix scar. The gall-bladder was normal and no ulcer was found in stomach or duodenum. A posterior no-loop gastroenterostomy was performed.

Following operation, the patient vomited a number of times the first day; twice the second; once the third; none on the fourth, fifth, and sixth days. On the seventh vomited 25 ounces dark green fluid, with foul odor. On the eighth, vomited 16 ounces and smaller amounts at intervals later. On the ninth day was nauseated, but no vomiting; was turned over upon abdomen and felt much better. From the tenth to the twenty-sixth day there was no vomiting.

On the twenty-seventh day vomited 12 ounces of greenish-brown fluid, and later 20 ounces of same fluid, with particles of undigested food; very sour odor. This was again relieved by the knee-chest and abdominal positions, and a week or so later the patient left for her home in the country. Her pain ceased immediately after the operation, and she was steadily gaining in weight and strength.

A later report, after this was written, tells of a gain of seven pounds in weight, and marked general improvement.

Case III.—E. W., Riverhead; patient of Dr. A. G. Terrell; age 17; female. First seen with Dr. Terrell by Dr. Graham, March 18, six days after operation on last case. Mother states that she has always had a strong stomach, and has not vomited more than twice during her entire life until present illness. She is now near the end of the fourth week of a severe typhoid fever, during which her diet had been chiefly broths and milk. During the last four days her temperature has been normal. There has been a tendency to vomiting throughout her entire typhoid, but it has been more troublesome for eight or nine days. Night before last she vomited eight or nine times; last night six times; vomits with ease and has little distress. The vomitus is blood streaked. The bowels move every other day, in response to an enema.

Examination.—Patient is a girl of small frame. Her expression is good and the general appearance better than was to be expected from the history. No subcutaneous fat. Skin good color; no jaundice. The tongue was clear, but the throat was dry and irritable. Chest examination showed a normal condition. The abdomen was *flat*, the *epigastrium depressed*. There was no tenderness or muscular rigidity. No masses could be felt in the epigastrium or right hypochondrium. The *stomach percussed about one inch above the navel.*

The subject of mesenteric ileus was discussed, and because of the absence of prostration or other evidence of a serious condition was laid aside, while nerve sedatives and lavage were tried. These had no effect in reducing the vomiting, so a definite diagnosis of this form of ileus was made a few days later. In the meantime a second consultation with another physician brought a new line of suggestions, so postural treatment was not carried out until March 28. Urine, acid, 1020, trace albumin, no sugar; urea .01, diacetic acid present, few leucocytes, and many bacteria.

The vomiting steadily increased until it occurred as many as 24 times in 24 hours. The pulse became intermittent and death seemed imminent. Dr. Terrell now decided to give postural treatment a trial. The foot of the bed was elevated and the patient put in the knee-chest position for five minutes. The vomiting ceased almost immediately, and recurred only twice during the following month. Her present condition is excellent, and she is eating a liberal diet. The elevation of the foot of the bed was continued for a time.

In considering this case attention is called to Baumler's case occurring after typhoid fever.[16]

The history of this disease in the past has been that the physician almost invariably has failed to recognize his first case, as in our present series, but has easily diagnosed succeeding ones. This primary failure is unnecessary and would not occur if the question of mesenteric ileus was considered whenever persistent vomiting is the chief symptom of a disease.

Postural treatment, as indicated above, should be tried in every case of persistent vomiting when the diagnosis is at all in doubt, until we have a greater knowledge of the influence of pressure upon the duodenum in producing vomiting, not only in true mesenteric ileus, but also in many other conditions.

As Stavey has pointed out, periodic vomiting and the cyclic vomiting of children[1] must be studied anew from this viewpoint, and to this we would add hysterical vomiting, nervous vomiting, and cases now classed as gastric neuroses.

The careful observations of many men are necessary to determine how far the question of mesenteric ileus is a factor in these conditions.

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POTASSIO-MERCURIC IODIDE.

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Of all the drugs which have been used in both medical and surgical practice probably few have held, are now holding, or doubtless will hold, a more imperious sway in the domain of therapeutics than that of mercury. For many generations it has held a time-honored and classic distinction and especially is this so in the treatment of that terrible scourge of humanity—syphilis.

Now it is apropos of a very wonderful salt of this metal that I would like to speak—that salt readily obtained by the addition of the red iodide of mercury to the iodide of potassium. Its chemical formula is K_2HgI_4 and it is known universally by the chemist as the double salt of mercury and potassium or potassio-mercuric iodide. This particular salt is soluble and very readily so in both water and alcohol and in any proportion. It is the most active as well as the most curative and least prejudicial of all the salts of mercury. I will first call attention to its marked antiseptic powers when used topically and then will conclude my remarks on its character as a topical medicament.

Oftentimes, nowadays, when confronted by a local septic lesion of a serious nature we are compelled to seek an active antiseptic which will act rapidly and curatively with a minimal effect on the infected and seriously traumatized tissues. When the lesion is short of pulpefaction it is always our aim to conserve a part and especially does this hold true when we deal with important structures of the body.

In this connection there recurs to my mind the saying of Valentine Mott—certainly one of the most famous surgeons that our country has been fortunate enough to produce. He once started on his series of surgical lectures by the very pertinent remark that "surgery is the opprobrium of medicine." Now the correctness of this viewpoint cannot be better exemplified today than when we come to the proper treatment of seriously lacerated wounds of the body or of the extremities. Here very frequently a limb is saved by conservative treatment and anent this very saving it is often because a superior antiseptic has been used in the treatment. Now this preparation of potassio-mercuric iodide is an altogether soluble one and it is so in any proportion of water or alcohol. It does not coagulate the tissue albumins as does corrosive sublimate (or perchloride of mercury) and its action on the tissues is more or less topically organotropic—a statement which certainly cannot be said of the red iodide of mercury. It is also more actively antiseptic than corrosive sublimate. In point of fact, I think it the nearest approach to an ideal antiseptic that I know of. In the first place, this chemical entity is remarkable for its marked solubility. The highly poisonous action of the red iodide seems admirably tempered by the addition of the potassium salt, and the addition is what brings about its great solubility. Toxicology teaches us that more massive amounts of the red iodide can be incorporated into our systems when this poisonous iodide has had added to it the iodide of potassium. The resultant compound is at once soluble in the tissue juices and is wonderfully soluble in water, a thing untrue of the red iodide which is but sparingly soluble in water. The great requirements of any antiseptic are twofold: (1) that it is efficient to kill bacteria and vitiate the hurtful effects of their toxins; and, (2) that it will be nonprejudicial to the vitality of the tissue involved. The latter consideration is not only intimately wrapped up with the ease of tissue repair but has to do with cosmetic effect also which is of paramount importance in wounds of the face or exposed parts of the body.

In this consideration of a serviceable antiseptic the medium of growth must claim our attention. The antiseptic power must be tempered to suit in each case. The conjunctival cul de sac, gaping flesh wounds, tears of an exposed body surface, etc., all require preparations of different strength. In all these respects the potassio-mercuric iodide is eminently acceptable. The tempered iodide is powerfully antiseptic as well as non-prejudicial to tissue repair. It may be used in the same proportion as corrosive sublimate. In fact, a higher dilution than corrosive sublimate brings the best results, but the amount of dilution is to be governed, of course, by experience and the exigencies of the case. In this connection it is the chemical nature of the antiseptic *per se* which is of such great import because we all realize that any substance which cannot subserve a use as a food and nutrient medium is in *potentia* an antiseptic. In such a medium there is no such thing even as the survival of the fittest as far as the bacteria are concerned. Thus it may be said that our most valuable antiseptics are the salts of the heavy metals, different mineral acids, certain agents of an oxidizing and reducing character, volatile oils, etc.

Following in this line of thought I will refer now to the admirable work accomplished by M. P. Miguel in the eighties in a very extensive series of experiments performed at the observatory of Montsouris in Paris on organisms of the atmosphere. Miguel's classification was as follows: (1) Substances eminently antiseptic, 1 : 100,000 to 1 : 10,000; (2) substances very strongly antiseptic, 1 : 10,000 to 1 : 1,000; (3) substances strongly antiseptic, 1 : 1,000 to 1 : 200; (4) substances moderately antiseptic, 1 :200 to 1 :50; (5) substances feebly antiseptic, 1 : 50 to 1 : 10; (6) substances very feebly antiseptic, 1 : 10 to 1 : 3.33.

In Miguel's experiments the amount of each agent tested—in grams—which was required to prevent the putrefaction of 1 litre of beef tea was determined, thus giving directly the ratio per 1,000. Any agent failing in the proportion of 300 grams to the litre was dropped from the list. Now the very top chemical in this French scientist's list in class 1 of those substances eminently antiseptic was mercuric iodide. It was efficient in the proportion of 1 : 40,000. In this same class, but far below the mercuric iodide, comes corrosive sublimate, efficient in the proportion of 1 : 14,300. Now of all the substances of this first group and the hitherto unnamed are silver iodide, hydrogen peroxide, and silver nitrate. Bichloride of mercury has heretofore received the greatest attention by reason of its comparative cheapness, solubility, etc. Since potassio-mercuric iodide is comparatively inexpensive and since it does its work much better than the sublimate, I have always used this double iodide.

Already iodine containing antiseptics are rapidly coming to the fore in practical medicine and it

seems as if it is only of comparative recent date that it is so. B. C. Hirst advocates as an intra-uterine douche in puerperal sepsis tincture of iodine 5i to a pint each of water and alcohol. Hirst also in obstetric practice is fond of painting the abdomen with iodine prior to surgical intervention. Wrench and Tweedy in the Rotunda Hospital in Ireland have found the biniodide of mercury, 1-10,000 to be a valuable antiseptic in their obstetric work. On our own Texan frontier I recently learned of valuable work being done along conservative lines in seriously lacerated injuries by adding appropriate amounts of tincture of iodine to normal salt solution. Recently Professor Reynès of Marseilles has published a splendid article on vaporous iodin in *Le Progrès Médical* after the method of Longe. His article is entitled "L'enfumage iodé en gynécologie." [Cette méthode consiste essentiellement dans l'utilisation de vapeurs d'iode produites instantanément par la combustion et le chauffage d'un iodoforme de bonne quantité.]

Miguel has shown iodine to be equally as effective as chlorine—both efficient at 1:4,000. No one will gainsay that iodine is much more beneficent in its local action. In intimate combination it will be seen how much iodine is contained in this double iodide I speak of, since its chemical formula is K_2HgI_4. For purulent ophthalmia, 1:10,000 is a good dilution; for ordinary antiseptic work, 1:2,000 will be applicable. It has a marked influence when diluted 1:2,000 in alcohol and used on a swab when locally applied in diphtheria and scarlet fever in reducing the infective inflammation. Of course, in the latter two diseases this is only an exceedingly valuable aid in association with general treatment. In erysipelas the local application stops the mischief most rapidly.

MEDICINE'S NEED OF A CEREBELLUM.

By W. B. KONKLE, M.D.,

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Medicine is all going to cerebrum—encephalologically speaking. The various departments of the science and art of healing as symbolized by the convolutions of the higher brain continually grow more complete and complex in themselves, at the same time assuming an independence progressively more marked which tends to discordance and antagonism. The present state of medicine is strongly characterized by specialism that will, also, inevitably dominate its advancement and expansion. Now this pronounced cerebral growth is not to be deplored in itself. In an absolute way there can not be too much upper brain. Only relatively is the condition pernicious. There is no excess of cerebrum, but there is a woeful lack of cerebellum. Specialties are not too many, nor are they overdeveloped and overrefined. The trouble is that these are subjected to no control—they know no directing, governing, coordinating influence. In this Hydra we have a monster, not with one body and nine heads, but with nine bodies and no head.

The splitting-up process is not new in medicine. The phenomenon occurred in the old Egyptian civilization. Says Herodotus, "Medicine in Egypt is divided; each physician occupies himself with a single kind of sickness, and not with many. Doctors swarm everywhere; some for the eyes, others for the head, others for the teeth, others for the belly, others for internal disorders." In Rome medicine and surgery were separate fields the respective occupants of which consulted freely with each other. Galen, who while at home practised both branches, at the Capital, deferring to custom, mostly avoided surgery. Specialism went much farther than this, however; in fact it rivalled the situation in the former kingdom of the Nile. Baas remarks, "This specialism is *per se* an evidence of a civilization of high development, indeed of one tending toward its downfall." God forbid! we are led to exclaim as we view our own case.

Medicine has attained vast proportions. Its substance is massive and its stores are enormous. For its actual comprehension and further enlargement its division as concerns research and investigation is at once and equally necessary and productive. But the method involves certain drawbacks and disadvantages and dangers. To specificity, thoroughness, and intensity are sacrificed universality and harmony. Unity is lost in multiplicity, the branches looking forward to extension and subdivision rather than backward to the connecting and supporting trunk. Close preoccupation with the present occasions obliviousness to the past, and the ages speak to heedless ears. Irresponsible separation induces irregularity, inequality, contrariety of movement, such incoordination of energy and effort resulting in confusion and disorder.

In truth, medicine has come to resemble Germany before the existing empire, when the domain and the dominion of the Fatherland were cut up into small or smaller principalities, manifold and motley, without central sovereignty, without adequate hegemony, without common aim. Significantly indicative of the condition are these lines of Kerner:

> "Preisend mit viel schönen Reden,
> Ihrer Länder Werth und Zahl,
> Sassen viele deutsche Fürsten
> Einst zu Worms im Kaisersaal."

It was with reference to the situation in question that Heine said, "Für das vielzersplitterte Deutschland war es aber eine Wohltat dass diese Anzahl von Sedez-despötchen ihr Regieren einstellen mussten." And in his best style he deplores the fact that when these "Mediatisierten" had ceased to wield the scepter they did no cease to wield spoon, knife, and fork, in like inimitable satire commending their foresight in maintaining their "Gleichbürtigkeitsrecht" and in placing so high an estimate upon their "Stammbäume," since in consequence they could supply consorts of pure blood to the presidents of the United States when the latter become kings!

But in one respect medicine is in a more sorry case than was "vielzersplitterte Deutschland"; in the latter there were at an earlier period various electors who did nominate an overlord as to which distinction they themselves were severally eligible and fit, whereas in the former there is no electorate to determine primacy and no eligibility nor fitness with respect to it.

The requirements of the condition as thus set forth are plainly evident. The manifold centers of activity so disconnected and self-absorbed first of all should be subjected to some supreme, commanding authority or power operating for coordination. Medicine with its highly developed and widely differentiated cerebration above everything else needs a full-sized, vigorous cerebellum. Disproportionate, encroaching, usurping growth and endeavor, spasmodic, haphazard, conflicting action, orderless, chaotic administration, all these loudly call for correction and direction. Yes, truly the crying need of medicine is a cerebellum.

Unification is an urgent requirement of medicine. To this end is further indicated general and effective coordination of its parts. Let all of the different branches of medicine be brought into proper organic relationship, and unity will be accomplished—there will be manifest only a single organism. And an organism medicine should be—not a confederation, not even an organization, but an organism. Let medicine be, not a feudal Germany, but an imperial Rome. And what a majestic corporate mass was Rome! Reins of power radiating from the Seven Hills as a center, like nerves from the brain, ramifying all her members, terminating in a hundred tributary Capitals, wove the whole complex organism into a mighty unit of life, its head the Eternal City. May medicine's Caesar quickly come!

But who shall sit on the Seven Hills? That is the crucial question. The condition is clearly evident, the requirement is quite plainly indicated, but the practical solution of the crisis is another and a harder matter. Bassler (*New York Medical Journal*, March 1, 1913) has lucidly and ingeniously discussed the emergency, and suggests meeting the difficulty by the creation of still another specialty, that of diagnostics, as a sort of correlating factor. But would such remedy be far-reaching enough? Could the expert diagnostician be more than a chief specialist standing in the antechamber of the hall of the specialties and directing those who might present themselves along which corridor they should go and into which alcove they should enter! But yet who would be the primary arbiter as to when people should resort to the hall of the specialties?

Let it be tentatively submitted that the medical college itself, even though not in the most exact sense the *imperator* by right and might reigning in our palace of the Cæsars, should, however, be the center and source of coordination in medicine. And the schools of medicine should constitute the prototype of the general medical profession—the microcosm foreshowing the macrocosm. To altogether fulfill this function the medical school should be founded upon the university idea and built after the university plan. The medical university should be the temple of medicine under whose consecrated roof all that vitally pertains to our science and art should find sanctuary. All groups and sub-groups should have a home there. Even dentistry should be led into the common fold. Why should odontology, which is just as much a branch of medicine as is ophthalmology or any other "ology," flock off in a corner by itself?

In the medical university at the very head of the departments of instruction should be established two chairs—a chair of the history of medicine and a chair of coordinative medicine. The latter would have for its office the teaching of the interconnections, interrelations, and interdependencies of the various branches. It would be the outlook chair from which the field could be viewed as a whole, generically, concordantly.

The importance of a chair of medical history could scarcely be overestimated. Those who neglect the past as barren or despise it as unworthy do not know it; for the past is neither barren nor unworthy. Says Longfellow:

> "From the barred visor of Antiquity
> Reflected shines the eternal light of Truth,
> As from a mirror!"

Even from the reverberating vaults of centuries themselves ancient come these words of our Hippocrates: "The art of medicine has from the earliest ages contained everything in itself, a principle as well as a method, by means of which, in more spacious times, many beautiful discoveries have been made; the rest will yet be found out, if capable investigators, knowing what has already been achieved, commence their research from that point." A chair of history would trace the march of medicine in all its windings and haltings and back-turnings. It would show how our knowledge is largely the product of evolution. It would depict how laboriously and tediously were mined and gathered the treasures we possess to-day. It would separate the truth from the error in the vast hoard of ideas and opinions bequeathed to us by the ages, bringing into striking relief the great minds of other times, and pointing out our indebtedness to each. It would demonstrate that a strong original thinker is never all right nor all wrong. It would call special attention to the mistakes of former workers, and strive to prevent repetition of the same, and would thus forestall the traveling in a circle to which medicine is perennially so prone. A chair of medical history would do all this, and would do more. It would form a close bond between the past and the present, and also between the existing divisions of medicine, thus bringing into prominence the conception of unity as to time and as to structure. Inseparability of history would be taken as a test and seal of oneness.

As the fountainhead of energy directed toward coordination and unification, from the medical university should the law go forth. And yet would it be advantageous were there to be found in the outside field influences and agencies cooperating to the same end. An influence of this kind appertains to general organization. Special bodies have their distinct sphere of usefulness; but they must not be allowed to supersede common association of medical men and common discussion of medical subjects. Such meeting on common ground preeminently holds together the profession and regulates its movements. In general gatherings the specialist should forget that he is a specialist, and all proceedings should have the impress of catholicity and of universal interest. If it thus conforms to broad, charitable principle and design, organization will potently conduce to professional unity and harmony.

But, after all, if unity and coordination are to be continuously realized in the profession at large some one must be found there particularly standing for them. There never has been, is not, and never will be other than one such agent. He is the family doctor. No matter what may be his crudities, weaknesses, and inconsistencies he is the only material we have out of which to make a sovereign. And it is he who must save the day if medicine is to remain a profession instead of becoming an association or confederation or congeries of trades, and if order and symmetry are to prevail therein. "Now, in the names of all the gods at once," if such be his high destiny let him get himself ready for it. The trouble with him has been that he has not apprehended his proper mission, nor the real basis of his strength, worth and dignity. He has been trying to do detail work in all quarters, when it is his business chiefly to oversee. He has been panting along after the specialists and succeeding merely in playing second fiddle to them, when it is his prerogative to marshal and command them. He has wellnigh split his "one small head" in his endeavor to be an authority in

everything, when from the nature of the case he can be an authority on nothing but humanity.

Just as to become an ideal specialist, so to become an ideal family doctor one must from the very beginning keep in view his goal. Not a bad idea is it to consider family practice as a genuine specialty. The keynote to preparation for the work should be breadth rather than depth of knowledge and culture. Today to know exhaustively all departments of medicine would really require a cyclopedic intellect like that of Aristotle or Galen or Leibnitz or Haller. The family doctor should be a liberal scholar something after the best type of physician of a century or two ago. In the medical university that is to be, as a student he should devote much time to coordinative medicine and to the history of medicine. His most searching study should be of man himself.

In actual practice the family doctor should be able to read people and to manage people. As did Hippocrates, so he in treatment should individualize, remembering that he is dealing not simply with disease but with a sick person. Up to this point he will be self-sufficient. But he must go beyond this. He must be able to distinguish disorders which may be left to themselves from serious maladies. His diagnosis must look principally to the exclusion of dangerous or deadly emergencies. If he has any doubts he should invoke the specialties; and right here is where Bassler's expert diagnostician would be available. And here, too, is where may be brought to bear the family doctor's keenest judgment and adroitest tact. Says Fenelon in "Télémaque," "C'est merveilleusement gouverner que de choisir et d'appliquer selon leurs talents les gens qui gouvernent. Le suprême et le parfait gouvernement consiste à gouverner ceux qui gouvernent." The physician who knows when to call consultants and whom to call has the quality of true professional acumen and competency.

If the family doctor thus makes himself worthy of his high place in medicine, if he achieves roundness and comprehensiveness of learning, not rearing an imposing superstructure of pretension on a very insignificant foundation of merit, if he renounces specialties except, forsooth, that of human nature, if instead of attempting to ape and rival the specialists he insists on subordinating and ruling them, proceeding upon the principle that in hard, intricate issues of diagnosis and treatment with him it is a question not so much of knowing the law as of knowing where to find it, if he keeps to the mountain top from which he may see all things albeit not minutely, and direct all things albeit not in detail, if he so comports himself then will he gain the respect and deference of even the special leaders of his profession, and will win from the laity trust, love, and honor.

And he will remain. It is idle to assert that his empire is to end. Such a friend and defender as him humanity will never consent to give up. The jurist and the priest may go, but the family doctor will stay. Some day down yonder Justice as a blindfolded Nemesis will have yielded her throne to the Angel, Mercy, open-eyed and open-armed, and the golden rule of Confucius and Jesus will have banished greed and strife; and so magistracies and tribunals may cease to be. And some day, too, "the earth shall be filled with the knowledge of the glory of the Lord, as the waters cover the sea," and loyalty to duty and righteous living will nullify repentance and atonement; and so intercessors and altars may pass away. But evolve as he may man will continue to be human and mortal; and so family medicine will perpetually have its mission in the world. The family doctor will remain—will remain because forever people will be born, will run a gauntlet of physical ills, and will die.

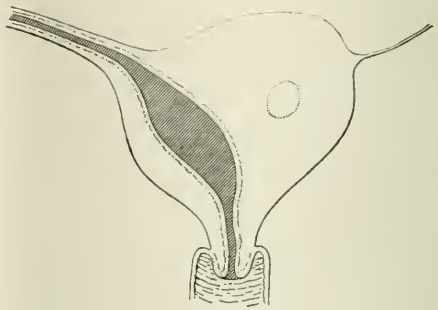
DYSMENORRHEA FROM IMPERFECT DEVELOPMENT OF THE UTERUS OR MALFORMATION.

By J. F. BALDWIN, M.D.,

COLUMBUS, O.

SURGEON TO GRANT HOSPITAL, ETC.

That a fair percentage of cases of dysmenorrhea are due to malformation or imperfect development of the uterus will be quite evident to any surgeon who studies his cases closely both before and after operation. A carefully obtained history of these cases will show that the pain commenced at the beginning of menstrual life and persisted in spite of all treatment. Such patients have usually had one or more dilatations performed with curettage, but with no benefit. There is no history of any infection, nor does the most careful examination show any inflammatory condition. The pain



Two-horned uterus. Right horn typical, but left horn undeveloped and causing dysmenorrhea.

in many cases commences before the flow begins, continues through the flow, and for a greater or less length of time afterwards. It is not unusual to find such patients comfortable for only about one week out of four. Some of them have had a good deal of local treatment in the way of endometrial applications, and others have worn some form of a dilator for weeks at a time, but all without benefit. Careful bi-manual examination shows in these cases a malformed uterus, or a uterus that is below the normal size. The lack of development may not be marked, but on later microscopical examination the lack may be very evident.

In cases of imperfect development such patients should undoubtedly first be subjected to treatment directed to securing a more normal condition, and for this purpose the persistent use of a dilating stem is probably the best. If marriage is in prospect one might hope that improvement would be manifest after that was consummated, but if after the lapse of several months there is no improvement, further expectation along that line should be abandoned.

I have operated in a considerable number of these cases, but will report only two, the first as entirely typical of this form of dysmenorrhea, the

second because of its unique form of malformation.

Both patients have been heard from recently and both are in every way in excellent health and happy over the relief from their incapacity.

Case I.—Miss A. W., age 24. Physician, Dr. Howard Sharp, Woodstock, Ohio. Patient had no trouble with her menstruation the first year after its establishment. Since then the pain had been getting worse, until of late it had been extreme. The pain would begin with the beginning of the flow, and last for three or four days. Had to take morphine. The pain extended to the knees. Was attended with much nausea, and occasionally vomiting. The most pain was throughout the lower abdomen. The flow was usually fairly regular, but clotted. Examination showed a normal vagina, but everything in the vault was very tender. Uterus sharply anteflexed, but with a general tendency to retroversion. Cervix and external os apparently normal. Her condition was such as to interfere seriously with her work as a teacher, and imperatively demanded relief.

June 11, 1912: Under an anesthetic it was found that there was no mechanical obstruction to the escape of blood and the curet showed no signs of any endometritis. On opening the abdomen the uterus was found below the average in size, and the walls lacking in ordinary consistency. Owing to the history of the case it was evident that the dysmenorrhea was due to the condition of the uterus, and a hysterectomy advisable. This was accordingly done in the usual way, the right ovary being saved because of the youth of the patient. The appendix was somewhat thickened and was removed.

Dr. Shilling, the hospital pathologist, reported that the uterus was infantile in structure, and that there was complete absence of the glandular elements, this tissue being replaced largely by fibroplastic fibers, which at the surface contained many distended capillaries. The glands seemed to be entirely absent.

The following case is perhaps unique in the history of dysmenorrhea and that it had proved puzzling to the physicians consulted is not at all surprising:

Case II.—Miss D. L., New Haven, W. Va. Physician, Dr. L. H. Hayhurst. Age 19½; was first seen September 23, 1912, at Grant Hospital. Menstruation commenced at the age of 13. Her first period was painless, but after that the function was uniformly exceedingly painful. For a long while she menstruated every five weeks, but of late had been menstruating regularly every four weeks. The mother reported the flow of bad odor, and dark in color; some leucorrhea. The flow usually lasted three or four days, during which time the patient suffered very little inconvenience. After the flow was over, however, pain came on and was very severe for about one week, the pain being always low down on the left side; had to remain in bed. The pain was accompanied with bachache and bearing down. During this week of pain she would vomit constantly, the vomitus being chiefly bile. She had taken treatment from a number of physicians, but without benefit.

On vaginal examination, which was made with considerable difficulty, found everything at the vault very tender, but the uterus seemed to be in good position, with a tender mass to the left. Nothing positive could be made out, as the parts were too tender. An operation was advised, this to be preceded by dilating and curetting.

Operation September 24, 1912. Examination under the anesthetic showed that the uterus was somewhat irregular in outline, but just the conditions present could not be determined. The cervix was dilated, and the curet was used, but practically no debris was removed. It was noticed, however, that the curet persistently passed over to the right. On opening the abdomen found the uterus irregular in outline. On the right side it seemed to be about normal for a girl of her age, but in the left side of the fundus was a globular mass, very much like a fibroid. From this mass an imperfectly developed fallopian tube extended, and a normal round ligament. More careful examination indicated that this mass was probably an undeveloped horn instead of a fibroid. The left fallopian tube was a mere fibrous cord, and terminated without the usual fibriated extremity; ovaries normal. Because of this hypothesis of a malformed uterus a supravaginal hysterectomy was made in the usual way, implanting both round ligaments between the flaps of the cervix and saving both ovaries. The appendix was somewhat diseased and was removed on general principles; upper abdomen normal.

Examination of the specimen showed that it was a malformed two-horned uterus. The right horn was of the ordinary type. The left horn consisted of a globular cavity about half an inch in diameter, filled with a blood clot. This cavity communicated with neither the fallopian tube nor the cervix. Its walls were hypertrophied uterine tissue, three-fourths of an inch thick. It was evident that this cavity had contained menstrual blood, and that the pain was due to the tension produced at each menstrual period. As the blood was absorbed in part, tension was relieved and the pain passed away. The great thickening of the walls was evidently due to the efforts of the uterus to expel the blood. This cavity was found on microscopical examination to be lined by normal endometrium.

115 South Grant Avenue.

A CASE OF VARICOSE ULCER TREATED BY FEEDING IT WITH CHEESE.

By GEO. O. WILLIAMS, M.D.,

GREENE, N. Y.

I have previously treated these cases with soft unsalted cheese curd with pleasant results. The patient is a large, stout woman, age 50, doing ordinary farm and dairy household work, as well as milking and sometimes other outdoor work. The leg was swollen from old phlebitis and was covered with abundant varices. The leg was abraded February 1, 1913, at the junction of middle and lower third anteriorly and a deep ulcer followed.

On May 1 this ulcer measured 2 by 3 inches, and the whole leg and foot were swollen. The patient was unable to abandon her work and give the leg a rest. The general treatment was by means of Blaud's pill.

Local treatment: Soft, well-ripened full cream cheese to which was added a mixture of equal parts of cream and water. The whole was worked into a soft mass. The water and cream were added to prevent drying. This was kept in an ordinary jelly glass. Some of it was spread upon a piece of gauze large enough just to cover the ulcer. The application was made morning, noon, and night. The patient continued all her domestic duties. The application was painful for the first hour or hour and a half; then the pain subsided and the sore was comfortable until the cheese dissolved. When the empty gauze settled down on the sore it was irritating. The cheese disappeared in five or six hours. The ulcer filled rapidly. The patient called May 20 when the ulcer was fully healed, no scab even remaining.

It is possible that the salt in the ripe cheese may be responsible for the pain of the application. Patients have not reported as much pain with the soft unsalted cheese curd, though the progress has not been as rapid as in the present case.

Temporosphenoidal Abscess Following Mastoid Disease and Aural Polypus.—H. J. Davis reports the case of a girl, aged 14, who was admitted to the hospital six weeks previously with vomiting, vertigo, and facial paralysis. A large aural polypus was protruding from the meatus. There had been otorrhea on and off for four years. There was no indication of any mastoid tenderness. The polypus was removed and the mastoid antrum opened; the roof of the antrum was eroded and an extradural abscess was evacuated. The brain protruded into the wound, but did not pulsate; a knife was therefore passed into the temporo-sphenoidal lobe, and 3 drams of pus were evacuated. The dura mater was snipped away over the brain abscess area and the wound was left open. The girl made an uninterrupted recovery.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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New York, September 13, 1913.

CAPILLARY BLOOD-PRESSURE.

ALTHOUGH the subject of arterial pressure in health and disease has received considerable attention within recent years, comparatively little work has been done on the subject of capillary pressure. This neglect is to be attributed to the fact that there has been available no suitable apparatus with which to measure the capillary pressure. Within the past few years Adolf Basler and Warren Lombard have separately devised such forms of apparatus. Availing himself of Basler's "ochrometer," Rudolf Landerer (*Zeitschrift für klinische Medizin*, Vol. 78, Nos. 1 and 2) has performed a series of important investigations into the subject of capillary pressure. His results are of clinical no less than of physiological interest.

The essentials of Basler's "ochrometer" are the following: Two adjoining fingers of the subject rest in two tin compartments, the tops of which consist of small glass windows. One of the compartments contains a thin rubber balloon, which may be inflated so as to subject the finger to a delicate pressure. This pressure is measured in millimeters of mercury. Just sufficient pressure is employed to cause a blanching of the skin of the finger. By means of a pair of prisms and a tube the two fingers, one of which serves for comparison, may be observed simultaneously, and in close apposition, so that the slightest change in cutaneous tint may be noted. The pressure that just suffices to cause a blanching of the skin is interpreted as the capillary pressure.

With the aid of this instrument Landerer first sought to determine the capillary pressure in normal individuals. This he found to vary between 17 and 25 millimeters of mercury, his results closely coinciding with those obtained by Lombard, whose figures are 15 to 25. Landerer next determined the capillary pressure in a large number of patients suffering from various diseases. He grouped the results according to a normal capillary pressure, a moderately reduced capillary pressure, a markedly reduced capillary pressure, and an increased capillary pressure (25 and upwards). Analysis of these tables shows that no disease corresponds to any definite height of capillary pressure. In tuberculosis, carcinoma, cardiac disease, and organic nervous diseases there are normal and abnormal, chiefly diminished, pressures. Basing his observations on a large series of cases, the author draws the conclusion that the height of the capillary pressure in organic diseases is dependent less upon the kind of disease than upon the intensity of the disease and its effect upon the body as a whole. Severe grades of malnutrition and cachexias cause a diminution of capillary pressure.

In the functional neuroses, such as hysteria, marked variations of capillary pressure are noted, and even under conditions of good general nutrition this pressure may be markedly diminished. A striking and paradoxical observation is made in cases associated with increased arterial pressure. In these cases there is a more or less pronounced diminution of capillary pressure. This finding would appear to be contrary to *a priori* reasoning. The effect of cold and hot baths was next studied. Reducing the temperature of a bath 14° to 15° C., has the effect of increasing the arterial pressure and diminishing the capillary pressure, both frequently to a marked degree. In the case of hot baths the results are not the opposite. They are variable, the capillary and arterial pressures going sometimes above and sometimes below the normal.

The correct interpretation of the above findings is important. Landerer notes particularly that an increased arterial pressure does not necessarily indicate a greater blood supply to the capillaries, nor does a diminished arterial pressure signify a restricted flow of blood to the capillaries. As regards the capillary pressure the state of contraction of the arterioles is far more important than the pressure in the larger arteries. If the arterioles are markedly contracted, the capillaries receive a scant supply of blood, in spite of a high blood pressure in the arteries. This scant supply of blood causes a diminished tension in the capillaries. If the arterioles are not contracted the capillaries receive an abundant supply of blood with the result that their tension increases accordingly. The increased arterial and diminished capillary pressures that occur when the individual takes a cold bath are explained on the same basis. The contracted arterioles of the skin, as indicated by its pallor, reduce the blood supply of the cutaneous capillaries so markedly as to occasion a diminished capillary pressure, even though the arterial pressure is greatly increased.

ANHIDROSIS AND DIABETES INSIPIDUS.

THE association of these two conditions has frequently been noted. Whether there is any causal relationship between them was made the subject of a special study by Hans Günther (*Zeitschrift für klinische Medizin*, Vol. 78, Nos. 1 and 2). The opportunity for this investigation was afforded by a male patient, thirty-two years of age, in whom there occurred the following symptom-complex: diabetes insipidus, disturbances of the temperature sense, almost complete anhidrosis, and absence of the mechanical irritability of the cutaneous capillaries in the anhidrotic areas. There were also present a miliary angiomatosis and a mild degree of hypo-

trichosis. The anhidrosis had existed from earliest childhood, but at puberty it became intensified.

Günther perceives an etiological relationship between this condition and diabetes insipidus. The sensations of heat and of warmth accompanying the anhidrosis give rise to excessive drinking of water, which in turn explains the polyuria. The persisting polydipsia and reduction in the concentration of the urine may lead to a gradual loss of the capacity of the kidneys to maintain a proper concentration of the urine. There may thus result a genuine diabetes insipidus.

Histological examination of the patient's skin, in the author's case, showed a moderate atrophy of the sweat glands. The peripheral vasomotor, secretory, and temperature-sense disturbances all pointed to a common cause, probably a central nervous lesion. The atrophy of the sweat glands is regarded as secondary to their functional impairment.

Division of the Anterolateral Columns of the Cord for the Relief of Pain.

The success of the Foerster operation of division of the posterior spinal roots for spastic paralysis, gastric crises, neuralgia, etc., having been conceded, it has only remained to note that so far as mere pain is concerned, the operation is very much older than Foerster, going back to Abbe of New York, and Bennett of London. Abbe states that he obtained the incentive to operate from Dana of New York. Further it has been stated privately that Horsley originated if he did not actually perform the operation, but this is not a matter of record, for Horsley's published cases bear no date. Whatever the priority no one disputes the credit due to Foerster for elaborating the extension of this procedure to fields other than neuralgia. Foerster himself is a neurologist and his operating is done by his surgical colleagues in Breslau. According to a report in the *Berliner klinische Wochenschrift,* August 11, Foerster has been testing the division of the anterolateral columns of the cord for the lightning pains of tabes. The actual operating has as formerly been done largely by Professor Tietze. In these cases after intensive specific treatment, the posterior or sensory nerve roots were divided from the sixth to the twelfth dorsal, to control the crisis but with only partial success. It was the intention to divide the first and second posterior lumbar roots, but before this could be carried out the original laminectomy wound became infected, while the left lower extremity began to show trophic changes in connection with intense pain. The anterolateral column was now divided to the right. The intervention was difficult for the cord had to be turned about. With the division of the fibers all pains ceased. There resulted no motor disturbance whatever, while the sensory alterations were limited to analgesia. As a result of operation there were no more crises.

Poliencephalitis Acuta.

As is well known the vertical or Wernicke type of this affection has been ascribed to alcoholism. Schröder, however, states that the lesion here is a simple hemorrhage. The histological finds are naturally susceptible of various explanations. At a meeting in June of the Aerztlicher Verein zu Hamburg (*Berliner klinische Wochenschrift,* August 18) Lüthge related the case of an alcoholic youth, well developed, who after three days of excessive drinking exhibited delirium, paralysis of deglutition, abducens paresis, sensory disturbances in the trifacial, and ptosis. Death occurred on the same day from aspiration pneumonia. Section showed under the microscope a series of alterations previously described for this condition which show plainly an unknown infectious factor. The chief lesion was vascular in type, *i. e.* the disease began in the vessels. Fraenkel denies the existence of an infectious or inflammatory element. For him the lesion is a mere necrosis of the cell nuclei, which can well be attributed to alcohol alone. Lüthge, however, does not concede that alcohol caused the delirium. The time interval was too short for such a possibility. The unknown factor in Wernicke's disease therefore remains unknown.

Treatment of Asthma by aid of the Bronchoscope.

Ever since the introduction of bronchoscopy, hope has been expressed that it might become possible to apply remedies directly to the bronchial mucosa. The numerous efforts to compass this end have led to the introduction of flexible spraying apparatus, and to the employment of such drugs as adrenalin, novocain, and hypophysis extract. At a recent session of the Verein für wissenschaftliche Heilkunde, at Königsberg in Preussland (*Deutsche medizinische Wochenschrift,* August 7) Henke read a paper on this subject which was meant to be freely discussed. The speaker had treated 24 asthmatics with Ephraim's endobronchial spray, with or without the use of the bronchoscope. He used a combination of adrenalin, hypophysin, and a local anesthetic. The results, at least for the time being, left nothing to be desired. Borchardt who had watched the series of cases, insisted upon the superiority of local over general measures. The combined use of adrenalin and hypophysin is not to be encouraged in theory, for the last named should do all that the combination can effect. However, a mixture of both seems to show in practice an intensive action. It is a mistake to leave these valuable remedies to the sole use of gynecologists.

Rhinogenous Meningitis.

That meningitis may develop after fractures which involve both the cranium and nasal chambers is well known, and nontraumatic cases enough occur in which the evidence of a rhinogenous origin of a meningitis is almost as apparent. Of recent years it has been assumed that in cerebrospinal meningitis the infectious germ enters the skull through the contiguous nasal fossæ. At a recent session of the Physiomedical Society of Jena (*Muenchener medizinische Wochenschrift,* August 19) Zange reported a case of cured rhinogenous meningitis which was of extreme interest. The patient was a young woman, entered in the clinic for diplococcus pneumonia, with a metastatic empyema of the left frontal sinus, which required radical operation. The dura was injured thereby, and meningitis at once developed and pursued the course in the main of an aseptic inflammation, infective bacteria being absent throughout. Hexamethylenamine was given very freely, and drainage secured. Reichmann favors intravenous injections of colloidal silver in such cases (supposed generalized pneumococcia), and regards this as hostile to general infection.

News of the Week.

School for Health Officers.—Beginning this fall Harvard University and the Massachusetts Institute of Technology are to maintain in cooperation a School for Public Health Officers. The facilities of both institutions are to be available to students in the school and the Certificate of Public Health (C. P. H.) is to be signed by both President Lowell and President Maclaurin. The object of the school is to prepare young men for public health work, especially to fit them to occupy administrative and executive positions, such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations. The instruction of the new school will be by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, State, and local health agencies. The requirements for admission are such that graduates of colleges or technical and scientific schools who have received adequate instruction in physics, chemistry, biology, and French or German may be admitted to the school. The medical degree is not a prerequisite for admission. The administrative board, which will conduct the new school, is composed of Prof. William T. Sedgwick of the Massachusetts Institute of Technology, Prof. Milton J. Rosenau of Harvard, and Prof. George C. Whipple of Harvard. Professor Rosenau of Harvard has the title of director, and the work of the school will be under his immediate supervision.

Street Deaths in New York.—The report of the National Highways Protective Society for the month of August shows that there were 47 persons killed and 204 injured by vehicular traffic in the City of New York. Of those killed 25 were children under sixteen years of age. Of the deaths automobiles caused 22, trolleys 13, and wagons 12. During the corresponding month of last year automobiles caused 16 deaths, trolleys 13, and wagons 17. In New York State, outside of New York City, automobiles killed 13 persons and injured 161, trolleys killed seven and injured 64, and wagons killed 3 and injured 20. In the State of New Jersey during the month of August automobiles killed 12 persons, trolleys 1, and wagons 1. Railroad grade crossing accidents showed a notable increase during the month of August over the corresponding period of last year, 30 persons having met death and 24 being injured during the month of August against 7 killed and 20 injured last year. The grade crossing accidents also showed an increase over those of last year in New Jersey, 7 persons having been killed and 9 injured, as against 1 killed and 5 injured during the corresponding month of last year.

The Death Rate of New York City.—The number of deaths in New York City for the week ending August 30 were 1,274, with a rate of 12.37 per 1,000 persons, as compared with 1,317 or a rate of 13.28 for the corresponding week of 1912. There was an increase in the number of deaths from measles, diphtheria, croup, and whooping cough, but a marked decrease in the number of deaths from typhoid fever as compared with previous years, there being only seven deaths from typhoid fever as compared with 19 for the corresponding week of last year. The mortality from typhoid fever has been lower this year than during any time in the history of the Health Department.

Prussian Government Buys Radium.—A special despatch to the *New York Sun* states that the Prussian Government has purchased a gram of radium at a cost of $87,500 for hospital and scientific use, and that Professor Hys is making an appeal to the nation to subscribe to a fund for the purchase of radium. This fund has already reached $200,000.

Hospital for Women Workers.—The Woman's Auxiliary Clinic of Washington, D. C., has leased two apartments and will open a hospital for women wage earners and for children on September 15.

Ask Federal Aid to Fight Plague.—At a recent meeting of the California State Board of Health it was shown that nine bay counties were harboring plague-infected squirrels, and Dr. W. F. Snow, the secretary of the State Health Department, was appointed to go to Washington to confer with Surgeon-General Blue and to invoke federal aid in the work of exterminating the squirrels. Last year the State and Federal governments spent jointly $186,733 in killing rodents.

Navy Medical Officers in Demand.—The Washington *Star* states that requests are frequently received by the Bureau of Medicine and Surgery, Navy Department, for medical officers to fill positions for which the civil practitioner lacks the special training, or along lines that are not within the scope of the general practitioner, and that while many officers have been detailed on such special duties the shortage in the corps frequently prevents compliance with such requests.

The Microorganism of Rabies.—Dr. Hideyo Noguchi of the Rockefeller Institute of Medical Research, in a short report in the *Journal of Experimental Medicine* for September, 1913, states that he has succeeded in cultivating the germ of rabies. He describes the method by which he isolated the organism and reproduced it through many generations. He finds that it is, as has been generally believed, a protozoon.

Ambulance Accident.—A motor ambulance belonging to St. Mary's Hospital was overturned and wrecked in a collision with a motor truck at the corner of Hopkinson avenue and Herkimer street on the evening of September 6. The ambulance surgeon, Dr. Francis O'Brien, was seriously injured.

The Harvey Society.—The lecturers of the Harvey Society for the coming winter include among others Prof. A. D. Waller of London, Prof. Adolph Schmidt of Halle, Dr. Charles V. Chapin of Providence, Dr. Rufus Cole of the Rockefeller Institute, Prof. G. H. Parker of Harvard, Prof. Victor C. Vaughan of Michigan, Prof. Sven G. Hedin of Upsala, and Prof. J. J. R. Macleod of Western Reserve. The course will be inaugurated on October 4 by a demonstrative lecture by Dr. Waller entitled "A Short Account of the Origin and Scope of Electrocardiography."

American Electro-Therapeutic Association.—At the twenty-third annual meeting of this association, held in New York on September 2, 3, and 4, 1913, the following officers were elected: *President*, Dr. George E. Pfahler, Philadelphia, Pa.; *Vice-Presidents*, Dr. Albert C. Geyser, New York; Dr. Frank B. Granger, Boston, Mass.; Dr. John D. Torbett, Marlin, Texas; Dr. William L. Clark, Philadelphia, Pa.; Dr. Frederic P. Tice, Roanoke, Va.; *Treasurer*, Dr. Emil Heuel, New York; *Secretary*, Dr. J. Willard Travell, New York; *Registrar*, Dr. Fred M. Law, New York.

Personals.—Dr. Elliott Washburn of Taunton, Mass., has been appointed superintendent of the Rutland Sanatorium at a salary of $3,500 per annum.

Dr. Seale Harris of Mobile, Ala., has resigned the professorship of medicine in the University of Alabama.

Dr. Leonard W. Ely has been appointed Associate Professor of Orthopedic Surgery in Leland Stanford University, San Francisco.

Charitable Bequests.—The will of Ezra H. Linley gives $50,000 to the Washington University of St. Louis, Mo., and $10,000 to St. Luke's Hospital, St. Louis, Mo.

Obituary Notes.—Dr. Charles Buckner Hardin of Kansas City, Mo., a graduate of the Kansas City Medical College in 1881, died on August 21, aged 56 years.

Dr. William A. Davis died of heart disease at Camden, N. J., on August 17 at the age of sixty-three years. He was graduated from the medical department of the University of Pennsylvania in the class of 1876. He was a member of the Camden County Medical Society, of the New Jersey State Medical Association, of the American Medical Association, and of the Philadelphia Medical Club.

Dr. M. Wendell Case died at Philadelphia on August 13, at the age of eighty-three years. He was graduated from the Eclectic Medical College of Louisville, Kentucky, in the class of 1851. He was in later years engaged in the teaching of music.

Dr. W. C. Gayley died at Hazleton, Pa., on August 16 at the age of fifty-four years. He was graduated from the medical department of the University of Pennsylvania in the class of 1882. He was a member of the Board of Trustees of the State Hospital. He was a member of the Luzerne County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. George E. Foster of Springfield, Mass., a graduate of the College of Physicians and Surgeons, New York City, in 1868, died at Mount Clemens, Mich., on August 22, aged 63 years.

Dr. Calvin I. Fletcher of Indianapolis, Ind., a graduate of the Medical College of Indiana in 1880, was killed in Glacial Park, Mont., on August 19.

Dr. William A. Jordan of Wichita, Kan., a graduate of the College of Physicians and Surgeons, Baltimore, in 1873, died after a lingering illness on August 19, aged 67 years.

Dr. William H. McCarthy of Brockton, Mass., a graduate of the College of Physicians and Surgeons, Baltimore, in 1891, died at the Brockton Hospital of shock following an operation for appendicitis on August 22, at the age of 46 years.

Dr. Mary J. Laird of Fresno, Cal., a graduate of the Woman's Medical College of the New York Infirmary for Women and Children in 1885, died on August 14, aged 71 years.

Dr. Duff W. Greene of Dayton, Ohio, a graduate of the Medical College of Ohio in 1876, died suddenly on August 16, aged 62 years.

Dr. Daniel A. Shay of Brooklyn, N. Y., a graduate of the University of Baltimore in 1901, died at Marlborough, N. Y., on August 21, aged 37 years.

Dr. Charles H. Eckert, a practitioner of medicine in Fort Wayne and Marion, Ind., died on August 23 after an illness of several months at the age of 55 years. He was graduated from the Fort Wayne Medical College in 1889.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HEALTH REPORT OF THE CITY—METROPOLITAN ASYLUMS BOARD REPORT—SANATORIA AND HOSPITALS—ROYAL COMMISSION—CHINA'S DELEGATE TO THE CONGRESS—OBITUARY.

London, August 22, 1913

The city of London, by which you must understand only the central part of this huge metropolis, say an area of about a mile, forming the old corporation over which the Lord Mayor presides, is independent of the surrounding boroughs and suburbs called indefinitely London or the capital. The city then has a number of distinct points in administration, and some of them closely concerned with its health; it has for instance its own sanitary arrangements and its own medical officer of health—an office held for many years by Dr. Collingridge, but lately resigned, and whose last annual report, that for 1912, has now been issued. In considering the sanitary problems of the city it may be said that they are such as are found in other localities. Yet there are differences which have to be remembered in regard to most questions. Thus, the resident population of the city is only 27.7 persons to the acre, but the day population amounts to 54.2. There are, however, the same questions for the sanitary officers concerning food supply and whatever relates to the public Health Department, as where the inhabitants are fixed. Take the milk supply, on which the report gives some interesting notes. In January last 30 samples of milk arriving at the railway stations within the city were examined bacteriologically. The result is not very pleasing and shows much dust, etc., contracted on the journey besides other impurities, suggesting the need for inspection and control of the farms and dairies. The 30 samples analyzed are classed thus: Dirty, 20 per cent.; fairly clean, 46.6 per cent.; clean, 33.3 per cent. Compared with the period 1904-12 some other figures are given, viz., in 1906 80 per cent. were fairly clean and pure, as against 28.6 in 1911 : 8 per cent. were tuberculous in 1906, while in 1911 none of the samples were tuberculous.

As to frozen and chilled meat, North America, once thought to be an inexhaustible source, has ceased to supply, but Australia gives 14 per cent, New Zealand 18.17 per cent., South America 64.09 per cent. The Argentina meat is said to be generally of high quality, though at times quarters of beef have arrived which on being divided into joints showed some glands to be tuberculous. The firms importing have asked for suggestions how to prevent this trouble recurring.

The report of the Metropolitan Asylums Board for 1912 has appeared and deals as usual with a number of topics relating to the health of London. The position of this board is somewhat peculiar and it has had to carry out duties for which it was not designed. Its present constitution is discussed in the report and suggestions made as to the best way of utilizing its machinery in connection with various matters. The board was originally constituted as a Poor Law Authority, but few ratepayers seem to regard it as connected with pauperism. Its hospitals, for it has become the infectious hospitals authority for the capital, have received hundreds of thousands of patients, of whom not 4 per cent. were paupers. The present constitution, whether or no

change may be desirable, has certainly secured freedom from party political bias for which we may feel thankful.

The work of the board as to sanatoria has proved important. On February 11 the sanatorium of Sutton was opened for 350 patients. Later a part of the Northern Hospital was used. By the two institutions 380 patients more were treated, equal to two-thirds of the London insured persons in receipt of sanatorium treatment. The board's hospital and sanatorium machinery controls now some 10,000 beds, and it is suggested that in the interests of the community, this could be adapted for all new work at an insignificant cost compared with that of erecting new buildings.

For the mentally deficient the board has accommodations for 8,000 feebleminded at a cost per annum of £200,000, and with regard to legislation as to such persons, whatever may be needed in some parts of the country, this might well suffice for London.

The treatment of tuberculosis is discussed in a paper contained in a supplement to the report by Dr. E. C. Last, medical officer of the board's home for tuberculous children from 3 to 16. Dr. Last is very emphatic as to early diagnosis and declares a case not detected until physical signs are beyond dispute has been bungled.

The asylum population of London has increased in 10 years by 1,000, to 8,125. Of these, 3,974 were males, the others females. Only 11 are classed as recovered, 26 as relieved. The percentage of recoveries on the total number of admissions is only 1.29.

The decision of the government to appoint a Royal Commission to inquire into venereal diseases is giving satisfaction in many quarters, medical and other, who urge that to effect any good in the matter it is necessary to spread information. At the same time it is by no means certain that no opposition will be raised. Remembering the intense objection formerly raised and noting that a member of Parliament exclaimed on the new proposal, "No contagious acts again," it may be that another band of "antis" will be raised. An inspector of the Local Government Board has lately reported on notification and other points and he sees clearly what many have urged—the danger of driving into the hands of quacks of the worst kind those whom it is desired to induce to place themselves under the care of qualified practitioners. The profession should insist, whatever is done, on retaining treatment in its own hands.

Dr. Wu Lien-Teh, who is M.D. of Cambridge and was China's official delegate at the International Medical Congress, has on the eve of departing sent to the press a letter of thanks to the people of the United Kingdom and the British Empire for the friendly way in which all the churches responded to the appeal of the Chinese President for united prayer on behalf of his country on April 27 last. Confessing to sympathy with England, in which he received the greater part of his education, the doctor says he has no hesitation in saying all his countrymen are at one with him in his appreciation of the way in which all classes of the British people responded to the appeal of their president.

The death of Mr. Walter Whitehead, though not exactly unexpected considering his state of health, has cast a gloom over surgical society in Manchester extending throughout the kingdom and no doubt beyond. He practised generally for a year or two after taking his F.R.C.S. Ed., became surgeon to Manchester Women's Hospital in 1868. In 1873 he was elected on the staff of the Royal Infirmary and remained until 1900, being the senior surgeon for the last 10 years or more. He held also a number of other appointments. His great surgical work will be well known to you—especially his original operations for hemorrhoids and for excision of the tongue. He contributed many other surgical papers to societies and journals, and throughout his active career his example and teaching added much to the progress of surgery.

Dr. F. Montague Miller, senior practitioner in the borough of Hackney, where he has practised for some 40 years, died on the 15th inst., at the age of 65. He had twice served as Mayor of the borough, 1902-3 and 1906-7. He succeeded in establishing a central and two branch libraries. Mr. Andrew Carnegie gave £25,000 towards the central one, which was opened during Dr. Miller's second Mayoralty by the Princess Christian. He took great interest in religious questions and at one time he used to preach. He had for some years been in failing health on account of which he retired.

Surgeon-Colonel John Richardson, K.H.P.I.M.S. (retired), died on the 13th inst., aged 76. He was M.A. (1856) and M.B. (1859) of Aberdeen University; entered the Indian Medical Service in 1859 and remained until 1894. He was in the Bhutan expedition, took part in several engagements, and received medals and clasps. Later he was made a sanitary commissioner.

Captain Frank H. Noke, late R.A.M.C., died on the 12th inst., aged 35. He was M.B., D.P.H.

Dr. Arthur Herbert Browne, C.M.S., medical missionary in the Punjab, died on the 12th inst. He was M.B. and C.M., Glasgow.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

MILITARY SURGERY IN TRIPOLI AND IN THE BALKANS—SLIGHT DAMAGE BY BULLETS OF SMALL CALIBER—VALUE OF ALCOHOL AND TINCTURE OF IODINE AS AN INITIAL APPLICATION TO WOUNDS—BAD EFFECT OF PROLONGED TRANSPORT—SERIOUS ASPECTS OF WOUNDS OF THE CALF OF THE LEG—VALUE OF THE BIER TREATMENT IN INFECTED WOUNDS—THE EFFECTS OF POINTED BULLETS—INJURIES TO THE BRAIN, SPINAL CORD, AND NERVES—GUNSHOT WOUNDS OF THE BLOOD VESSELS.

BERLIN, August 5, 1913.

At the forty-second annual meeting of the German Surgical Society there was presented a symposium of considerable interest. This comprised a discussion of the experiences of German surgeons in the recent wars.

Göbel of Breslau described the experiences of the Tripoli expedition of the German Red Cross. He said that the damage done by the Italian bullets of small caliber is not great. The wounds heal well even if the joints are pierced by the bullet. The wounds hitherto unknown produced by bombs dropped from aeroplanes are characterized by their multiplicity, the fact that the lower extremities are most frequently injured, and the direction of the wound-canal from below upwards. That the severe injuries produced by shrapnel healed well was attributed to the dry climate.

Good results followed the use of alcohol and tincture of iodine in wound disinfection and bandag-

ing with "mastisol." In Athens Cönen of Breslau treated 665 patients suffering from bullet wounds, and only 7 patients died. Almost three-quarters of all cases healed without any reaction. Of 23 cases of joint injuries, 18 healed nicely; there were 4 resections, and there was one amputation. Of 94 complicated fractures resulting from a rifle shot, 83 healed without mishap. Five aneurysms were operated upon. The result was best in decapsulated aneurysms. Operation was necessitated by rupture of the aneurysm.

Kirschner observed 1,000 cases in Sofia and before Adrianople. Of these 300 came to operation. Thirty-three per cent. of the gunshot wounds of bone, 37 per cent. of the gunshot wounds of joints, and 50 per cent. of the injuries to blood vessels were infected. The blame for this was attached to the bad and prolonged transport of the wounded for a distance of 150 kilometers, frequently on ox-carts, and without any bedding underneath the wounded. The latter were so exhausted that they had to sleep a number of days before one could think of operating upon them. Apparatus for fixation was not to be obtained. The wounds were so badly bandaged that in most cases they were exposed to the air. Bandages of "mastisol" covering the entire extremity proved their utility, even in the case of prolonged transport.

A. Frank of Berlin reported his experiences on the Greek side in the temporary hospitals. The treatment on the field of battle was effectively carried out with the first aid packet designed after the French model. Perhaps an excess of tincture of iodine was employed. Artillery wounds could be conservatively treated, even if they were badly infected. Wounds of the abdomen and thorax rarely required operation, provided that absolute rest could be enforced. The operation of trephining was perhaps too frequently resorted to. A common type of injury was gunshot wound of the calf of the leg, a wound that is very painful, that leads to the formation of an extensive hematoma, with eventual suppuration. Gangrene of the muscles in this type of injury cannot always be prevented.

Pochhammer was actively employed at Janina. Since the non-infected cases were sent away from that place he had to take care of 47 infected cases out of a total of 52. He believed that he saved many of his cases by means of the application of the hyperemia treatment. Since among the four or five hundred Turkish wounded almost all were infected, on account of the poor initial treatment, one can easily estimate the great value of the immediate management of battle wounds. In the case of compound fractures the fenestrated plaster-of-Paris bandage was most effective, and in the cases of extensive shrapnel wounds the method of heliotherapy was found to be of value.

The effect of pointed bullets in the Balkan war was studied by Colmers of Coburg. The site of entrance of the bullet is small, and the site of exit is somewhat larger. Since the pointed bullet has the tendency in the presence of resistance to revolve about its transverse diameter, the result is that the canal made by the bullet is lengthened, and thus the frequent injuries of nerves and blood vessels are explained. In the case of a tangential direction of the bullet there is a marked splintering and shattering of bone.

The injuries to the brain, spinal cord, and nerves that were observed in the German Red Cross hospitals in Belgrade were studied by Mühsam of Berlin. Cerebral manifestations were observed in three cases of wounds of the vertex, in two of which recovery took place without operation. In one case four weeks after the injury fragments of bone were removed from the wound and the paralysis was partly relieved. Two cases of spinal cord injury gradually got better but were not fully recovered from. In three cases of injury to the brachial plexus the symptoms were radiating pains, weakness, and paresis of the affected arm, but in all of them recovery took place. Of seven cases of injury of the peripheral nerves, spontaneous recovery took place in nearly all. In one case a nerve had to be freed from the cicatricial tissue. Junsch of Leipsic treated twelve cases of brain injury, eleven of which were infected. Following operation there occurred in three of these late abscess formation. The results were bad, for the Turkish surgeons had probed too much.

Gunshot wounds of the blood vessels were specially studied by Lotsch of Berlin. He found that the modern pointed bullet causes frequent injury of the blood vessels. The small size of the lesion does not demand immediate operation for primary hemorrhage. Very frequently artery and vein are simultaneously injured. In these cases a hematoma is formed, after a few days begins to pulsate, and thus constitutes a spurious aneurysm. If there is present a severe injury in the neighborhood of a large vessel, absolute rest of the patient must be enforced on account of the danger of embolus formation. Quiescent hematomata permit of the transportation of the patient with the caution that further hemorrhage is possible. Primary ligation is necessary if there is danger of rupture, gangrene, or suppuration. Since the ligation of blood-vessels is difficult on the field or in the emergency hospitals, this operation should be delayed. As far as possible a double ligature should be applied. Aneurysms are to be treated by compression. Extirpation of the aneurysmal sac is to be undertaken only at the base hospitals. Primary suture of vessel lesions is practically impossible.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 28, 1913.

1. The Removal of Adenoids and Tonsils in Children. A. Cooledge and F. E. Garland.
2. Congenital Hypertrophic Stenosis of the Pylorus. With X-Ray Plates. C. G. Mixter.
3. Immigration and the Prevention of Insanity. T. W. Salmon.
4. Cooked Green Vegetables in the Treatment of Acute and Chronic Diarrheas. C. Wilson.
5. Second Note on the Geographical Distribution of Mental Disease in Massachusetts, 1901-1910: The Insanity Rates of the Smaller Cities. E. E. Southard.
4. Report of Three Cases of Acute Angulation of the Terminal Ileum Causing Intestinal Obstruction, Following Operation for and Drainage of Acute Suppurative Appendicitis. C. A. Roeder.

1. The Removal of Adenoids and Tonsils.—A. Cooledge and F. E. Garland discuss the indications and contraindications for removal of adenoids and tonsils. The latter should be removed if serious symptoms can be logically attributed to them. The more serious the symptoms and the more direct the connection, the more imperative is the operation. They should be removed for recurring peritonsillar abscess. They should be removed for recurring and persistent cervical adenitis that cannot be accounted for by a focus in the teeth, vestibule, scalp, nose, nasopharynx, or ears. They should be removed for recurring subacute tonsillitis. This does not include those acute infections of the mucous membrane of the upper respiratory tract often accompanied by sore throat, which

do not start in and only incidentally involve the tonsillar ring. They should be removed if it is believed or even seriously suspected that they are the entering point of constitutional infection. Tonsils should not be removed for trivial symptoms. Tonsillectomy is not justifiable simply because the tonsils protrude in front of the pillars, nor because they look ragged, nor for occasional sore throat, nor because they contain plugs, nor because the patient is under ether for adenoids, nor for any remote symptoms not of a serious nature, nor to protect the child from indefinite infection, nor for an occasional attack of simple acute tonsillitis. Tonsillectomy should be looked upon as a serious operation, and therefore is not by any to be entered into unadvisedly or lightly, but reverently, discreetly, advisedly, and soberly.

2. **Congenital Hypertrophic Stenosis of the Pylorus.**—C. G. Mixter concludes that an early diagnosis is the most essential factor in lowering the mortality from this disease. The bismuth *x*-ray will conclusively demonstrate the presence of pyloric obstruction. In any case in which careful medical treatment has been unable to check the vomiting and progressive loss of weight, and in which a pyloric obstruction can be demonstrated by *x*-rays, even if the differential diagnosis cannot be definitely made between hypertrophic stenosis and pylorospasm, exploration should be advised. *X*-rays, taken at varying intervals after operation, show the pyloric obstruction to be a permanent condition. In the cases studied by the author spasm was of no importance as a factor in the obstruction. In true stenosis surgery offers the only hope of cure. The infant develops normally after posterior gastroenterostomy.

3. **Immigration and the Prevention of Insanity.**—T. W. Salmon believes that the exclusion of insane and mentally defective immigrants is an absolutely necessary task, but it should be performed humanely and kindly and, at every step the safety and comfort of a particularly helpless class of immigrants should be carefully considered. This involves examination as near the immigrants' homes as possible, provision for attendance to the final destination for those whom it is found necessary to deport, provision of detention quarters at our ports which shall be comfortable, sanitary, and safe, and rigid supervision over the care which insane and mentally defective immigrants receive on shipboard, during the voyage to this country and during the homeward voyage after their rejection. For the accomplishment of these purposes it is essential that medical control shall be adequate at all times. The United States Public Health Service comprises a responsible body of medical men, highly trained in sanitation and in the care of the sick, and there could be no better trend in the immigration legislation of the future than to place such matters more and more in the control of these medical officers.

4. **Vegetables in the Treatment of Diarrhea.**—C. Wilson, since 1904, has been treating all chronic diarrheas and the acute diarrheas and dysenteries that resisted the ordinary treatment with opium, bowel irrigation, etc., with a diet of spinach, turnip greens, and mustard tops, with the most gratifying results. The treatment is so simple that the author believes there can be no possible risk in it, and patients are so soon convinced of relief that they are willing to continue it as directed. He begins by giving a tablespoonful or more of spinach, turnip greens, or mustard tops four times a day, continuing from one to two weeks, no other food being allowed unless the patients become very anxious for it, when they are given a little dry toast or common corn bread as it is prepared in the South. The first few stools after beginning the diet will show the undigested food, but immediately following this the movements become normal in consistency, and usually after the second day an enema will be required to move the bowels. Where there has been distention of the bowels the flatulence disappears, and when there is tenesmus the relief is most remarkable.

5. **Distribution of Insanity in Massachusetts.**—E. E. Southard finds, as the result of a careful statistical study, that "rural degeneracy" is focal, but not universal, in Massachusetts, and that on the whole the towns are better off than the cities as commitment producers. Comparison of the towns with the cities seems to show that, while cities are committing more insane than towns, they harbor fewer social and physical defectives than the towns. This may perhaps mean that cities have more effective means than towns of getting rid of all sorts of defectives.

New York Medical Journal.

August 30, 1913.

1. An Analysis of Five Hundred Fatal Medical Cases in the Tropics, with the Clinical Diagnosis in the Light of Autopsy Findings. W. E. Decks and W. G. Baetz.
2. Nervous Conditions and Their Relations to Pelvic Diseases. J. H. Carstens.
3. Myopia Prevention by Teachers. W. H. Bates.
4. A Study of Stillbirths. L. W. Thomas.
5. Report of an Imbecile with Paresis. J. A. Jackson.
6. The Present Status of Serum Therapy. W. B. Jennings.
7. The Management of Pulmonary Tuberculosis. L. Shalet.
8. A Modified Drainage for Suprapubic Prostatectomy. Geo. H. Day.
9. A Case of Artificial Pneumothorax in the Treatment of Pleurisy with Effusion. R. M. Alexander.
10. A Case of Measles Complicating Pregnancy. S. J. Seadron.

1. **Analysis of Five Hundred Fatal Medical Cases.**—W. E. Decks and W. G. Baetz present the results of an important study, based upon the comparison of autopsy findings with the clinical diagnosis. In the group of pulmonary and pleural diseases, comprising 162 cases, there were 6.17 per cent. of failures in diagnosis. Thus one case of bronchopneumonia was mistaken for, or clinically obscured by, disseminated tuberculosis; one case of pulmonary gangrene was mistaken for lobar pneumonia. In the group of general infections there were 9.93 per cent. of failures: a case of pneumococcic septicopyemia was mistaken for meningitis; a case of pyemia was mistaken for malaria, etc. In the group of renal affections there were 16.95 per cent. of failures: a case of chronic nephritis was mistaken for hepatic cirrhosis; a case of pyelonephritis was mistaken for cystitis, etc. In the group of gastrointestinal diseases there were 24.44 per cent. of failures: a case of amebic dysentery was mistaken for acute tuberculosis, a case of duodenal ulcer was mistaken for chronic lead poisoning. In the cardiovascular group there were 31.25 per cent. of failures; a case of myocarditis with cardiac dilatation was diagnosed as adhesive pericarditis. In the cerebrospinal group there were 47.36 per cent. of failures: a case of pneumococcic meningitis was mistaken for cerebral hemorrhage; a case of cerebral hemorrhage was diagnosed as estivoautumnal malaria.

2. **Nervous Conditions and Their Relations to Pelvic Diseases.**—J. H. Carstens concludes that the differential diagnosis of nervous conditions in relation to gynecology is very difficult. The medical man very often gets himself in trouble by jumping at conclusions and promising too much. This is especially the result in cases of surgical interference. It is therefore self-evident that the gynecologist must not only be a good physiologist, besides a general practitioner, but he must be especially well informed on diseases of the nervous system.

3. **Prevention of Myopia in the Public Schools.**—W. H. Bates has demonstrated with the aid of the retinoscope that all school children with normal eyes when regarding unfamiliar writing or figures on the blackboard, distant maps, diagrams, or pictures, had myopic refraction. It was quite otherwise when they regarded a familiar distant object. The retinoscope used at the same time indicated no myopic refraction. The Snellen test card, while being of use for testing the acuity of vision, was

found also during the past ten years to be the best distant object for exercises in distant vision. It should be memorized and thus made a familiar distant object. After its daily use for half a minute or longer myopia was prevented; and, in addition, the vision of many pupils with defective sight was improved for an unfamiliar Snellen card, for writing and figures on the blackboard, and for other distant objects. Furthermore, near vision was benefited by the use of the Snellen card. Many pupils stated that they could study their lessons with less or no discomfort. A Snellen test card was placed permanently where all the pupils could see it from their seats. Daily the teachers recommended all the children to silently read the card with each eye separately, covering the other eye with the palm of the hand in such a way as to avoid pressure on the eyeball. Records were made with the same card or with an unfamiliar card for testing the vision. The number of pupils tested twice was 5,700. The number of pupils with defective sight at the first examination was 3,299, or 58 per cent. The number of defectives improved in one or both eyes was 2,026, or 61 per cent. The number of defectives with both eyes found normal at the second test was 1,023, or 31 per cent. The number of defectives with one or both eyes found worse at the second test was 359, or 6 per cent.

4. **A Study of Stillbirths.**—L. W. Thomas notes that the definition of the term stillbirth is of great importance from a statistical standpoint, as it may cause to be included or excluded a large number of cases in statistical data regarding births, deaths, and stillbirths. Stillbirths are far more frequent than vital statistics indicate at present. The following factors influence the frequency of stillbirths: The sex and legitimacy of the child, the attendance at confinement, and the period of uterogestation of occurrence of birth. The season of the year has little influence on the frequency of stillbirth. The number of stillbirths occurring during the viable period is relatively high. The high stillbirth rate can be reduced by the systematic education and supervision of expectant mothers. There is negligence in reporting causes of stillbirths, and this negligence greatly lessens the value of stillbirth registration. Stillbirth registration is becoming recognized in all countries. There is need of uniform stillbirth registration laws which shall define the term and establish a standard for registration and reporting.

Journal of the American Medical Association.

August 30, 1913.

1. A Final Word to the Fellows and Members of the American Medical Association. A. Jacobi.
2. Fetal Peritoneal Folds and Their Relation to Postnatal Chronic and Acute Occlusions of the Large and Small Intestine. J. R. Eastman.
3. Surgical Aspects of Intestinal Stasis from an Anatomic Point of View. J. E. Summers.
4. Preneurasthenic and Preinsane Conditions. R. Moore.
5. Teacher and Learner in Medicine. F. H. Pratt.
6. The Clinical and Pathological Relationships of Hyperplastic and Nonhyperplastic Goiter. H. S. Plummer.
7. Reciprocal Relations of the Clinic and the Laboratory in Medicine. T. W. Hastings.
8. Epilepsy and Paresis in Railway Engineers and Firemen. C. D. Camp.
9. Federal Control over the Manufacture of Serums and Vaccines. I. F. Anderson.
10. Antistreptococcus Serum. G. H. Weaver.
11. Treatment of Pneumonia by Means of Specific Serums. R. Cole.
12. Progress in Antityphoid Vaccination During 1912. F. F. Russell.
13. Chronic Arthritis. L. W. Ely.
14. Hemorrhage from the Non-Pregnant Uterus. J. B. Deaver.
15. Clinical Notes on Patients from the Middle Northwest Infected with Entamebas. H. Z. Giffin.
16. Sarcoma of the Chorioid. A Case with Metastasis to the Liver Eight Years After Enucleation of the Eye. A. Bray.

2. **Fetal Peritoneal Folds.**—By J. R. Eastman. (See MEDICAL RECORD, July 5, 1913, page 37.)

3. **Surgical Aspects of Intestinal Stasis.**—By J. E. Summers. (See MEDICAL RECORD, July 5, 1913, page 38.)

6. **Hyperplastic and Nonhyperplastic Goiter.**—By H. S. Plummer. (See MEDICAL RECORD, July 5, 1913, page 38.)

8. **Epilepsy and Paresis in Railway Engineers and Firemen.**—C. D. Camp points out that statistics from the State Hospital at Kalamazoo, Mich., show that there were eighty-seven patients with paresis admitted from July, 1910, to February, 1913, and of this number thirteen had been employed by railways in positions connected with the operating department; five were engineers. It would be to the benefit of all concerned if the medical examinations of railway employees included careful and frequently repeated inquiries into the presence of symptoms indicating the existence of these affections and, more important still, if there be used the objective tests, such as those of the pupillary reflexes, which tests are best calculated to demonstrate the presence of disturbances of these reflexes and which do not require too much time in their performance. The selection of the tests to be employed and the value to be placed on each might be determined by an expert appointed by the company, who might then instruct the company's regular examiners either by printed instructions or by lectures, or better still by demonstrations in the use of these tests.

9. **Federal Control Over Manufacture of Serums and Vaccines.**—By J. F. Anderson. (See MEDICAL RECORD, July 5, 1913, page 39.)

10. **Antistreptococcus Serum.**—By G. H. Weaver. (See MEDICAL RECORD, July 5, 1913, page 39.)

11. **Treatment of Pneumonia by Specific Serums.**—by R. Cole. (See MEDICAL RECORD, July 5, 1913, page 39.)

12. **Progress in Antityphoid Vaccination.**—By F. F. Russell. (See MEDICAL RECORD, July 5, 1913, page 40.)

13. **Chronic Arthritis.**—By L. W. Ely. (See MEDICAL RECORD, June 21, 1913, page 1147.)

14. **Hemorrhage from the Nonpregnant Uterus.**—J. B. Deaver states that in practice one meets with hemorrhage from the non-pregnant uterus during the three important epochs of a woman's life—puberty, the child-bearing period, and the menopause. Whatever the time of life at which such bleeding occurs, it may be said to depend on either local or constitutional causes. Under constitutional causes one may at present include those little understood forms of hemorrhage supposedly due to interference with or departure from the normal in the internal secretion or secretions of the ovary and other ductless glands. Such abnormality may be presumably in the quality, quantity, or regularity of the secretion, but the bearing on treatment has not yet been determined. Other better understood causes are chronic visceral diseases (heart, lung, liver, and kidney), infectious fevers, syphilis, general arterial sclerosis with high blood-pressure, leucemia, hemophilia, and essential anemias, including chlorosis. Local causes of uterine hemorrhage include practically every form of disease which may occur in the pelvis: infections of the uterus from gonorrhea or after puerperal sepsis; myoma, polyp, and cancer; tears of the cervix; retrodisplacements; tubal, broad ligament, tuboovarian, and ovarian disease. In this connection it must be remembered that bilateral ovarian tumors, particularly carcinoma, frequently cause amenorrhea as a result of complete destruction of ovarian tissue. Constipation is included among the local causes for the reason that it produces uterine congestion by mechanical obstruction to free venous flow from the pelvis.

15. **Entamebic Infections in the Northwest.**—By H. Z. Griffin. (See MEDICAL RECORD, June 21, 1913, page 1148.)

The Lancet.

August 23, 1913.

1. Tuberculin Treatment: General Survey. H. Mackenzie.
2. The Use of Radium in Malignant Disease. R. Abbe.
3. The Preventive and Curative Treatment of Industrial Lead Poisoning. Sir Thomas Oliver.
4. Investigations into the Relationship of the Tarbagan (Mongolian Marmot) to Plague. Wu Lien Teh (G. L. Tuck).
5. The Presence of Acetone Bodies in the Urine and their Clinical Significance. J. E. Piper.

1. **Tuberculin Treatment.**—Hector Mackenzie emphasizes the fact that tuberculin treatment is still on its trial. When all is said and done one has to acknowledge that the results of it so far are not brilliant, certainly not convincing. Vaccine treatment, as a whole, is on its trial, and if one excepts staphylococcus infections no more can be said for vaccines than for tuberculin. Many failures and but few cures are effected in private practice. There has been much theorizing and talk. What is needed is practical proof—results which can be attributed honestly and fairly to the special form of treatment employed, and which show its efficacy by showing themselves undoubtedly superior to anything previously obtained or observed.

2. **The Use of Radium in Malignant Disease.**—Robert Abbe concludes that the following principles have been established: (1) An undoubted retrograde degeneration of malignant cells under correct dosage of gamma radiation. (2) The effective use of radium lies in the application of a large enough quantity to avoid the stimulating action of little doses at short range. (3) The utilization of gamma radiation with its deep penetration can be made by the removal of alpha and short beta rays by filtration through lead. (4) Such filtration requires many times as long for a sufficient amount of gamma rays to act, as when other rays are elminated by what may be called "distance filtration." One and a half inches or four centimeters seem in practice to exclude most of these and give free and instant play of the entire gamma range without delay of passage through lead. (5) The cross firing of several specimens simultaneously or of one large specimen moved successively to several nearby places is necessary for the best work. (6) Normal tissue resists many times as large doses of gamma rays as are required to check and dissipate morbid growths, as shown in the larynx.

3. **Treatment of Industrial Lead Poisoning.**—Sir Thomas Oliver states that in "Dangerous Trades," a book published eleven years ago, a chapter written by H. Lewis Jones is devoted to the treatment of lead poisoning by means of the single electric bath. As to the efficacy of the treatment there is no doubt. Although in cases of lead paralysis recovery is slow, yet restoration is quicker when, in addition to medicinal treatment and massage, electricity is carefully employed. The point to which Oliver draws attention is the employment of the electric bath in rather a different manner to that recommended by Jones, also its application to a wider field than the purely curative. He suggests that one should not wait until lead workers become ill, but that one should treat them when they are commencing to go wrong. The treatment he recommends is deionization and the use of the two-bath system as the special feature, both from the preventive and curative point of view. The bath is given for half an hour daily or every second day; the voltage employed is 16 and the amperage 20 to 40 milliamperes. The positive pole is placed in the foot bath and the negative in the arm bath. The baths may be made of earthenware or wood, and the electrodes of pure aluminum. If the current is introduced gradually by a suitable rheostat no shock is felt, nor is any unpleasant sensation experienced by the men. The resistance of the bath water is reduced by adding common salt. This affords a means of regulating the current to suit a hypersensitive patient, although in all of the author's cases no difficulties were experienced.

4. **The Mongolian Marmot and Plague.**—Wu Lien Teh (G. L. Tuck) concludes that even though the tarbagan occasionally suffers from plague, the epizootic is never extensive, and the animal does not play nearly as important a rôle in the spread of plague as does the rat. Indeed, its direct relationship to human plague may be considered negligible. Moreover, the mode of living and habits of the tarbagan are very different from those of the rat; for example, while the rat is a more or less domestic creature in close contact with man, the tarbagan is the reverse. From the writings of Russian authorities it appears that plague has existed for many years in various parts of Siberia, sometimes in the bubonic form, sometimes in the pneumonic form. These places may be looked upon as endemic foci. In 1910 it is believed that pneumonic plague appeared in the Russian Ural district long before it made its appearance at Manchouli, and developed into that great Manchurian epidemic. During the latter half of 1911 this form of plague was present in the Kirghiz Settlements. In these districts, from October, 1911, to February, 1912, over 200 cases of plague occurred. Throughout Manchuria no case of plague in man or animal has occurred since the epidemic of plague pneumonia in 1911. From this report it is obvious that statements of the occurrence of plague among men or animals should be believed only when they come from responsible sources—that is, after proper medical and scientific investigations.

British Medical Journal.

August 23, 1913.

THE BRITISH MEDICAL ASSOCIATION—SECTION ON STATE MEDICINE

1. Introductory Remarks by the President, E. W. Hope.
2. Discussion on Port Sanitary Administration: especially with a view to the Prevention of the Introduction of Infectious Disease. Introduced by H. Williams.
3. Destruction of Rats in the Port of Rangoon. F. A. Foy.
4. Discussion on the Prevention of Tuberculosis. Introduced by E. W. Hope.
5. Discussion on the Necessity of Educating the Public in Matters Relating to Public Health. Introduced by E. W. Hope.

2. **Port Sanitary Administration.**—H. Williams presents the following conclusions: The sanitary conditions on board ship can be and should be improved. At the present time ships are built and inspected and the living accommodations on board are passed on by officers of the English Board of Trade who have had no training in sanitary work. Under the present Local Government Board regulations a vessel may arrive from a port infected with plague, yellow fever, or cholera, and any person may leave the vessel before arriving at the port—before the visit of the officer of customs or the medical officer—without any offence being committed. It is, therefore, possible under the present regulations that persons in the incubation stage of one of these diseases may come ashore, develop, and spread the disease at the place of arrival. Smallpox has been prevalent during the past winter at many ports in Spain. Vessels usually arrive in England from Spain within fourteen days of departure. Should the persons on board be well at the time of arrival, they are allowed to land, and no powers are possessed to take their names and addresses with a view to keeping them under surveillance. It is obvious that such persons landing in apparently good health may develop smallpox in the next two or three days, and form centers for the outbreak of this disease, and many instances may be noted where this has actually occurred.

Berliner klinische Wochenschrift.

August 18, 1913.

New Viewpoints in Regard to Intestinal Autointoxication.—Albu speaks of this conception as one of the most ancient beliefs in pathology. To-day the belief prevails in Great Britain, the United States, and France among the leaders of the profession, while in Germany the reverse has been the case because the demonstration of such a condition appears to lack rigor. The author, however, has been an adherent of Bouchard's views since their dissemination, and has striven to isolate the poisons and to assign to each its specific action. Recently von Noorden has taken up the matter in earnest and has isolated a syndrome which comprises a peculiar syndrome made up in the last analysis of vagus symptoms and sensory polyneuritis. The entire complex bears a striking resemblance to neurasthenia. To prove the presence of

definite toxins von Noorden depends upon the marked indicanuria, and the toxic action of fecal extractive upon the vagus of animals. Both these proofs, whether or not sufficient, are old enough, for years ago a neurotropic poison was extracted from intestinal contents; and the author repudiates them entirely as insufficient. Nothing is to be hoped for from this line of research, and the author has turned his attention long ago to the hormone theory. Starling's "secretin" appears, for example, to stand in very close relationship with a definite chemical substance which may be extracted from the intestinal mucosa. This body seems to be formed by the action of bacteria upon the albumin decorative histidin. The bacterium is a so-called "aminophile" which attacks the amino, to which group the alkaloid belongs (β-imidazolylethylamin). The substance "hormonal," which exerts so striking an action on peristalsis and blood-pressure, no doubt contains this or a similar body. This group substance is further believed to play a notable rôle in anaphylaxis, and in regard to its genesis we may invoke, in addition to bacteria, so-called sterile autolysis, such as may be conceived as the chief factor in tape-worm anemia. We may also understand that the pernicious anemia consequent upon atrophy of the intestinal mucosa is dependent upon autolysis of the latter with formation of toxic bodies. Sensitization of the organism to a toxin accidentally formed readily paves the way for anaphylaxis. This train of phenomena, however, is intimately mixed up with the ingestion of certain foods. The author places "elementary fever," "salt fever" and such phenomena under the head of intestinal autointoxication.

The Hermann-Perutz vs. the Wassermann Reaction.—Bräutigam concludes as follows: Blood tests based on 329 cases show that in the great majority of cases the two correspond, both in the negative and positive phases. In 12 cases only were differences noted. In examination of lumbar punctuates the unanimity was less marked. The Hermann-Perutz test is highly useful, and may replace the Wassermann fully, while its technique is simpler. It should by all means be fully tried out by all. The authors reported this method two years ago. Porges, however, had paved the way for it by precipitation in syphilitic sera with glycocholate of sodium. The others introduced the use of a cholesterin suspension. The test is by no means specific, but for that matter neither is the Wassermann.

Münchener medizinische Wochenschrift.

August 19, 1913.

Addison's Disease and Pregnancy.—Vogt seeks to discover in this rare association some idea of the nature of the former, for a sort of reciprocal community appears to be present in the victims of either. We only know that in a subject with this disease pregnancy may run its course undisturbed, so that there is no correct indication for its interruption. The child in these cases may be perfectly developed and healthy. If we assume that in these cases the suprarenal function is greatly compromised then it is clear that the healthy action of this organ bears no relation to gestation—a point of interest when we bear in mind that the toxemia of pregnancy has been made to depend on anomalies of the internal secretions.

Dangers of Using Morphine with Narcotics and Hypnotics.—Straub takes up a subject relatively new. A morphine hypodermic before general anesthesia is a time-honored practice, as is also the combination of an opiate with a hypnotic. The research leading up to this conclusion was wholly experimental, although the incentive was furnished by clinical disasters. The author had seen chloroform anesthesia plus a morphine injection kill a child. Neither chloroform nor morphine was used in excess. Forensically the combination was accused of causing the death, and this led to the experimental research. The substances used comprised ether, chloroform, morphine, veronal, chloral, urethan, etc., morphine furnishing the keystone. The research was devoted both to antagonism and synergism. Results seemed to show that morphine may be lethal in general narcosis, notably with chloroform. Generally speaking the author appears to dread the exhibition of morphine with any other powerful drug whatever, especially in children. His conceptions, however, seem to have no assured clinical foundation.

Fatal Poisoning with Cyanide of Gold and Potassium.—Hauck relates a case of this association in great detail. The significance lies in the fact that cyanide of gold is being used to-day in surgical tuberculosis, even by the intravenous route. The remedy had seemed to be safe when the author began to test its use in a case of lupus vulgaris. Patient was a workhouse prisoner with extensive lupus of skin and mucosæ, the affection being limited to the head and neck. Tuberculin and the x-ray gave no permanent relief, so that the gold infusion was infiltrated into the veins. The reaction therefrom was limited to headache and insomnia. There was no fever and the patient gained a little weight. A second injection, however, had very different consequences. There was high fever and marked prostration. Soon afterward there were evidences of acute hepatitis, icterus being notably present. Death occurred from exhaustion. Of interest is the fact that the lupus was favorably influenced by the lethal medication. The duty of the practitioner is very plain here. The gold salt must be used with the greatest care and a combination with tuberculin as a synergist.

Deutsche medizinsche Wochenschrift.

August 7, 1913.

Bacillary Pericarditis (Tuberculous).—Fromberg reports an autopsy find of the above character and gives the literature of the subject. His patient, an old woman, died of uremia, with numerous complications. The tuberculous nature of the pericarditis was recognized only by aid of the microscope, so that such a condition is evidently readily overlooked. Simmonds (1898) states that the condition of isolated pericardial tuberculosis is not so rare, while in 1904 Askanazy insists that a purely idiopathic case is decidedly rare. Other pathologists are in agreement with Simmonds. The author concludes as follows: There is a true isolated bacillary disease of the pericardium in which we do not find any of the histological components—neither tubercles, giant cells, nor caseation. The human tubercle bacillus simply determines an ordinary pericarditis—in other words exerts a non-specific action. This condition must be kept separate in the mind from specific tuberculosis of the pericardium.

Pathogenesis of Chronic Typhlitis.—Dobbertin comprises under this head cases in which the appendix has undergone pathological alteration and those in which the latter is normal. In the latter case the abdominal incision should be prolonged upward and the cecum and ascending colon exposed to view as high as the liver. The ascending colon is usually adherent, the adhesions perhaps as delicate as a cobweb. They are most commonly found at the lateral margin of the psoas. They are formed as the result of a primary focus of inflammation in the right half of the abdomen—usually an insidious or transpired appendicitis. The adhesions cause kinks, twists and stenoses, and thus lead to stasis of the fecal matter. This in turn may give rise to more typhlocolitis or appendicitis. The chief symptoms are pain and constipation. The treatment consists of dividing the adhesions and remedying kinks, after which a colocecopexy is indicated.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SELF-SELECTION.*

The term "self-selection" is applied to the selection which an applicant exercises in his own interest against that of the company. Repeated investigations have shown that certain individuals, having knowledge of some impairment in their physical condition or possessing small confidence in the prospects of their longevity, have deliberately applied for life insurance and, furthermore, that they have almost invariably selected a cheap form of policy. This imposition has been practised sufficiently often to give rise to the epigram "Small premiums, high mortality." Persons enjoying good health, on the other hand, are apt to choose the high premium policies on account of the benefits accruing to them if they outlive the policy period.

Life insurance companies are strictly regulated by the governments of the different states and this supervision, with the enforcement of the laws by the courts, would compel a company to meet all the requirements if, perchance, it showed a desire to evade any obligation. Under such conditions, it makes a one-sided arrangement whenever an applicant fails to keep his part of the transaction up to the proper standard. It must, therefore, be assumed by the company that the applicant shall observe the utmost degree of good faith and state everything in his knowledge which may have a bearing on the risk. This obligation is lightly regarded by some persons, however, who seem to consider that their part of the transaction ends when they have presented their own case in a favorable light and that it is the duty of the company to discover any existing defects.

The subject of self-selection is a large one and is manifested in numerous ways, all of which should be familiar to the examiners. It may be discussed according to the following classifications:

Self-Selection by Annuitants.—Some conception of the effects of medical selection may be formed through the comparison of the mortality among annuitants with the corresponding mortality found among insured lives and, still further, with the death rate existing among the general population. This comparison will be made more clear by a few explanatory remarks. A purchaser of an annuity believes that he is in good health and that he will draw an annuity income for many years, in contradistinction to the applicant for insurance who provides against the uncertainties of life. In this way prospective annuitants select against the company in an absolutely legitimate way, and make up a class, the mortality in which may be used as a standard for healthy lives. A case of an unusually high degree of self-selection among annuitants is that experienced by the British government one hundred years ago when it raised money by the sale of annuities at insufficient prices. Speculators hunted up particularly healthy persons, especially among the farmers, and purchased annuities on their lives. The government had based its rates upon a faulty mortality table deduced from population statistics, and lost a large amount of money before it discovered the mistake.

Returning to the comparison of the mortality rates, the benefits derived from the medical selection become apparent in the following table. The rates of mortality are given, at age thirty-five at entry, according to years of insurance, by the British Offices Male Annuitant Table, the British Offices Table for insured lives and English Life Table, No. 3, of the general population.

RATE OF MORTALITY PER 1,000.

Policy Year.	Attained Age.	Annuitants.	Insured Lives.	General Population.
1	35	3.81	3.61	11.27
2	36	5.08	5.64	11.56
3	37	6.59	6.55	11.87
4	38	8.12	7.22	12.21
5	39	9.30	7.85	12.57
10	44	11.38	11.89	14.86
15	49	14.65	14.65	18.07
20	54	19.38	19.53	23.36

The comparison of the rates of mortality among annuitants with that of insured lives in this table indicates that the force of self-selection among annuitants, exercised in their own favor, is as strong, if not stronger, as that of the medical selection of applicants for life insurance. The difference between the mortality of either one of these classes and that among the general population is most marked.

A lower mortality is experienced among annuitants in the United States and Canada than in Great Britain and France, a circumstance accounted for by the custom in the latter countries of buying annuities on the lives of persons in poor health to prevent them from squandering the principal and also in connection with entailed estates. In other words, the full effect of self-selection is not evident unless the individuals determine for themselves whether or not to purchase annuities.

*The subject of Self-Selection will be continued in succeeding contributions.

Glycosuria and Its Relation to Life Insurance.—According to von Noorden's definition, diabetes is a pathological decrease in sugar metabolism. The ability to utilize carbohydrates differs greatly in health, and is subject to variations in the same individual, depending on the amount of heat to be generated, *e. g.* during exercise, work, and rest. There is, however, a certain limit beyond which sugar elimination must be regarded as pathological. This is called the assimilation limit. The average normal limit is from 150 to 200 gm. glucose. To determine the assimilation limit the urine is examined for sugar after ingestion of a definite amount of glucose. A positive test indicates a tendency to true diabetes. If at any time a positive sugar reaction has been obtained, the sugar test meal should be tried. With regard to insurance examinations, this test is of especial importance in cases of diabetics whose urine has become normal as the result of dietetic treatment, as it is of the utmost importance for the insurance company to know whether lapses in diet would be followed by a return of diabetic conditions. Realizing the difference of opinion held as to the value and practicability of the sugar test meal, Dr. Leopold Feilchenfeld (Berlin) has made inquiries of a number of leading insurance companies for their views as to the use of the test. Out of fifty companies questioned, answers were obtained from forty-six. Eight of these are no longer interested in life insurance, at least in Germany. Twelve do not employ the sugar test meal, as they consider it unreliable and not of uniform importance. These are:

The Army and Navy Life Insurance Company in Berlin, the German Anchor Company (which allows two examinations to be made), Friedrich-Wilhelm, Bremen-Hannover, German Life Insurance in Lübeck, the First Russian Life Insurance (which rejects applicants giving a positive glucose test), the Germania (considers the test dangerous to life), Old Stuttgart, Mecklenburg in Schwerin, Deutsche Militärdienst-Anstalt in Hanover, New York Life, and Deutschland. Urania, Arminia, Allgemeine Deutsche, and the Concordia do not demand the test meal, and in certain isolated cases its use is left to the discretion of the examiner. Thuringia sends the suspected applicants to a specialist or to a clinic connected with some university. Detailed descriptions were received from twenty-five companies. The Potsdam writes when a positive reaction is obtained in cases where previous examinations have been negative, two control examinations are made after meals consisting of cereals, bread, and potato. The first test is made the day after the applicant has drunk large quantities of wine or beer, and the second test fourteen days later, after prolonged abstinence. If the result is negative the application is accepted on high premium. The Preussen does not require a real test meal. If after repeated examinations the urine is sugar free the applicant takes in the presence of some responsible person a meal consisting of potato soup, meat, and potatoes, one glass of wine, sweet pickles, and two rolls. The urine is then tested, two, four, and six hours later, and if negative the application is accepted. Pure glucose has never been given, as starch is considered more important. Clemens Mayer of the North Star writes that the test used by them consists of a large cup of sweet chocolate and 50 gm. of cakes, five dates (30 per cent. glucose), or five figs or prunes, eaten in the morning on an empty stomach. In a healthy individual this is not followed by glycosuria. The percentage of glucose indicates the gravity of the case. The Berlin Life Insurance Company rejects all diabetics, especially in early youth. In cases of alimentary glycosuria, or if the anamnesis or family history points to the suspicion of glycosuria, the urine is examined two hours after the suspected diabetic has partaken of a meal of chocolate and cakes, the latter made with lactose if possible. The fermentation test is made in doubtful cases, and if caution is advised by the examiner 100 gm. of lactose dissolved in water are given the applicant, and examination is made of the total urine voided in the next twenty-four hours. Transitory glycosuria, especially in older persons in whom the condition may be caused by arteriosclerosis, gout, or nervous disturbances, is not a cause for rejection unless complicated by albuminuria, either transitory or permanent. Florschütz of the Gotha states that the test meal is employed in all cases in which the reaction is faint or doubtful, or when previous examinations have shown glycosuria. A meal of rice soup, pea soup, meat, and white bread, with farinaceous dessert, is given, and two hours after the urine is collected in flasks provided by the company, and examined. A written statement giving the time and ingredients of the meal, signed by the applicant, must accompany the specimen of urine. In cases where the previous examinations have been positive the following test meal is employed: One-quarter liter coffee without sugar, 30 to 40 gm. graham bread (no white bread), butter, eggs, and ham; this is followed in two hours by 100 gm. of glucose dissolved in water. The urine is voided after two, four, and five hours, the amounts are noted, and the separate specimens are marked I, II, III, and examined. The Victoria demands the test breakfast of sugar and white bread, to be taken in the presence of the examiner. If sugar is found only once acceptance is deferred for six months. Several other companies do not use the test meal at all, but depend upon repeated examinations of the suspected urine at stated intervals. Still other companies employ glucose test meals, while others consider the starchy foods only as worthy of consideration. Feilchenfeld has decided from the answers received that three methods are in vogue: (1) Test following the ingestion of glucose; (2) following the ingestion of starchy food; (3) a combination of both preceding methods. Test No. 1 determines the absolute sugar metabolism. If an individual can consume 100 gm. of glucose without eliminating any of it in the urine within the next four hours, diabetes certainly can be excluded. Since the normal assimilation limit is from 150 to 200 gm. a diabetic would develop glycosuria on a very much smaller amount. This method is also employed in cases of hereditary tendency or when the findings at the physical examination are suspicious, as when there is a tendency to obesity. Test 2 is applied when the reaction is doubtful, when the applicant has been rejected by other companies, or when previous examination has shown glycosuria. A positive result denotes diabetes, whereas a negative result only proves that the disease has not yet become manifest. In individuals under age a negative reaction after the ingestion of starchy food is sufficient. Test 3 is the one most commonly employed, and is satisfactory in ordinary cases. It is safest, however, to add enough sugar to the diet to test fairly the sugar assimilation limit. Feilchenfeld says that in the application of the test meal the greatest difficulty is found in the fact that the applicant must be under observation, not only during the meal, but for several hours afterwards. He should be guarded by a responsible member of the company, who brings the applicant to the physician, in the presence of whom the urine must be voided. The method employed by the Gotha and Teutonia, which orders a control examination after the intake of starchy food in all suspected cases, the applicant stating in writing the time and ingredients of the meal, is to be commended. All details are left to the discretion of the examiner. Chocolate and apple cake seem to be about the most practical meal, as chocolate contains 60 per cent. of sugar, so that in addition to the starches, about 80 gm. of sugar is ingested at such a meal. The value of the sugar test meal and the respective values of the negative, doubtful, or positive reactions following it are not discussed beyond their unquestionable value for insurance companies that accept even light cases of diabetes.—*Zeitschrift für die gesamte Versicherungs-Wissenschaft*, May, 1913.

Education of the Medical Examiner.—That the education of the medical examiner by the insurance company is a most vital subject was evinced at the meeting of the American Life Convention, February, 1913. Some of the companies reported this system of education through pamphlets issued to the examiners, others through personal talks with as many of the men as possible. A regular system, however, adopted by the majority of companies has not as yet been worked out.

Book Reviews.

Lang's German-English Dictionary of Terms Used in Medicine and the Allied Sciences. Second Edition. Edited and Revised by Milton K. Meyers, M.D., Neurologist to the Jewish Hospital Dispensary and to St. Agnes's Hospital Dispensary, Philadelphia. Price, $5.00. Philadelphia: P. Blakiston's Son & Co., 1913.

A knowledge, at least a reading knowledge, of German is almost indispensable for the physician who would keep abreast of the times in medical science. Many English and American physicians have such a knowledge, but comparatively few of them have such a perfect knowledge that they can dispense entirely with a dictionary in their reading. Such will find the aid they need, and a very satisfactory aid, in this latest edition of Lang's well-known dictionary. The new edition has ten per cent. more definitions than the first. The editor says he has excluded all words the spelling of which is the same in both languages, but this has been done only in part, for the book has a number of words, such as shock (probably a misprint for Schock), sexual, senna, genital, anophthalmos, by the insertion of which the rule has been violated. There are some misprints in the book, but we have found none of a serious character, and despite them the dictionary can be recommended to all readers of German medical books and periodicals who may need occasional help of this sort.

Modern Materia Medica. The Source, Chemical and Physical Properties, Therapeutic Action, Dosage, Antidotes, and Incompatibles of All Additions to the Newer Materia Medica That Are Likely to Be Called for on Prescriptions, together with the Name and Address of the Manufacturer or Proprietor, and in the Case of Foreign Articles, of the American Agent. Third Edition, Revised and Enlarged. Price, $1.00. New York: The Druggist's Circular, 1912.

The scope of this work is fully explained on the title page. Although intended primarily for pharmacists it will be found very useful by the physician who may wish to inform himself regarding the composition and alleged therapeutic action of some proprietary remedy. The list is very complete and the information given under each title is satisfactory. The activity of chemists and manufacturers in inventing new remedies is shown by the fact that this third edition, published less than two years after the second, contains nearly six hundred new titles.

Manual of Tropical Medicine. By Aldo Castellani, M.D., Florence; Privat-Docent, Naples; Director of the Clinique for Tropical Diseases, Ceylon; Physician Seamen's Ward, General Hospital, Colombo; Professor of Tropical Medicine and Lecturer on Dermatology, Ceylon Medical College; Member of the Royal Society's Commission on Sleeping Sickness in Uganda, 902-1903; and Albert J. Chalmers, M.D. (Vic. & Liv.); F.R.C.S. (Eng.); D.P.H. (Cam.); director, Wellcome Tropical Research Laboratories, Khartoum; Ceylon Medical Service, 1901-1911; Holt Fellow, University College, Liverpool, 1890; Medical Officer, Gold Coast Colony, 1897-1901. Second Edition. Price, $9.00 net. New York: William Wood & Company, 1913.

The appearance of the first edition of this work in the spring of 1910 marked an era in the literature of tropical diseases. Manson's book on tropical diseases and the excellent volume devoted to that subject in Allbutt and Rolleston's "System" were of a high order of excellence, but neither of them could approach in completeness this work written by two acknowledged authorities. The present edition is considerably larger than the first and presents in other ways the evidence of a very thorough revision. The enormous preponderance of parasitic diseases among the affections peculiar to the tropics is shown by the fact that nearly one-half of the 1,709 pages of this book are given to a study of "the parasitic causes of diseases"—animal and vegetable, microscopic and macroscopic—and to the insects which carry some of these parasites. We note that the authors have not accepted the change of name of the yellow-fever mosquito from Stegomyia to Aedes. Aedinæ, by the way, they write Ædinæ, which is as incorrect as to speak of an ærobic bacillus.

In the chapter on sleeping sickness the authors note the recent discovery that the disease may be caused by *Trypanosoma rhodesiense*, transmissible by *Glossina morsitans*, as well as by *T. gambiense*, transmissible by *G. palpalis*. Atoxyl is relied upon as a specific in this disease, the prognosis of which has been materially bettered since the introduction of the remedy. In discussing the etiology of pellagra the authors observe a wise caution, being content to present the various and conflicting theories without committing themselves to any. Ponos, that once mysterious disease afflicting the children of the near East, has now been definitely identified as a form of kala-azar, due to a species of Leishmania, very similar to *L. donovani*, found mainly around the Mediterranean basin. Blackwater fever the authors believe to be a disease *sui generis*, due to the action of some as yet unknown organism, though they admit the fact of a hemoglobinuria due to quinine. A comprehensive review of theories, past and present, of the etiology of beriberi is given, though the modern theory of a deficiency in some essential substance in the food is favored.

Food and Flavor. A Gastronomic Guide to Health and Good Living. By Henry T. Finck. Price $2.00. New York: The Century Co., 1913.

It is something of an experience to pick up a book with the above title and find oneself as unable to lay it aside unfinished as though it were the most successful novel of the season. The little book is so admirably written, so replete with wit and wisdom, and so thoroughly illuminating and convincing that this must be an experience often repeated. To read the titles of the chapters alone is to covet the book as a personal possession. The writer calls special attention to the chapters on the "Science of Savory Cooking" and "A Noble Art" because he claims that in them lies "the ultimate solution of the urgent problem of domestic help, as well as the problem of improving the average American cuisine, which is a still larger one, because in eleven out of twelve families the women have to do their own cooking." One interesting feature of this delightful book is the fairness with which praise and blame are meted out to the different nationalities. To read the chapter headed "Ungastronomic America" is to laugh with assent and to blush with shame. To turn to the chapter called "Gastronomic America" is to swell with gratified reinstatement. The book is published by the Century Company and therefore its excellence as a piece of bookmaking calls for no comment.

A Dictionary of Treatment, Including Medical and Surgical Therapeutics. By Sir William Whitla, M.A., MD., LL.D., Professor of Materia Medica and Therapeutics in Queen's University, Belfast; Senior Physician to and Lecturer on Clinical Medicine, Royal Victoria Hospital; author of "Pharmacy, Materia Medica, and Therapeutics" (Ninth Edition), "Practice and Theory of Medicine" (2 Vols.), etc., etc. Fifth Edition, 28th Thousand. Price $5. London: Baillière, Tindall & Cox; Chicago: The Chicago Book Company, 1912.

To-day, when the medical world is intent upon the search for sera and other novel forms of treatment of the manifold ills flesh is heir to, it is at once a pleasure and gratification to turn to this book and therein find the best of the old treatments and the tried and proved of the new ones presented in such a scientific, scholarly, and lucid way. The subject matter is arranged in alphabetical order according to the disease indicated, thus abortion is followed by abscess, etc., making the finding of any treatment in a time of hurry the matter of a moment. While the medicinal treatments embrace almost every reliable remedy known for a specific complaint, the therapeutic and hygenic treatments are no less valuable, and when brought together as in this work show how great has been the advances made along these lines in the last ten to fifteen years. The work covers almost all branches of medicine, including ophthalmic conditions and cutaneous affections, which is most comprehensive for a work of this character. The popularity of this book is shown by the fact that it has been translated into the Chinese language since the publication of the new edition.

Physiologie des Menschen und der Säugethiere. Von Dr. René du Bois-Reymond, a.o. Professor, Abtheilungs-Vorsteher am Physiologischen Institu der Universität zu Berlin. Dritte Auflage. Price, 14 marks. Berlin: August Hirschwald, 1913.

The new edition of Bois-Reymond's physiology appears within four years after the previous one and is something of a disappointment. It is apparently largely a reprinting of the former edition. No mention is made of many of the advances in physiology in that time. This is perhaps more noticeable in the section on blood than in other portions of the book. The volume still remains, of course, extremely valuable for its observations on the physiology of animals other than man and has in no way lost its place as a reference book in that subject.

THE CHILD, ITS CARE, DIET, AND COMMON ILLS. By E. Mather Sill, M.D., Lecturer in Diseases of Children, New York Polyclinic Medical School and Hospital; Attending Physician, Good Samaritan Dispensary and Assistant Attending New York Polyclinic Hospital Price, $1.00 net. New York: Henry Holt & Company, 1913.

A MODEST announcement on the cover of this little book states that it is written on the assumption that the young mother of to-day is not satisfied with the knowledge handed down to her from mother and grandmother, but wishes a more thorough up-to-date acquaintance with the modern methods of child care. That the knowledge contained therein is *le dernier cri* of child care there can be no doubt, and it is given in a simple, direct, commonsense style; occasionally the author lapses into medical terms, which might prove a little confusing to the average mother, if the average mother still exists. The 200 or more pages are teeming with bright scientific facts tending to perfect the development of the twentieth century baby, but it is interesting to note that in the midst of all the modern ideas there are to be found many recipes and suggestions and formulas dear to the hearts of mothers long before our grandmothers' days. Aside from the other good points of the book, the pages devoted to croup, "the pacifier," and "dangers in the country" are sufficient reasons for its offering to the mothers of to-day.

OCCASIONAL PAPERS ON THE PREVENTION OF SOME COMMON DISEASES IN CHILDHOOD. By J. SIM WALLACE, D.Sc., M.D., L.D.S., Dental Surgeon and Lecturer on Dental Surgery and Pathology, London Hospital; Honorary Dental Surgeon, West End Hospital for Nervous Diseases. London: Baillière, Tindall & Cox, 1912.

THIS book of a little over a hundred pages is composed of a number of papers read before various societies and published in different British medical journals. The author sets forth many facts which he claims the medical profession have been reluctant heretofore to adhere to and advance, especially the relation of child feeding to the health of the teeth. Perhaps the medical profession have been a trifle slow in this respect, but it has moved forward so rapidly in child work in the last few years that the author's claims are now somewhat unfounded—that is, as far as American physicians are concerned. Almost any physician who has given much study to child-life knows that when the first teeth are erupted it is an indication that nature intends that the diet may be changed from "wet food" to a more solid and substantial food regime, but hardly to the beef and beer diet of its elders. As to adenoids, it is rather an open question whether sleeping with windows open at night during damp or rainy weather markedly increases the growth of this tissue, as the author emphatically claims. There is no doubt, however, that dry, clear climate improves the condition of any nose or throat abnormalities. That the medical profession have awakened to the facts of the influence of foods on the health of the teeth is a fact which is demonstrable by most of the American books on pediatrics now before the public. The old idea of heredity with relation to the health of the teeth is now relegated to the past along with bad air, close quarters and feather beds.

SURGERY OF THE EYE. A Hand-Book for Students and Practitioners. By ERVIN TÖRÖK, M.D., Surgeon to the New York Ophthalmic and Aural Institute; Ophthalmic Surgeon to Beth Israel Hospital; Consulting Ophthalmologist to the Tarrytown Hospital, and GERALD H. GROUT, M.D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Instructor in the Eye Department, Vanderbilt Clinic; Consulting Ophthalmologist to the Bellevue Hospital, First Division. With 509 original illustrations, 101 in colors, and 2 colored plates. Price, $4.50 net. Philadelphia and New York: Lea & Febiger, 1913.

THIS volume is one of 507 pages prepared in the excellent manner characteristic of the publishers. The aim of the authors has been to produce a thoroughly practical work on the surgery of the eye, one that would be valuable to the student and to the practitioner interested in ophthalmology. That they have accomplished this object is very evident. Part one is devoted to a consideration of general surgical methods, instruments and the methods of properly caring for them. A list of desirable instruments is given. Part two is devoted to a detailed description of the operations on the special parts of the eye and includes a brief chapter on the surgical anatomy. The subject is well presented. The text is sufficiently full to include all of the essential indications, operative technique, more frequent complications, etc., but is not prolix. The illustrations, which have apparently been prepared with much care, are very good and sufficiently numerous to fully elucidate the text. The book contains an introduction by Dr. Arnold Knapp, who heartily indorses the work. The authors are to be congratulated on the excellent result of their labors. Their work deserves to become popular with the student and practitioner of ophthalmic surgery.

UNSER WISSEN ÜBER DIE SEKUNDÄREN GESCHLECHTSCHARAKTERE, Zusammenfaassendes Übersichtsreferat von Dr. R HOFSTÄTTER, Assistant der Frauenabt. (Prof. Peham) der Wiener allgem. Poliklinik. *Centralblatt für die Grenzgebiete der Medizin und Chirurgie*, Vol. XVI, Nos. 2 and 3, February 18, 1913. Jena: Gustav Fischer, 1913.

THE value of a collective review such as this, dealing with the biological significance of the secondary sexual characters, may be appreciated when it is stated that this review is based upon a paltry 2,324 references to the literature! Only the Germans seem to be capable of such exhaustive bibliographical research. The subject is discussed in all of its phases. The biological basis of the secondary sexual characters is first described. Next follows a full presentation of the subject of prenatal sex determination. The succeeding chapter deals with the relation of the organs of internal secretion to the secondary sexual characters. The complete unfolding of these characters is described in the next chapter—such subjects being discussed as the influence of climate, race, environment, etc., upon the establishing of the menstrual function. The remainder of this comprehensive monograph discusses the influence of inner and outer factors upon the secondary sexual characters, precocity, retarded development, pesudohermaphroditism, and the sexual instinct. There can be no doubt that physicians in general and those who are engaged in the different specialties such as gynecology, neurology, pediatrics, and obstetrics, will find a good deal to interest them in this volume.

THE SCHOOL DENTISTS' SOCIETY. Affiliated to the Child-Study Society and the National League for Physical Education and Improvement, Its Objects and Aims. Second Edition. Price one shilling net. Waterford, England: Published for the School Dentists' Society by W. Michael & Son, 1913.

THIS little volume is a handy directory of information pertaining to the activities of school dentists in England. It contains a list of members of the School Dentists' Society, rules, papers read, dental requirements for navy and army recruits, poor law dental appointments, appointments made by the Board of Education, Admiralty and War Office. It describes the equipment suitable for school dental clinics. It discusses the present conditions of school dentistry in England, continental countries, and the United States. It contains lists of rules on the prevention of oral sepsis and dental disease, and a series of three admirable charts. The inauguration of school dental clinics which has already acquired a firm footing in the United States, makes a book of this kind of eminent value to all American workers in the field of school dentistry.

BLOOD PRESSURE. From the Clinical Standpoint. By FRANCIS ASHLEY FAUGHT, M.D., Formerly Director of the Laboratory of Clinical Medicines of the Medico-Chirurgical Hospital; Instructor in Medicine at the Medico-Chirurgical College, Philadelphia. Price $3.00. Philadelphia and London: W. B. Saunders Company, 1913.

DR. FAUGHT has rendered a service to clinical medicine in writing this very clever presentation of the comparatively new subject of blood pressure. Many experienced clinicians are doubtless right in their belief that too much weight may be attached to an increase in blood pressure and that it is often a life saving process rather than a dangerous condition to be rigorously attacked with vasodilators, the high-frequency current, and other measures. Yet a wide deviation of the blood pressure in either direction from the norm is a danger signal which the physician must heed. What it may signify, when it is a symptom merely and when a condition dangerous in itself, what measures in the latter case are useful, and also how to make blood-pressure readings are all lucidly explained in this excellent little treatise. The book is well printed and well though not profusely illustrated, but is much too bulky and too heavy, being printed on paper almost the thickness of cardboard. It is a book of about 280 pages, and if printed on ordinary paper would be an inch instead of nearly two in thickness and could be held in the hand without fatigue.

An International System of Ophthalmic Practice. Edited by Walter L. Pyle, A.M., M.D., Philadelphia, Member of the American Ophthalmological Society. Ophthalmic Semiology and Diagnosis, by Charles H. Beard, M.D., Surgeon to the Illinois Charitable Eye and Ear Infirmary (Eye Department), Oculist to the Passavant Memorial Hospital and the North Star Dispensary (Chicago), Member and ex-President of the Chicago Ophthalmological Society, Member of the American Ophthalmological Society, etc. With thirteen colored plates and seventy-one figures in the text. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

The volume is one of 400 pages. It is well printed and contains a large number of pictures of the fundus oculi in colored plates and in black-and-white in the text. The work is devoted to a description of the signs and symptoms of the various abnormities and diseases of the eye, and differential diagnoses; in short, the symptomatology of the eye. The various parts of the eye and its adnexa are considered separately in logical order. About one-half of the work is devoted to a description of conditions affecting the interior of the eye back of the crystalline lens, to the detailed study of which the author has given much time. Objective signs and symptoms have been considered; subjective symptoms have been ignored. Although a wide acquaintance with the literature on this subject is manifest, the text portrays the observations of the author principally. There is no bibliography. The work is one that will interest the practicing ophthalmologist and will be of value to him, particularly in regard to the changes occurring in diseases affecting the retina and chorioid. The volume is a valuable addition to the system.

Über die Serodiagnose der Syphilis, ihre Wesen, ihre Technik und ihre Praktische Bedeutung, von Dr. A. Brauer in Danzig. Hitherto assistant in dermatological clinic in Kiel. Price, 1.20 marks. Halle A. S.: Carl Marhold, 1912.

The actions of antigens, antibodies, complement, etc., leading to hemolysis in the reaction are clearly described. The technique is described also. The book has probably no particular value.

Nervous and Mental Diseases. For Students and Practitioners. By Charles S. Potts, M.D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia; Neurologist to the Philadelphia Hospital; Formerly Associate in Neurology in the University of Pennsylvania. Third Edition, Revised and Enlarged. Illustrated with 141 engravings and six plates. Price, $2.75. Philadelphia and New York: Lea & Febiger, 1913.

The previous editions of this book have been reviewed for the Medical Record. The chief additions to the present edition comprise descriptions of myotonia atrophica, progressive lenticular degeneration and dysbasia lordotica deformans, and brief reference to Freud in the chapter on hysteria. Some revision has been made in the chapter on general symptomatology and methods of examination. The latest views [at the time of publication] respecting examination of the cerebrospinal fluid, the Wassermann reaction, the treatment of syphilis of the nervous system, etc., have been incorporated. The section on mental diseases has not been particularly amplified. The author states in his preface that he has not attempted to discuss the psychology of these disorders; but rather to present merely a working knowledge thereof. There are several new illustrations. Altogether the work approaches the compendium in brevity of description, rather than the textbook.

Appendicitis. Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technique of Operation, Complications and Sequels. By John B. Deaver, M.D., Sc. D. LL.D., Professor of the Practice of Surgery, University of Pennsylvania; Surgeon-in-Chief to the German Hospital; Visiting Surgeon to the Hospital of the University of Pennsylvania, Philadelphia. Fourth Edition. Thoroughly Revised. Containing Fourteen Illustrations. Price $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1913

The chapter of appendicitis has not been closed. New phases, new methods of diagnosis, and improvements in technique, make this subject today as engrossing as any other in the domain of surgery. The fourth edition of Dr. Deaver's well known work is therefore opened with the expectation of seeing these newer problems fully discussed. The reader is amply rewarded. It is shown how Lane's kink of the ileum in some cases accounts for the persistence of abdominal pain after operation. The diagnostic and prognostic indications of the blood in appendicitis are now more sharply defined than ever before. Basing his conclusion upon a thousand observations, the author states that a high proportion of polymorphonuclears is significant of a severe infection and when coupled with little or no rise in the absolute number of leucocytes it is a bad sign. The fact is again emphasized that "acute appendicitis is the absolute domain of the surgeon." The term "interval operation" is regarded as implying improper treatment, since no one should be allowed to have more than the first attack. This volume is a veritable mine of information on the subject and will repay careful reading by the general practitioner no less than by the surgeon. The illustrations are of unusual degree of artistic merit and the typography, paper, and binding leave nothing to be desired.

The Spark of Life. The Story of How Living Things Came Into the World. As Told for Girls and Boys. By Margaret W. Morley, author of "The Song of Life," etc. With a Foreword by Edward Bok, Editor of the Ladies' Home Journal. Price 25 cents net. New York: Fleming H. Revell Company, 1913.

This little book is the fourth number in the series known as the Edward Bok books of self-knowledge for parents and young people. In delicate and simple language it guides the mind of the young child, through the plant and animal worlds to a knowledge of the secret of the propagation of life. With rare didactic skill and elegance of phraseology the author tells about the amazing world of seeds, the story of the flowers, why white sweet peas become purple, why pumpkins do not grow on rose-bushes, why the butterfly lays its eggs on a leaf, how fish lay their eggs in water, why birds grow inside of shells, how prize chickens and fancy pigeons are brought about, and how kittens start from eggs. The lesson of eugenics is simply and impressively taught.

Clinical Electrocardiography. By Thomas Lewis, M.D., D.Sc., F.R.C.P., Assistant Physician and Lecturer in Cardiac Pathology, University College Hospital, Physician to Out-Patients, City of London Hospital. London: Shaw & Sons, 1913.

To most physicians the subject of electrocardiography is one of curious interest only, if its meaning is known at all; yet its use is more than a fad even if we are unable to go so far as the author of this monograph in saying that "the cardiac patients are few in whom an electric examination is superfluous." That the string galvanometer does give valuable information in many cases of chronic cardiac trouble cannot be doubted by one who has studied its action, but much has got to be learned of the significance of electrocardiograms. To the student of this subject Dr. Lewis's book will give valuable aid and his interpretation of the many cardiograms here pictured will be welcomed by many advanced students of this new branch of the science of diagnosis.

Men, Manners, and Medicine. By Medicus Peregrinus. "Maners Makyth Man." Price $1.00 net. Boston: M. M. Leonard, 1913.

The title of this book is that of its leading essay. This and the other essays and sketches represent as stated in the foreword "the random observations of a doctor, from his personal and professional point of view, on men and books and other phenomena, especially in relation to medicine." The title of the opening essay, "Men, Manners, and Medicine," was suggested by a visit to Oxford. Over the gates leading into the gardens of New College there is the motto of Bishop William of Wykeham, the founder of New College, "Maners Makyth Man." This and the beauty of the environment suggest that in England the cultivation of the humanities played no small part in the education of the physician. Even in London the medical school has its garden "where the traditions and habits of college life may be maintained." The hospitals also have their chapels and gardens. In contrast to the cultural aspects of medical life in England there is presented the prosaic picture of medical life in Germany and America. Among other essays in this collection may be mentioned the following: "Doctors and the Circus," "Doctors and Barbers," "Nature and Eugenics," "Homeric Physician," "Arthurian Physicians," "The Romance of Medical Relief at Sea," "Christmas and the Physician," etc. This book, with its excursion into the cultural phases of medicine, provides an hour or two of delightful reading.

Society Reports.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Fifty-fifth Regular Meeting, Held May 2, 1913.

THE PRESIDENT, DR. J. W. BRANNAN, IN THE CHAIR.

Two Cases of Pulmonary Tuberculosis Treated by Artificial Pneumothorax.—DR. JAMES A. MILLER presented two cases of pulmonary tuberculosis which showed two different aspects of the artificial pneumothorax treatment. The first patient, a young boy, had tuberculosis; he came into the Clinic on February 19; he had no previous history of tuberculosis, but he had had for the past two days very severe hemorrhages, amounting to one quart a day, and at the Clinic he coughed one pint of blood. Temperature 99°; pulse 104; weight 138 lbs. The night after admission gas was introduced into the right pleural cavity. There was a severe hemorrhage at the time; the physical signs showed a few râles and diminished breath sounds over the right lower lobe, below the angle of the scapula. The effect of the injection was highly interesting; toward the end of the treatment the patient presented symptoms of shock; this had been reported in a limited number of cases, but this patient went into shock toward the end of the injection after he had had 1200 c.c. of gas; this was a very large amount and was given to control the hemorrhage which was done at the end of fifteen minutes. The patient complained of feeling faint and dizzy, but did not lose consciousness; he was very pale and the pulse became very weak, but instead of getting irregular it became very slow, down to 48; this was evidently a reflex stimulation of the vagus nerve. The patient responded to stimulation, and after fifteen minutes had entirely recovered. The bleeding and cough entirely ceased; a temperature of 102° came to normal next day and had been so ever since. The next injection was four days later; the next ten days later; the next two weeks; the next two at three-week intervals. The patient had had no cough since, though he had felt weak; he had regained weight and now felt entirely well and was very anxious to go to work. It was planned to let him do so under supervision. He was to come back to the Clinic for injections at three-week intervals. The *x*-ray picture showed a lesion of the central part of the right lung. After the gas was injected the picture showed a typical artificial pneumothorax. The gas was around the lung at the apex and at the base. The physical signs of pneumothorax were interesting because there was a great deal of variation; sometimes the signs were exactly like spontaneous pneumothorax with amphoric breathing and a metallic tinkle; at other times there was a diminution of breath sounds and râles which the boy showed at the present time, with intensified coin sound. Some cases developed fluid during the course of treatment.

In the second case, the first *x*-ray picture showed absolute capacity of the left lung, with consolidation and a scattered infiltration of the right lung, which made the advisability of treatment doubtful; patient had been rapidly getting worse. The *x*-ray picture after treatment showed adhesions of the apex with the mediastinal contents pushed to the right. The history showed that the patient had been sick since last autumn, beginning with a cough, expectoration, and rapid loss of weight; temperature 103°; increasing dyspnea; no night sweats; pulse 128; respirations 30; weight 123 lbs. The patient was a very sick man; there was a cavity in the left upper lobe and active partial consolidation of the rest of the lung. The patient had injection of gas on Feb. 18, 400 c.c., next day 800 c.c., and at six-day intervals from 800 to 1200 c.c. He had no discomfort whatever from pain or dyspnea; the temperature had fallen to normal and there had been 13 lbs. gain in weight. He had a little morning cough; the last sputum examination showed tubercle bacilli present. This type of very chronic advanced case could be treated successfully by this method in some instances, but sometimes it was absolutely impossible to find a pleural cavity in such cases. In this case the lung was easily compressed by the gas and the treatment had been absolutely successful. Without it the man would have been pretty near the end now.

Dr. Miller said he had not intended to show another case, but he had another interesting experience which would go with the above cases. The case was one of pulmonary tuberculosis showing a lesion of consolidation of the right upper lobe. This case had been treated with the Friedmann culture. The treatment had had no apparent effect, but thirteen days later there was a marked hemorrhage, 12 ounces. There was a very rapid extension with softening of the lung and cavity formation shown very well by the *x*-ray; the extension was down to the lower lobe and the man was in great danger. On April 11 he was treated with 900 c.c. of gas and the temperature began to fall; two days later another injection of 1000 c.c. was given and the temperature became normal; the man rapidly convalesced. He still had a little morning expectoration which contained bacilli. He was now up and about with practically no symptoms. Another chart showed a similar case to the hemorrhage case demonstrating the effect on fever as well as on hemorrhage. The patient had no previous symptoms until he had a hemorrhage two weeks before admission. In the hospital he was bleeding every day, very anemic, temperature rising, reaching 104° on Jan. 11. Dr. Potter requested Dr. Miller to see the man as he was having a very profuse hemorrhage—a pint at least. This did not stop until he was given 900 c.c. of gas. The hemorrhage then stopped immediately and the temperature was normal in 24 hours. The man had gained 25 lbs. and felt perfectly well.

Dr. KINNICUTT asked if Dr. Miller had had any bad results.

Dr. THOMPSON said that about fifteen years ago Dr. H. P. Loomis experimented with this method, which was then new. This was before the days of *x*-rays, so that only ordinary means of physical diagnosis were available. The published results could not accurately be remembered at the moment although some cases were temporarily benefited; on the whole no remarkable results were obtained. The employment of the method was discouraged and it was given up. It was interesting from the physiological point of view to trace the rapid displacement of the heart toward the median line. There were a few cases of collapse reported, supposed to be due to the twisting of the aorta, occasioned by this movement, but Dr. Thompson had not met with any.

Dr. BRANNAN said that some physicians thought it advisable to leave the needle or tube in the side so as to avoid the shock of a second puncture, in case a second injection of gas was indicated. There seemed to be a recent revival of this operation in many parts of the country.

Dr. ROPER asked if the lung remained collapsed permanently.

Replying to Dr. Thompson, Dr. Miller said that results were good in hemorrhage case, but the lungs could not be completely compressed when a number of adhesions were present. Replying to Dr. Brannan, he said it had been proposed to avoid shock from subsequent punctures, but that shock was as likely to happen toward the end as at the time of puncture. There was a disadvantage in danger of infection, and one case of a permanent thoracic fistula through the puncture wound had been reported. Replying to Dr. Roper, he said that the lung was collapsed only so long as the gas remained in pleura. Brauer and Forlanini reported six deaths with autopsy. Fibrosis was much more marked than on the side which had not been compressed. Usually the compression should be kept up at least nine months to one year. Replying to Dr. Kinnicutt, he said that he had had one bad case in which he was sure that the treatment did more harm than good. The patient had a marked lesion on the one side and a small lesion on the other side anteriorly in the axillary line. Signs of acute consolidation developed in the opposite lung after injection. The patient eventually died, and the speaker felt that the acute lesion had been started up by the treatment.

Oral Sepsis.—Dr. FRANCIS P. KINNICUTT read this paper. (See page 461.)

Dr. DANA said he presumed most of the practitioners were familiar with a case which illustrated the seriousness of carious teeth. It was known that the wife of a prominent physician, who had suffered from septic arthritis, had been found by microscopical examination to be suffering from an infection by the teeth. Inoculation had been practised with successful results. Dr. Hastings had reported this case. Dr. Gibson had referred to conditions of the Gasserian ganglion. He had found only one case in nearly one hundred in which the cause of disease of this ganglion might be the teeth. In connection with this subject it might be interesting to note its relationship to neurology. A well known neurologist of Cleveland read a paper before the New York County Dental Society a year ago in which he claimed that infected teeth were the cause of certain kinds of neuroses and psychoses, and quoted cases in which removal of such teeth improved the conditions.

Dr. HUDDLESTON said perhaps Dr. Dana had forgotten

a case concerning which he was good enough to advise him four years before. Dr. Dana had suggested removal of the patient's teeth to relieve pain radiating over the whole side of the head, and at the same time do away with an apparently septic fever which had lasted for four weeks. The dental surgeon said that the teeth were not the cause of the trouble, but he was persuaded to remove the suspected tooth and on removal found the cause of the trouble in another tooth behind it. Following this the pain and fever promptly ceased and the patient recovered.

Dr. Dana said this was not a typical case of tic douloureux.

Dr. Gibney said that at the Ruptured and Crippled Hospital he had had a number of cases of multiple arthritis in children, from Still's disease to slighter forms. Only in the last two or three years had the matter been referred to the teeth as a possible source of trouble. Lately they had been assiduous in examining the teeth and having a good dentist go over them. In the new hospital ample provision had been made for the care of the teeth. A lady had given a sum of money to be used as a dental fund. The best dental advice to be had was obtained and the teeth were examined regularly. The bearing of this subject on the multiple arthritis of children was very interesting.

Dr. James said that he had listened to the paper with great interest and thought it especially timely as it accentuated a type of disease which was not described in the text-books and which was probably fairly common, although not well understood by the profession at large. It often happened that one suspected that the teeth were at the bottom of an irregular fever or some obscure disturbance of nutrition, but on examination they were found to be faultless; yet every now and then one was certainly rewarded in finding in this way the cause of obscure cases, in which, as in Dr. Kinnicutt's cases, the results of treatment were remarkable. A gap existed between the family dentist and the family physician which ought to be covered. It was the duty of the family physician to see to it that no dental work was done upon his patients which was not thoroughly sanitary and thoroughly in accordance with the best modern medical and surgical methods. Dr. James believed that the majority of the modern so-called high class cap and bridge work which was done to such a great extent in American dentistry and in which American dentistry took such pride, should never have been put into the patients' mouths, as it was a constant source of danger of infection. Moreover, occasionally he had found that there was an abscess at the root of the tooth containing foul pus and a source of health deterioration, which had never given rise to any local symptoms whatsoever, no pain, no tenderness, and the situation was revealed only by the taking of an *x*-ray picture of the teeth, after the dentist had refused absolutely to remove the cap or bridge which covered the canal of the improperly filled and neglected tooth.

Dr. W. Gilman Thompson said that in elderly patients, particularly, one met with cases of the type described by Dr. Kinnicutt. Owing to feebleness they neglected the care of the teeth, and general infection might readily follow. In one such case, in a woman over eighty years of age, he had found a chronic infection with a low grade of fever and irritable pulse which lasted for several months and finally yielded to daily treatment by a dentist over a period of many weeks. He had recently collected a number of cases from his service in Bellevue Hospital in which septic endocarditis arose from infection in the mouth. The *Streptococcus viridans* was derived by Dr. Thro from cultures from the alveolar abscesses, the tonsils, the blood, and, post mortem, from the vegetations upon the heart valves.

Dr. Brannan said that Dr. Kinnicutt's paper was of especial value in that it called attention to the importance of oral hygiene, which was apparently but little appreciated by physicians in general. Some of the members of the society in discussing the paper referred to cases in which dentists had failed to recognize pathological conditions in the mouth, conditions which were the cause of systemic disease. The dentists, on the other hand, had been insisting for a number of years on the importance of a "clean mouth," and had shown how carious and imperfect teeth affected nutrition, particularly that of the child. For the past five years Bellevue and the Allied Hospitals had had a dental department, and at Bellevue thirty dentists gave their services free, but he did not find that the physicians and surgeons of the hospital realized the value of the work. Many of them did not know that dentists were attached to the hospitals, and the house staff ignored them entirely. Some of the best dentists were opposed to bridge work as it favored the retention of putrescent material. Dr. Wm. A. Wheeler claimed that 99 per cent of bridges did more harm than good. He preferred the metal plate which could be kept clean. He cited many instances from his experience in which prolonged anemia, supposed malaria, ear trouble, or disorders of the digestion had been permanently relieved by the extraction of teeth, which sometimes seemed in good condition. Recently Medalia, a physician of Boston, had urged the value of the vaccine treatment of pyorrhea alveolaris or Riggs' disease. He reported cure or relief in a large number of cases which had been sent to him as hopeless. He claimed that it yielded the best results in the treatment of this disease, and that, together with proper attention to diet, it cured or relieved the systemic diseases caused by it, especially the rheumatic affections. He had not found any confirmation of Medalia's work by other observers, but he had been planning to have it tried at Bellevue, where there were many cases of Riggs' disease.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirty-fifth Annual Meeting, Held in Washington, May 5, 6 and 7, 1913.

The President, Dr. George A. Leland of Boston, in the Chair.

First Day—Monday, May 5.

President's Address.—Dr. George A. Leland of Boston, said that this was the thirty-fifth annual meeting of the oldest national laryngological society in the world, and that it was his great privilege to welcome them most cordially with due appreciation of the honor which had been conferred upon him by adding his name to that noble list of his predecessors, the Nestors of their specialty in America. Their founders builded wiser than they knew when they chose the throat as a field of their specialty; for here, as shown by modern bacteriology and clinical observation, was the port of entry of many of the diseases to which poor human flesh was heir. It had been well established that through the lymphatics of the fauces and nose might enter microorganisms which caused tuberculosis, nephritis, endocarditis, sepsis, cerebrospinal meningitis, acne, erythema nodosum, erysipelas, etc., and by extension up through the Eustachian tube, aural diseases of all sorts leading to deafness, pyemia, meningitis, intracranial abscess, etc. It was the province of preventive medicine to obviate all this and to put the upper air passages in the best possible shape. It was without doubt that if the nose and nasopharynx could be put into proper shape the occupation of the aurist would be gone except for the effects of traumatism and perhaps for the infections. In closing he said that it was his sad duty to record that three of their fellows had died during the year: Dr. C. E. Bean of St. Paul, who was admitted in 1880; Dr. James E. Newcomb of New York, who died two and a half years after he relinquished the office of secretary of the Association. At the meeting in 1911 it was, alas, too obvious that he was in failing health and they all approved the action of the nominating committee in conferring upon him what he considered "the highest honor in the power of the American laryngologists to bestow," namely, the presidency of the Association. His memory would ever be enshrined in the hearts of those who had the good fortune to know him. On April 29 Dr. Charles H. Knight, another former President of the Association, passed away. Dr. Leland said that it was always touching to him when he heard the New York confrères refer to him as "Charlie Knight," which showed such an affectionate and familiar regard. Newcomb and Knight, two great souls, had passed on to their well deserved reward and had left a desolation in the ranks of their great Association.

Ethmoidal Operations; Symptomatology in Relation to Diseases of the Eye.—Professor Leopold Rethi of Vienna, Austria, read this paper by title. He was unable to be present because of illness.

Further Observations on Some Anatomical and Clinical Relations of the Sphenoid Sinus to the Cavernous Sinus and the Third, Fourth, Fifth, Sixth and Vidian Nerve.—Dr. Greenfield Sluder of St. Louis, Mo., said that last May it was his privilege to present this subject to this Association in the shape of a preliminary report. It might be recalled that the question of the etiology and treatment of migraine was raised in that report, and the statement made that he believed many of the recurrent

headaches that bore the name migraine were sphenoidal empyemata that had lost most if not all local signs, or were started as such empyemata, and that the nerve trunks had become involved either by extension of the inflammation, or its toxins, through the thin wall separating the sphenoid sinus from the adjacent nerve trunks. The results of the cases he submitted were too recent to permit of positive conclusions. These results should stand five years before conclusions were drawn. So far as they went, however, they strengthened his belief in the correctness of the deductions detailed in that report. Last February he enjoyed the personal favor of an inspection with Dr. Warren B. Davis, Keen Research Fellow of the Jefferson Medical College, Philadelphia, of his matchless collection of 145 Caucasian specimens, showing the nose and accessory sinuses from the eighth week of fetal life to the twenty-fifth year uninterrupted, and several specimens for each year. These specimens were secured by the ingenious technique which Dr. Davis was clever enough to devise, and which he would publish in a monograph giving his observations on the collection. With his sanction Dr. Sluder recorded the observations made that the sphenoid sinus spread laterally at an early age, reaching to close proximity to the second division of the fifth as early as two and a half years; and that this condition ran almost constant throughout the series. Its development (Davis) began on the anterolateral aspect of the body and slowly extended backward. It, however, spread rapidly laterally to approach the foramen rotundum and then proceeded backward. As early as the sixth year the Vidian canal might be approached. These observations seemed of great importance. They furnished anatomical findings to correspond with the clinical histories of this class of cases, that was, that the neuralgias frequently began in quite early life. He called attention to the close association of the sphenoidal sinus to these nerve trunks, and to the fact that the inflammatory processes were transmitted through the thin bone separating the cavity of the sphenoid from the associated nerve trunks; if he was right in this assumption it was necessary that the anatomical associations be formed in early life as an explanation of such headaches beginning at this time. Last May he made the suggestion that he thought the pathological process underlying these cases was a hyperplastic sphenoiditis. A year more of clinical observation strengthened this belief. From an observation of about 100 cases it had seemed that the second division of the fifth and the Vidian were the nerves most frequently involved (95 per cent.). They might be involved slightly, or together, then making the picture which would otherwise emanate from the sphenopalatine ganglion. During the year he had tried for intrasphenoidal use three medicines. Iodide of potassium in water, 2 to 5 per cent., which proved to possess nothing upon which its use could be recommended. It was apparently inert. One per cent. chloretone in water proved to lack recommendation. The proprietary "cresatin" also failed to prove better adapted for these purposes than carbolic acid or oil of wintergreen. The medicines which had so far proven most satisfactory were one per cent. carbolic acid in oil, 2 to 10 per cent. oil of wintergreen, and aqueous solutions of sodium salicylate 2 to 5 per cent. These had been successful in allaying the pain long after the sinus was satisfactorily opened and the wound healed.

Dr. William Henry Haskin of New York City said that what had been presented in the paper in regard to the anatomy of the parts coincided with what he had discovered. He agreed with what had been said regarding the frequency of the 2nd division of the 5th and Vidian nerves being in contact with the sphenoidal sinus. He had many specimens which showed the 2nd division of the 5th nerve in contact and several showing the 3rd branch of the 5th also in contact. Out of 250 specimens he had yet to see the 3rd, 4th or ophthalmic division of the 6th nerves in contact with the sphenoidal sinus. These nerves passed over the carotid artery as it entered the cavernous sinus and were on the outer wall of the sinus throughout. One point which Dr. Sluder had failed to grasp might explain most of the symptoms in the sphenopalatine region and also the large number of ocular conditions that occurred in nasal sinusitis and aural diseases. The sympathetic nerve passed along the inner side of the cavernous sinus and formed the cavernous plexus. This supplied sympathetic fibers to the ciliary ganglion, as well as sympathetic fibers to the sphenopalatine which joined the Vidian nerve. In studying the physiology of the vasomotor supply one could find every one of the symptoms described in the papers and every one of them could be readily accounted for. There was no neuritis or choked disc present; these pointed to some intracranial pressure or actual meningitis. If there happened to be any destruction of the sympathetic nerve about the sphenoidal sinus it was very plausible to suppose there would result actual trophic disturbances of the optic nerve and one would get a true picture of optic atrophy. The trophic supply was lost because of this disturbance of the sympathetic nerve. The sympathetic nerve was in direct contact with an area of bone which was liable to inflammation. Most all of the manifestations could be explained if they studied the sympathetic nerve supply more carefully. Paralysis of the 6th nerve was more often met with than believed. This nerve pierced the dura mater in the inferior petrosal sinus and then entered the cavernous sinus and was liable to become involved in any sinus thrombosis.

Dr. Greenfield Sluder of St. Louis, Mo., said that Dr. Haskin had touched upon diseases of the eye which he had not mentioned in his paper. A study of the cavernous sinus showed that it was simply in close relation with the cavernous coverings. It was recently reported at a meeting in St. Louis that following injections into the sphenopalatine canal in cases of glaucoma the intraocular tension was first raised 5 mm. and then dropped 20 mm. The condition, however, was transient. The superior ganglion was removed for glaucoma some time ago and with transitory effects only. This practice was not now in vogue. This seemed to point to the fact that glaucoma might be uniformly attributable to nerve block. Glaucoma was not controlled from the sphenopalatine ganglion.

The Faucial Tonsil as a Focus for Systemic Infection.—Dr. George E. Shambaugh of Chicago read this paper. He said the close relation between acute rheumatic fever and sore throat had long been recognized. Formerly it was often assumed that the sore throat occurring in connection with acute rheumatism was but a local manifestation in the pharynx of the general systemic condition. It was now generally believed, however, that the sore throat in these cases represented the focus of entrance for the systemic infection. Furthermore, it was now quite generally recognized that sore throat, for the most part acute tonsillitis, was very often the immediate cause for other systemic infections, such as acute endocarditis and acute nephritis. It had not been so generally appreciated that the faucial tonsils were very frequently the focus for chronic systemic infections, such as chronic arthritis, commonly known as arthritis deformans, chronic neuritis, cardiovascular degeneration, and chronic nephritis. He believed that the general practitioner, as well as the specialist, had not fully appreciated the importance of the relation existing between infections, acute as well as chronic, of the faucial tonsils and certain systemic conditions. He believed that the importance of this relation had been more fully appreciated by the leading internists than it had by the specialist. Children with enormous, apparently harmless, faucial tonsils often did appear ill-nourished and generally below par. Very frequently the removal of the tonsils resulted in such an immediate and astonishing improvement in general health that it could hardly be accounted for except on the assumption that the enlarged, harmless-appearing tonsils often contained foci for a mild systemic infection. The enlarged tonsil in the adult appeared often more or less edematous and congested. In many of the tonsils there were dilated crypts containing the characteristic foul-smelling, cheesy deposits which in many cases, from time to time, produced acute infection. At such times the patients experienced more or less general malaise and dullness. Not infrequently one could, by pressing on the base of the tonsil, express from its depth a creamy fluid exudate which was largely pus, often filled with virulent streptococci. These enlarged tonsils in the adult were frequently quite fibrous and hard, but in some cases the swelling was largely of the parenchyma and the tonsils remained soft and compressible. Every one was familiar with the small tonsil embedded under a fold from the anterior pillar and the tonsil with a deep horizontal fissure separating the upper from the middle thirds, and with the fact that such tonsils were unusually susceptible to acute infections which, therefore, especially predisposed them to the development of latent foci capable of causing systemic infections. Another type of faucial tonsil that he had learned to regard as a frequent source of systemic infection was the stub remaining after partial removal, or where the tonsil had been subjected to igni-puncture or surface cauterization. In these cases the surface scar seemed often to predispose to the retention of infection in the pockets of the remaining stub, causing repeated attacks of acute tonsillitis, as well as systemic infections.

As regards the proper treatment of faucial tonsils suspected of harboring foci giving rise to systemic infection, this should be the same as the treatment of such foci of infection occurring elsewhere in the body. The treatment consisted in the thorough removal of the suspected foci. The enucleation of the faucial tonsils in children required a general anesthetic. In adults he preferred to do, as a rule, the operation under local anesthesia.

Results in a Series of Cases of Tonsillectomy at the Massachusetts General Hospital Three to Four Years after Operation.—Dr. J. Payson Clark said that the year beginning July 1, 1908, was chosen for study because sufficient time had elapsed since then to make the reports valuable. He began sending out notices in July, 1912; 992 postals were mailed and 143 patients responded by reporting in person at the clinic. Those who reported were subjected to the following examination: (1) Name, sex, age, number, etc. (2) Date of operation. (3) Any hemorrhage after operation requiring treatment? If so, what treatment? (4) Were adenoids removed at same time? (5) For what reason were the tonsils removed? On account of size, frequent tonsillitis, enlarged cervical glands, rheumatism, or other evidence of septic absorption, or any other reason? (6) Was the trouble for which the tonsils were removed relieved? (7) Was there a marked improvement in the general condition after operation? (8) Had the patient had any illness since operation? If so, what and when? Had the patient any sore throat? (9) What was the present status of health? (10) What was the appearance of the throat? (State whether any tonsillar tissue appeared to remain, also as to symmetry of the soft palate and pillars, presence or absence of tonsillar fossæ, etc.) (11) Was there any difference in voice or speech since the operation? (12) Were there any enlarged glands now? He then made a review and analysis of the answers to these questions and the findings at the examination. The following summary was presented: The patients, with a few exceptions, were under fifteen years old at the time of operation. Hemorrhage after tonsillectomy, calling for special treatment, was of rare occurrence. The condition for which the tonsils were removed was relieved in very nearly every case, even in those in which there was some tonsil tissue remaining. An improvement in the general health was to be expected after tonsillectomy done for cause. Children who had had tonsillectomy certainly showed no increased tendency to illness and were probably less susceptible than before the operation. Their present health was excellent in the great majority of the cases. What was apparently tonsil tissue was found much more often than one would expect after supposed tonsillectomy. The soft palate was symmetrical and the faucial pillars and tonsil fossæ normal in the great majority of the cases. The accidental cutting off of the uvula in four cases caused no bad symptoms. Most of the cases of sore throat and tonsillitis were relieved by the operation. In many of the cases in which there appeared to be remains of tonsil tissue the patients were in perfect health and in others there were symptoms; these were undoubtedly due in many cases to other causes than the tonsil remnants. The ordinary voice or speech might be said to be practically unaffected by tonsillectomy. No investigation was made as to the singing voice. In most of the cases in which enlarged cervical glands could be felt there was tonsil tissue present on the same side. On the other hand, in nearly half the cases in which tonsil tissue was present there were no enlarged glands. Carious teeth were apparently a direct cause of some cases of cervical adenitis.

Dr. G. Hudson Makuen of Philadelphia said that there were two reasons for operating upon the tonsils, the one being for the removal of sources of infection and the other for the conservation and improvement of functions of important organs of voice and speech. Dr. Harold Whale, in the London *Lancet* of February 15, 1913, reported a study of 220 unselected cases with reference to the effect of the tonsil operation upon the voice, and stated that of all those in which the voice troubles were cured nearly one-half presented considerable tonsillar remains, and that the percentage proportion of uncured cases was nearly twice as great after tonsillectomy as after tonsillotomy. He therefore concluded that tonsillotomy was the operation of choice for the cure of voice defects. This accorded with his own experience and he was of the opinion that tonsillectomy should be the operation of choice only for the removal of sources of infection and that so far as the voice was concerned better results were obtained by leaving the capsules and possibly some portions of the tonsil in the fauces to keep the pillars of the palate apart and to direct their action in the control of the vocal cords. Dr. Makuen said he had yet to see perfectly functionating palatal pillars after a complete removal of the tonsils. The mere cutting off of a portion of the tonsil, including, as it often did, the edges of the palatal pillars, was to be condemned together with what Dr. Shambaugh had called surface cauterization because they both tended to seal the crypts and form infective pockets. When tonsillectomy was not absolutely indicated Dr. Makuen used his specially devised knife, having the blade at nearly right angles to the shaft, which he inserted into the tonsillar crypts and slit them freely down to the very base, after which a thorough searing of the crypts and the cut edges by means of the cautery knife followed in order to prevent adhesions between the edges of the wound. Each crypt might thus be opened and if necessary at different times. These measures resulted in a marked shrinkage of the tonsil without forming adhesions of any kind and without interfering at all with the action of the palatal muscles. Dr. Makuen said that he used his own operation for the relief of speech and voice troubles quite as frequently as for the removal of foci of infection and he found that the twofold purpose for any tonsil operation was often accomplished by such conservative measures. These conservative measures were better adapted to adults and could be done in the office under local anesthesia. In operating upon children under general anesthesia Dr. Makuen said he preferred to remove as much of the tonsil as possible without disturbing the capsule and the only objection to this operation was that it was somewhat difficult to perform.

Dr. William E. Casselberry of Chicago said that he had been very much impressed with the susceptibility of certain individuals to general infection from some focal infection. He recalled the instance of a rheumatic subject whose rheumatic symptoms disappeared when the tonsils were removed and were absent for some months. They returned and it was found that some remnants of the tonsils were left. These were removed and the rheumatism again disappeared. Those individuals who were so very susceptible after tonsillectomy often had pharyngitis lateralis with the same symptoms as before, though in a less degree. This might explain the recurrences that Dr. Clark had referred to. It seemed to indicate that there was some susceptibility through the tonsils toward inflammations and infections of systemic tissues.

Dr. Cornelius G. Coakley of New York said that Dr. Shambaugh's paper was very much in accord with the views of the men in general medicine in New York City to-day; they were looking for the source of infection which they were unable to find elsewhere. It was often very difficult to determine whether or not the tonsils were diseased. The only way to make an examination was to take a probe bent at right angles and force the tonsils from their bed. From particular portions of the tonsils by means of a little milking, the secretions would come up, and when a culture was taken it was surprising how often the presence of the streptococcus was reported as being present. It was remarkable how often the removal of such tonsils was followed by a sense of well-being and a disappearance or diminution of the symptoms pointing to some bad condition. He felt with Dr. Shambaugh that the stumps of all tonsils gave trouble. He had seen a larger number of operations upon the tonsils of children and young adults during the past year than during the previous two years and 70 per cent. of these cases had been operated upon once or twice before by tonsillotomy. This was rather a high percentage for secondary operations. Dr. Coakley said that he now preferred to use general anesthesia. If one placed a wad of gauze over the wound after dissecting the pillars, hemorrhage would be controlled, and it was surprising how large a wad of gauze the pillars of the fauces would hold in place. This gauze was attached by a string and would stay in place for a couple of hours, even though the patient vomited. The speaker said he wished to ask Dr. Clark whether the patients were more susceptible to scarlet fever and other infections after tonsillectomy. This was a point that had been much discussed. They were now making an investigation along this line at the Rockefeller Institute in New York.

Dr. James E. Logan of Kansas City, Mo., said that Dr. Shambaugh's paper had brought to his mind the question as to the extent to which one should go in the removal of the tonsils when there was a general systemic involvement. He believed that many tonsils that were functionating were removed and this was an important matter for the internist to consider in the development of the child. It was his opinion that the tonsils were more often liable to be the cause of systemic infection than they were in-

clined to believe and the internist had been of assistance in bringing this to light. Infection of the upper respiratory tract came oftener from the presence of adenoids than from the tonsillar condition. He was prone to leave tonsils that he believed were functionating and to remove adenoids in children. Many tonsils that were removed were non-offenders. He recalled four or five cases of middle ear disease following the removal of adenoids, and he asked if all were careful in examining the vault of the pharynx as they were in removing the tonsillar condition. It was absolutely necessary to remove the adenoids. Middle ear troubles might be due to tonsillectomies. However, a complete removal of the tonsils was often called for.

Dr. Fletcher E. Ingals of Chicago said he was satisfied that in many of these cases a very desirable procedure was to pass the cautery deep into the crypts and also to cauterize the whole surface and to cause an obliteration of the follicles. He had found this better than the removal of the tonsils in many cases.

Dr. John O. Roe of Rochester, N. Y., believed that the removal or non-removal of the tonsils was rather a question of accurate diagnosis. He had been interested in the small tonsils described by Dr. Shambaugh. These were the cases in which it was impossible oftentimes to tell what was the matter without pulling down and separating the pillars, pulling the pillars of the fauces forward with a curved hook shaped instrument like an aneurysmal needle and having the patient gag at the same time; such a procedure might often reveal an unsuspected condition. In their examination of the crypt contents, they would find many cases in which streptococci were present, and these were the cases that necessitated the radical removal of the tonsils. As Dr. Makuen had remarked in reference to hypertrophied tonsils, it was better to leave in a portion instead of doing a complete resection. He quite agreed with Dr. Casselberry that there might be other conditions in the throat that kept up constant trouble independent of the tonsils; this was true of the lingual tonsil and the chain of glands connected with these tonsils, which if not removed resulted in failure to get the desired result. Dr. Roe emphasized the importance of the use of hyocine, morphine, and cactine in the management of these patients.

Dr. George L. Richards of Fall River, Mass., related the case of a young woman upon whom tonsillectomy had been done ten years ago. She had been in a perfectly good condition until recently when she was very ill with tonsillitis which was found to be due to an infection of a small bit of tonsil that had been left in the superior arch; she nearly died from a peritonsillar abscess.

Dr. Henry L. Wagner of San Francisco, Cal., said that a colleague of his who had examined 200 cases had ascertained that the particular seat of the infection was not in Waldeyer's ring and not in the faucial tonsils. In Waldeyer's ring they had what was sometimes interpreted as the phyryngeal tonsil, Luschka's gland. One or two years ago some German writer had called attention to the focus of disturbance lying in the superior portion of the nasal passages. He had examined the disturbances of the beginning in many cases in which there was a lateral pharyngitis. They had been told that a lateral pharyngitis was due to changes in the lower part, but they really occurred in the upper part so that there was a descending infection from the upper part of the nose. Systemic infection played a very important rôle in these cases.

Dr. Albert C. Getchell of Worcester, Mass., said that until the bacteriology of the tonsils was definitely made out conclusions must be based on clinical observations, and one case must be balanced against another. He wished to speak of the possible danger from the removal of the tonsils. He cited the case of a girl who had been apparently well up to the previous summer when her tonsils were removed. From that time her health had not been good. When he saw her she had what he thought was a bronchopneumonia. She apparently had an abscess of the lungs, which was rather an extraordinary thing in so young a person, and these sequelæ might have been due to lowered resistance following and in a measure due to the tonsil operation.

Dr. George L. Richards of Fall River, Mass., said that a number of cases had been reported of infection which followed after tonsillectomy and this might be true during the time that healing was taking place. He had had one case of purulent pleurisy coming on five or six days after a tonsillectomy. He thought that this was a direct infection from the wound. Nature was very kind not to permit them to see such cases oftener; such conditions were really unavoidable since it was so difficult to keep the mouth wound aseptic.

Dr. Burt R. Shurly of Detroit, Mich., said that it seemed to him that as long as they knew so little of the physiology of the tonsil they would naturally be at variance on the subject under discussion. The association should take up research work on the problem of the physiology of the tonsils. In Detroit they had one pediatrist who demanded that all tonsils be enucleated at the age of one year, irrespective of how much or how little they were diseased. There were a large number of operators who removed the tonsils of every case that came their way. It seemed to him that the collective investigation that Dr. Clark had brought before them would show a large number of cases of tuberculosis. It was claimed that a large number of such infections occurred through the tonsils and this should be added to this collective investigation.

Dr. Lorenzo B. Lockard of Denver, Col., said that in some of these cases electric puncture was the only method to be pursued. For a number of years his experience with this had been as satisfactory as after tonsillectomy. He used this method on subjects of advanced tuberculosis.

Dr. William M. Ballenger of Chicago, in speaking of focal infections, said that most physicians did not appreciate the full significance of such infections. He had himself been the victim of a focal infection three times and knew what it meant. They could not afford to wait in these cases before removing the tonsils when they had once determined that they were the centers of infection. He had removed many tonsils and could not remember a case where they were essential to the patient as a functionating organ. He had never been convinced that the tonsils affected any internal secretion. To him the tonsil was merely a lymphatic gland, with no other function. If it was diseased he did not hesitate to remove it. When they were diseased he believed in their total, and not partial, removal.

Dr. George A. Leland of Boston, Mass., asked why some reported cases of middle ear disease after tonsillectomy, while others cured middle ear disease by this operation. Removal of the contents of the fossa of Mueller, getting good ventilation for the middle ear, was a good procedure, and it was his custom to clear this fossa out in less than a week after the removal of the tonsils.

Dr. George E. Shambaugh of Chicago said that when the tonsils were suspected of being the focus of some systemic infection it was folly to temporize with any measure whatsoever; they should not cauterize, but remove the tonsils. The patient might have rheumatism or some other disease which came from somewhere else, but he did not believe in waiting. He believed that cauterization of the tonsils was bad, although igni-puncture might appeal to some. When cauterization was used there might be left a nest of infection, which would cause trouble later. This was a method one had to follow at times when other methods and operations were contraindicated, as in advanced tuberculosis, or patients with a high blood pressure, etc. He would not operate upon a patient with a blood pressure of 180 or 190. Sometimes one might meet with success in these cases by clearing out the crypts and then using vaccine treatment. One should not operate upon an acutely inflamed tonsil, but should wait. He said that he had not attempted the removal of the tonsils simply to improve the voice. He had not seen a case, however, in which operation on the tonsils affected the voice.

Dr. J. Payson Clark of Boston, Mass., in closing the discussion, said that he did not understand just what Dr. Mauken meant in regard to what he had said about the normal pillars. He was sure that in the majority of cases operated upon the pillars remained perfectly normal and appeared to functionate as well as before the tonsils were removed. In regard to what Dr. Casselberry had said about pharyngitis following tonsillectomy, his case showed that such pharyngitis was not the result of tonsillectomy. He had always felt that an inflammation of the lateral pharyngeal folds was secondary to an infection from somewhere else. In regard to scarlet fever and other similar infections following tonsillectomy, his cases were too few in number to draw any conclusions. Dr. Logan had misunderstood him; he had stated that only fifteen patients had had the tonsils removed without having any definite reason for their removal stated. The middle ear cases might possibly have been due to incomplete adenoid operations.

Dr. Henry L. Swain of New Haven, Conn., said that one should be full of enthusiasm after hearing the remarks of the last two speakers, but they could not arrive at any final conclusions until they had more statistics such as Dr. Clark had presented to them. The question

had been raised regarding the effect of the complete removal of the tonsils and adenoids in young children, and Dr. Swain believed, with Dr. Logan and Dr. Ingals, that they answered some purpose in the throat, a fact which laryngologists and men in general work should pay heed to. What they should endeavor to learn was, through very careful investigations of children who had gone through the radical operation of removal of tonsils and adenoids, under six or eight years of age, if they differed and how they differed from those who had not been subjected to a tonsillectomy and removal of adenoids. This might be done in large clinics where they could get at much material for such an investigation.

Presentation of Instrument.—Dr. William E. Cassellberry of Chicago said that three years ago he had presented a self-retaining nasal speculum, which was useful in that it could be used on rights and lefts. This instrument was practically the same, but was somewhat simplified.

Report of a Case of Ulceration of the Larynx, Perichondritis of the Arytenoid Cartilages, Abscess and Partial Exfoliation of Both Cartilages Resulting from Typhoid Fever.—Dr. J. H. Bryan of Washington, D. C., reported this case in order to emphasize the importance of making regular and systematic examinations of the upper air passages, especially of the larynx, in all cases of typhoid fever, in order to detect the early changes that took place in the mucous membrane of the upper air passages in this disease. St. Clair Thompson, in the chapter on laryngeal complications in typhoid fever, in the work on "Diseases of the Nose and Throat," gave the frequency of occurrence from the European standpoint as follows: Landgraf, 11 per cent. of all fatal cases; Griesinger, 26 per cent.; Kanthack, 26 per cent.; Ouskow, 30 per cent. It was difficult to arrive at any conclusion as regards the comparative frequency of this complication of typhoid fever in this country and abroad. The figures given by Jackson seemed to show that a much larger number of cases of laryngeal involvement occurred in this country than was indicated by the figures given by Thompson. The epidemic in which Jackson made his observations, however, was an unusually severe one, and his subjects were largely of a poorly nourished type, and this might account for the apparently greater frequency of this complication in this country. They would not be able to get at the truth of this matter until more careful observations were made, not only in the hospitals, but in private practice as well.

Dr. Chevalier Jackson of Pittsburgh said that he had had little experience with the laryngeal complications of typhoid fever, as this complication was almost unknown in Pittsburgh. These complications of typhoid fever were exceedingly virulent. It had been stated that adults who had lived in Pittsburgh during their entire lives and who had not had typhoid fever seemed to be immunized, but strangers almost always got the disease. This was especially true of immigrants who were sent to the West Pennsylvania Hospital. In one year there were 700 cases in one hospital and the virulence was excessive. To-day they had few cases. The prophylaxis at the time of the epidemic was simply oral asepsis, and this, he believed, was the greatest contributing factor in preventing these complications.

Dr. Emil Mayer of New York said it was very important to bear in mind, no matter how great the perichrondritis was, how the larynx would appear subsequent to the treatment if good results were obtained. Twelve years ago he had been called in to see a posttyphoid perichondritis case and had to perform tracheotomy in a hurry. Eventually the tube was removed and there had never been any difficulty in breathing. There was still a decided thickening over the arytenoid and the results were encouraging. One should not lose hope, no matter how bad the appearances in the larynx.

Dr. Albert C. Getchell of Worcester, Mass., reported two cases. In one there was a definite lesion in the larynx; tracheotomy was performed, and death followed. In the other case the lesions in the larynx caused obstructive breathing, but this patient recovered. He did not recall whether the typhoid fever in these cases was very severe or not.

Dr. Henry L. Swain of New Haven, Conn., reported a case that closely resembled the one related by Dr. Bryan. The symptoms which were originally called to his attention were those referable to a paralysis of the posticus muscles. Tracheotomy had to be quickly performed, but subsequently the patient died because of a hemorrhage into the trachea. At autopsy the laryngeal condition was found to be very similar to that described by Dr. Bryan, as there was complete detachment of the cricoid in the pus pocket in the larynx wall. Death in this instance occurred some ten days or two weeks after the original tracheotomy.

Dr. Bryan said that after tracheotomy in these cases no relief was obtained except so far as breathing was concerned.

Thyrotomy for Cancer of the Larynx with Report of Eleven Cases.—Dr. D. Crosby Greene of Boston, Mass., said that in a paper presented to the Association in 1906 he reported the results of an investigation of the lymphatic drainage of the larynx by means of submucous injections of methylene blue and mercury. His results were confirmatory of those reported by others showing that the network of lymphatic vessels which extended beneath the mucous membrane throughout the interior of the larynx was richer in the number and size of the vessels in the supraglottic region, relatively poorer in the subglottic portion, while on the vocal cords themselves the vessels were very small and widely separated. These anatomical facts accounted for the slow growth and late development of the cervical lymphnodes in cases of epithelioma of the cords, and furnished an argument for the possibility of cure in early cases by the operation of thyrotomy and excision of the growth with a wide margin of healthy tissue. This theoretical contention was supported by the results of the operation by numerous operators both in this country and abroad, so that at the present time it was almost universally recognized as the proper procedure for the treatment of early intrinsic cancer of the larynx. In presenting his paper, Dr. Greene said that his object was to call attention to certain details of the technique which to his mind had an important bearing on the immediate and later results of the operation. The steps of the operation were as follows: (1) Ether by inhalation, preceded one hour before operation by morphine, gr. ¼, and atropine, gr. 1/150. (2) With the head slightly extended, a median incision was made extending from the lower border of the hyoid bone to the lower border of the cricoid cartilage. This incision was carried down through the prethyroid muscles until the thyroid and cricoid cartilages and cricothyroid membrane had been definitely exposed. (3) A 1 per cent. solution of cocaine was injected through the crico-thyroid membrane into the cavity of the larynx. (4) The patient was now placed in the Trendelenberg position and a thick pad was placed under the shoulders to bring the larynx into greater prominence. (5) The crico-thyroid membrane was next incised in the median line and through this incision a swab of 10 per cent. solution of cocaine was introduced and applied to the laryngeal mucous membrane. (6) The thyroid cartilage was, after a pause of five minutes, divided from below upwards. In young subjects this might be done with a knife, but since in the majority of these cases the cartilage had become ossified with age, it was usually best to use for this purpose strong curved scissors with dull points. (7) The thyroid wings were now widely retracted and a careful examination of the growth made under good illumination with head-mirror or headlight. (8) Beginning at the free margin of the thyroid cartilage on the affected side in front of the growth, the internal perichondrium was elevated from off the cartilage with a sharp elevator from before backwards to a line well behind the limits of the growth as well as above and below it. All the soft structures in the vicinity of the growth were thus freed from the underlying cartilage. (9) The parallel horizontal incisions were now made with scissors above and below the growth, leaving one-half margin of safety. These incisions were carried about one-half an inch back of the posterior limit of the growth. (10) The growth with its surrounding tissue was now entirely free excepting for its posterior attachments. A wire snare passed over this mass of tissue was used to sever the posterior attachments. In conclusion he emphasized the importance of the proper selection of cases. Not all intrinsic cases were suitable for this operation. When the growth was so extensive, even when confined within the cavity of the larynx, that the larynx could not be opened without cutting into the growth, recurrence was not only possible but probable.

Dr. Chevalier Jackson of Pittsburgh said that he disagreed with Dr. Greene on two points, namely, that the operation of thyrotomy for cancer of the larynx was generally recognized and that its value was recognized. It was unfortunate that the general surgeon did not recognize some other operation for this malignant disease. This operation was seldom resorted to by the laryngologist today. The mortality statistics in these cases had been very disappointing. His own cases of thyrectomy had convinced him that they were not free from an operative mortality rate and he could not enthuse over laryngectomy.

In some cases in which thyrotomy was performed the patients had lived fifteen years afterward with a good voice, but the gist of the matter hinged upon the selection of the cases. When the disease was located far back thyrotomy would not result in the formation of these adventitious bands, but, again, if the growth was far back it would certainly recur. Dr. Jackson said that he had seen many cases of malignant disease of the larynx, but few suitable for operation. He never operated if the growth was extrinsic. In most of these cases it was better not to give morphine and the use of a general anesthetic was also contraindicated. If general anesthesia was to be used the intratracheal insufflation method of Elsberg was sufficient. A point in the technique upon which he disagreed with the writer of the paper was in regard to sewing up the wound; he had found that the cartilage healed very slowly and it was better to pack the wound and keep it open until the two edges of the cartilage were brought together, and after they were firmly united to close the wound from the bottom.

Dr. Cornelius G. Coakley of New York said that he agreed with the last speaker that a great many cases of malignant disease of the larynx came to them too late for any operative work. They had some total laryngectomies that would not give good end results. However, thyrotomy in selected cases offered the best hope. Morphine was a very proper agent to give, making the anesthesia much easier for the anesthetist to give. Properly given the anesthesia gave little trouble and the patients came out as soon as they were through with the operation. The method employed by Dr. Erdmann of New York, of placing no suture at all in the thyroid cartilage after opening up and separating the larynx widely, would work out well in practice. They would find that it was not necessary to place sutures in the thyroid as the fascia held the parts together sufficiently well.

Dr. Emil Mayer of New York said that too much stress could not be laid upon the inadvisability of wounding the cancerous growth of the larynx unless they were prepared to go ahead and do some radical operation. He even declined in certain cases to take a piece of the growth for pathological examination unless the patient was prepared to undergo immediate operation.

Dr. William L. Ballenger of Chicago, said that he had seen only a few cases of cancer of the larynx. He recalled three cases in which he had done thyrotomy. In one instance the patient was alive and without any signs of recurrence after three years. The second case was also alive and apparently perfectly healthy and had enough voice left to be understood. In the third case the operation was performed two years ago and there was no evidence of return. All the other patients upon which he had operated were advanced cases and all but two were dead. Two died within a week or so after operation, while some lived a year or more and died of recurrence. The importance of early diagnosis of cancer of the larynx should be emphasized. In three of the cases upon which he had operated the growth was located upon the false cord, and it did not seem to him that they were yet prepared to say that laryngectomy was not a suitable operation in these cases; he thought this operation should be tried. Dr. Crile had operated upon a man with advanced extrinsic growth who remained well for several years afterward. There was a small percentage of patients upon whom laryngectomy was performed that did get well, enough to warrant the careful consideration of this operation. As to anesthesia, he was satisfied with local anesthesia and he had made this decision after trying both. He made the incision into the cartilage with Jackson's scissors.

Dr. Henry L. Swain of New Haven, Conn., asked in regard to the technique. Had they used adrenaline in these cases? If not, was there any reason against its employment?

Dr. George L. Richards of Fall River, Mass., said that he had seen a patient a year and a half ago who showed a warty growth about the junction of the middle of the anterior folds and the pathological examination of the piece removed brought back the report that it was non-malignant. The examination of another specimen brought back the report that it was malignant. The operation was performed over a year ago and there was absolutely no recurrence. In this case there was a very small false cord and no true cord. He took off one-half the arytenoid and the result had been fairly good though the voice was hoarse and the patient looked rather anemic.

For weeks after the operation the pulse was rapid and he did not know whether this was due to the injury to the thyroid or not. There had been no return of the growth. Dr. Richards said that he had another case which was still progressing. He did a tracheotomy because of difficult breathing in this case three years ago, and the man was doing his work right along.

Dr. Harmon Smith of New York City said he had had under his observation an old man with cancer of the tongue, whose condition was beyond help from operative measures. They had used colloidal copper injection intravenously until all available veins had been used up. Then the patient rebelled, but undoubtedly the progress of the growth had been retarded. Colloidal mercury was now employed in very much smaller quantities and several deep sloughs in the tumors had resulted, showing that some material changes had taken place in the cancer itself. This patient was now returning to the clinic three times a week for observation and was gaining in weight and strength. This case was cited as being suggestive. With regard to the thyrotomy cases there was often bruising and tearing of the perichondrium which resulted in the formation of granulations which prolonged the recovery. General surgeons were prone to disregard the minute details so essential to the care of the larynx and to pay too little attention to the preservation of the arytenoids or small parts of the true cords, which if left insured to the patient the probability of greater and better voice production. Only sharp instruments should be employed in the removal of the growth from the larynx and a clean wound should be left from which there was little or no danger of edema. Preliminary tracheotomy might be obviated in the majority of cases, especially if the Trendelenburg position was employed.

Dr. William E. Casselberry of Chicago said he was glad to hear Dr. Greene express his opinion so emphatically against preliminary tracheotomy in these cases of cancer of the larynx. When they did a preliminary tracheotomy they only complicated the case. He had been much embarrassed by hemorrhage in these operations and he thought that the use of adrenalin would facilitate the operation very much by aiding in controlling the hemorrhage. Dr. Casselberry asked if any stenosis followed thyrotomy in the hands of those present. A very tight stenosis had occurred in one of his cases. The child was wearing a tracheotomy tube which came out and before it could be returned the child died. In one case that he recalled the thyrotomy was a very limited one and the patient survived for ten years and died of sarcoma of the liver. In the other case a total laryngectomy was done, and the patient became very melancholic and thought he would have been better off dead than alive. This was apt to be the case after a total laryngectomy. He said this because he noticed a tendency among general surgeons to do a laryngectomy when a thyrotomy would have answered. It seemed to him that laryngologists should lay more stress on limited operations as giving the more favorable results.

Dr. William L. Ballenger of Chicago said that in his fifteen cases there were twelve laryngectomies and he had not done a preliminary tracheotomy in these cases. Dr. Keene advised thyrotomy without preliminary tracheotomy.

Dr. H. W. Loeb of St. Louis said that he had one case of laryngectomy for cancer which was living ten years after the operation, and one case of thyrotomy living three years after the operation.

Dr. D. Crosby Greene, Jr., of Boston, Mass., in closing the discussion, said that he was not sure that he had made plain his method of anesthesia. He used a general anesthetic having the patient profoundly under the influence of ether, and preceding the ether with a hypodermic injection of morphine and atropine. The ether was not removed until that stage in the operation was reached where the larynx was opened. As a rule the patient came out of the ether as he was returned to bed. The Trendelenburg position was maintained during the operation. It semed to him that the important point was not whether the growth was anterior or posterior, but whether it could be removed with a wide margin of tissue. It was the accessibility and the avoidance of injury that were the important points. He did not suture the cartilages; they were brought together and the overlying soft tissues sutured excepting at the lower end of the wound which was left open for drainage. The use of adrenalin helped in defining the limits of the growth. When closing up the larynx after operation there should be no subsequent oozing, but if adrenalin was used there was liable to be a good deal after its effects had worn off. It was his custom to open the larynx without a preliminary tracheotomy.

Decannulation and Extubation after Tracheotomy and Intubation Respectively.—Dr. Chevalier Jackson of Pittsburgh said that the different forms of laryngeal stenosis associated with difficult decannulation or extubation might be classified into the following types: (1) Panic. Breathing through the neck with a properly placed tracheotomy cannula was so much easier than breathing

through the mouth that once the patient became accustomed to it for quite a while he did not feel that he was getting enough air through the mouth, even though the larynx was perfectly patulous. In addition to this, there was a "nerve cell habit" arising from previous experience with the stenosis that terrorized the patient the moment he felt the slightest dyspnea. (2) Spasmodic. Spasmodic stenosis might be associated with panic, or might be excited by subglottic inflammation. It was usually overcome by the same means as those suggested for panic, together with the treatment of inflammatory conditions that might be present. Doubtless one of the chief causes of adductor spasm was the prolonged wearing of the intubation tube. (3) Paralysis. Bilateral laryngeal paralysis caused a severe stenosis of the larynx, provided the paralysis was not cadaveric. In cadaveric paralysis there was usually sufficient breathing space and this had led to nerve division. (4) Ankylotic (arytenoid). Bilateral ankylosis of the cricoarytenoid joints might prevent decannulation until the laryngeal stenosis was relieved. This operation was not to be advised except in such cases as had remained rigid for a period of twelve months or more, and it was not meant to include the fixation that was associated with malignant, tuberculous, or luetic infiltrations. (5) Neoplastic. Decannulation in neoplastic cases would depend upon the nature of the growth and its curability. (6) Hyperplastic. (7) Cicatricial: (*a*) loss of cartilage; (*b*) loss of muscular tissue; (*c*) fibrous. The hyperplastic and cicatricial types of organic stenosis preventing decannulation might be classified etiologically as follows: (1) Tuberculosis; (2) lues; (3) scleroma; (4) acute infectious diseases: (*a*) diphtheria, (*b*) typhoid fever, (*c*) scarlatina, (*d*) measles, (*e*) whooping cough; (5) decubitis; (*a*) cannular, (*b*) tubal; (6) trauma: (*a*) tracheotomic, (*b*) intubational, (*c*) operative, (*d*) suicidal, (*e*) accidental (by foreign bodies, bullets, etc.). Most of the organic conditions, outside of the paralytic and neoplastic forms, were almost all the result of inflammation, often with ulceration and the secondary tissue changes. In the infective granulomata, such as lues and tuberculosis, and in the acute infectious diseases, it was practically always the mixed infections from oral sepsis running riot that did the harm. The chief exception to this was diphtheria, which in many cases was distinctly a necrotic process, wherein the replacement of lost tissue by cicatricial tissue caused the stenosis either by cicatricial contraction or by the bulk of the newly formed inflammatory infiltrate or of pus collections. In the rare cases in which laryngeal tuberculosis of such severe type as to demand tracheotomy was cured, decannulation usually presented little difficulty after the infiltrations were reduced. The reduction of these infiltrations by the galvanocautery through the laryngeal speculum was readily accomplished. Should cicatricial stenosis from ulceration remain, it was to be treated in the same way as cicatrices of other causes—by laryngostomy. He had seen but a single case of this kind. Swain had reported a case of luetic immobility of both cords in which the wearing of an intubation tube intermittently gained sufficient lumen in the larynx for respiration until general medication cured the patient. In those old cases of luetic fibrosis which were, in a sense, paraluetic conditions little was amenable to the older methods of medication; here salvarsan had accomplished wonders. Dr. Emil Mayer had recommended the use of radiotherapy in the treatment of scleroma. So far, however, the results of treatment had been so unsatisfactory that they probably constituted the only cases in which decannulation was impossible. About ten years ago, when typhoid fever was prevalent in Pittsburgh, it was found that the ulcerative lesions in the larynx were practically always the result of a mixed infection, and in some instances they were due to thrombosis of a small vessel, with subsequent necrosis. The after treatment of these cases was chiefly by prolonged intubation and in some cases laryngostomy. Scarlatina might be followed by acute laryngeal stenosis which was cicatricial. Occasionally foreign bodies might ulcerate through from the esophagus into the trachea; he had reported two such cases. He did not believe that a properly fitting intubation tube would cause any ulceration if it was free from roughness or sharp edges, and was removed sufficiently often to be cleaned. For diphtheria and like conditions he had never seen any improvement on the original O'Dwyer apparatus. Abscesses had been the cause of the stenosis in two cases sent to him for decannulation. In regard to the abandonment of the cannula, when a tracheotomized case reached the stage when it was to be trained to breath again through the mouth, it was necessary to occlude the cannula. For the reduction of exuberant granulations nothing had yielded better results than resorcin. As a stimulus to epitheliazation, the German preparation, "scarlet-red" (Biebrich), in a sterile 20 per cent. mixture had yielded excellent results during laryngostomy. One of the most common causes of excessive granulation was the neglect of frequent change of dressing.

Dr. Emil Mayer of New York said that they owed Dr. Jackson many thanks for the masterly presentation that he had made. These cases were perhaps the most difficult that the laryngologist was called upon to treat. He wished to present a procedure which had been enormously successful in his hands and which he believed would be attended with equally good results in the hands of others. A boy, nine years of age, was sent to Mount Sinai Hospital with an open wound in his trachea. He had been intubated for diphtheria two and one-half years before. The surgeon in charge split the larynx and made skin grafts, but these broke down and the tracheotomy tube had to be reinserted. When Dr. Mayer saw the case he found that he was dealing with both cicatricial tissue and hyperplastic tissue as well. For some months Freeman's probes were used for the slow dilatation of the tracheal wound. He then received a suspension laryngoscope with which he was able to do a rapid dilatation in an incredibly short space of time, dilating the larynx from the tracheal wound so that he could see just what he was doing. He placed in a small rubber tube and after a week a larger one, and then a still larger one when he thought the lumen was sufficient to enable him to intubate the child. He used the new O'Dwyer tube with the Roger attachment to intubate the child. This tube was kept in place for six weeks and the child breathed perfectly well and could swallow all kinds of liquid food. The child was still wearing the tube, but he expected to get a perfect recovery in this exceedingly difficult case. He could not speak too highly of the suspension laryngoscope. With regard to the treatment of scleroma, he had employed tracheotomy and then the *x*-rays were applied directly. One patient was alive to-day with no evidences of recurrence. Recently he had been able to keep a patient in satisfactory condition by the employment of the bronchoscopic tubes.

Dr. E. Fletcher Ingals of Chicago said that in acute cases, such as usually followed intubation for diphtheria, he had had some experience, and in one case following the use of the bronchoscope. In the cases following diphtheria he had succeeded by introducing smaller tubes, decreasing the size as rapidly as was practical, and he thought this was the best course to pursue.

Dr. Burt R. Shurly of Detroit, Mich., said that these were the cases that called for their strongest efforts, perhaps, especially where no well-qualified assistant was at hand to assist in the intubation work. The younger men were less skilled as time went by, as fewer cases were met with in practice. During the past year he had had two trying experiences with cases of this kind, and both were the result of traumatism. In one instance, a child of eight years, the tube was introduced into the larynx with a driven force and was left in fourteen days before the case was brought to him. On extubating the larynx it was found so stenosed that it seemed advisable to do a tracheotomy. The child was now going through the process of decannulation. Of his acute cases following intubation, seventeen in number, sixteen recovered after a period of three or four weeks with rapid intubation with smaller tubes. These tubes were covered with 20 per cent. argyrol, or alum solution in vaseline.

Dr. Harmon Smith of New York said that he had had eight cases of multiple papilloma of the larynx in children; some had been treated by fulguration, but in nearly all cases the tracheal tube had been likewise used, so that correct inferences relative to fulguration could not be drawn. His experience with fulguration seemed to show that these growths would disappear temporarily from the application of the spark, and recurred with almost the same persistency as when removed by operative measures, although not so quickly or in such great numbers. In one case the patient wore the tube for a year and a half, and the growths had entirely disappeared from the larynx under the application of the fulgurating spark, and nothing but a fibrosis remained. In one case of multiple papilloma of the larynx of specific origin the growths had disappeared after one injection of salvarsan, leaving the larynx completely clear, although considerable fibrous thickening remained, which prevented a clear and resonant voice. Dr. Lynah of New York had advised the use of a tracheal tube with a large fenestrum in the back where there was subglottic thickening; this was for the

purpose of admitting a certain amount of air at the side of the tube. By carefully grading these tubes and by making frequent changes the fibrosis had disappeared. Dr. Lynah also claimed that the apparent paralysis of the larynx following diphtheria was not a true paralysis, but that the lack of function was due to fibrous thickening. Dr. Gunzer had employed vaccines made from the dead bacilli of Frisch and Friedlander in rhinoscleroma, in addition to the use of the *x*-ray, and there seemed to be no progress in the course of the disease. In five or six cases of this nature coming under his observation, which were treated with these bacilli, together with the application of the *x*-ray to any external manifestation of the growth, there seemed to be little or no advancement of the laryngeal scleroma, and an apparent cure of the external involvement. The injections were given at intervals varying from two weeks to two months.

Dr. Emil Mayer of New York asked if some of these cases of fulguration were done under anesthesia.

Dr. Smith replied that the majority were performed under chloroform anesthesia as a primary measure, but that the spark was not applied until the lungs had been thoroughly freed of the fumes.

Dr. Emil Mayer of New York said that in these cases he was afraid of the spark igniting the fumes of the ether.

Dr. Smith said that he always waited until the fumes of chloroform had been expelled entirely from the lungs and he felt that there was no danger from the spark. A colleague of his had employed ether and sufficient time had not elapsed for the expulsion of the fumes from the lungs, and an ignition occurred, but no serious consequences resulted.

Congenital Occlusion of the Postnasal Orifices, with Report of a Case.—Dr. Charles W. Richardson of Washington, D. C., said that in July, 1912, there came under his observation a case of complete osseous obstruction of the postnasal orifices at as early a period in the life history of the case as any other observer had seen such a condition, and at a much earlier period of life than the majority of the reported cases came under competent medical observation. In an investigation of the literature on the subject he found only a few cases in which the obstruction was recognized in infancy. According to Dr. R. Kayser, in Paul Heyman's Handbuch, the first case reported and operated upon in the living was made by Emmert in 1854. Otto, in 1830, reported the first case of closure of the choana in a fetus, and next followed the interesting report by Luschka in a newborn dead child in 1859. Following these reports they found numerous cases of the condition reported from the anatomical table, the newborn infant, and in child and adult life. It was not possible for him to tabulate all the recorded cases in the literature, but he judged that they did not exceed 100 in number. A fair proportion of the cases had been reported by members of the American Laryngological Association. The obstruction of the postnasal orifices might be membranous or osseous. The former were usually formed posterior to the nasal cavities in the nasopharyngeal cavity, but laid in contact with the postnasal orifices so as to completely obstruct them, while the latter were usually placed within the chamber within a millimeter or more from the free border of the posterior nasal orifice. To the two forms might be added the congenital atusias, by which the bones entering into the formation of the postnasal orifice became united, thus more or less completely obstructing the postnasal orifices. On July 30, 1912, he was called in consultation to see an infant just born who had marked difficulty in breathing. He was impressed with the peculiar cycle of respiratory difficulty with which it was contending. It would lie at rest for barely a moment with its lips drawn tightly and its cheeks slightly indrawn, when it would begin to struggle for air, the face becoming suffused and slightly cyanosed, the condition being relieved when the child began to cry. As soon as its discomfort was relieved through the mouth breathing necessarily instituted when it was crying it would cease to cry with a recurrence of the difficult breathing. The cycle was immediately suspended when the lower lip was pressed down so that uninterrupted mouth breathing was permitted. The character of the respiratory difficulty and the examination through the anterior nares demonstrated, without doubt, a deformity existing which was a complete obstruction of the postnasal orifices. Through a relay of assistants, the child's lips were kept constantly apart so that continuous mouth breathing could be maintained and, through this assistance, at the end of the second week, it had learned to voluntarily maintain mouth breathing, thus overcoming one of its great life problems. Its nutrition was maintained very satisfactorily by feeding it through the aid of a "propper." In a short time, after establishing voluntary mouth breathing, she learned to manipulate the bottle, alternating in sucking and breathing through the buccal cavity. From this time on the child had continued to develop as any child with normal respiratory organs. The question to be considered in a congenital occlusion of the choanæ, especially of the osseous type, was the proper time for operative interference. The danger attendant and the difficulty of operating upon one so young, with the impossibility of maintaining the patulency of the opening after the obstruction had been removed, seemed to argue against immediate operation if it were possible to maintain breathing and nutrition. The marked success obtained in this case would seem to favor the expectant surgical policy in such cases.

Dr. William E. Casselberry of Chicago said that he had had three cases of congenital occlusion of the postnasal orifices. One case was that of an old man who had passed through life with that condition which was total on one side. This defect was easily remedied by the galvanocautery and there did not appear to be any inclination to a redevelopment. A second adult case also showed complete occlusion on one side. The man was 24 years of age. An aperture was made and kept open by the use of bougies. In cases that he had seen years after an opening had been made, the patulous nostrils were present. In two cases of infants between the age of three and six months he had used the drill. One of these infants died from an infectious disease but had breathed perfectly until that time.

Dr. H. A. Loeb of St. Louis said that he had had four cases of congenital occlusion of the postnasal orifices. The first adult permitted him to drill on one side but refused operation on the opposite side. The second case refused operation. In the third patient the occlusion was not complete, and this patient also refused operation. The fourth case was that of a child suffering from asthma and who had a large mass of adenoids. Operation resulted in curing the asthma. Five years afterward an examination revealed bony occlusion. This child died under chloroform. These subjects stood anesthesia badly.

Dr. Emil Mayer of New York believed that in the case reported by Dr. Richardson one could get a very good idea of the postpharyngeal condition by the use of the pharyngoscope; by its use one could ascertain the amount of postnasal space, whether there was a narrow ledge of bone present or a complete obstruction. He recalled one case in which he refused to do any thing at all because of the condition of the skull; the drill would have gone into the brain if extreme care had not been taken and he was not willing to take such a chance.

Dr. Charles W. Richardson of Washington, D. C., in closing the discussion, said that he had reported this case because only about one-half a dozen cases had been reported, and most of them by this Association. The child was well nourished and ten months of age. In a child of that age it was barbarous to make a digital examination. In a child with the nasal passages stenosed it was possible to wait until such an age that operation could be done with safety and with a certain assurance of success. He thought that this child could be operated upon in the summer or fall without danger to neighboring organs or tissues. Then the finger could be used as a guide. The cases requiring operation in adult life were different and there was no question but that these cavities could be opened up without a recurrence of the stenosis.

Foreign Bodies in the Esophagus, with Report of Two Cases.—Dr. Cornelius G. Coakley of New York City reported the case of a lad, aged sixteen, who was admitted to Bellevue Hospital in the early afternoon of December 31, 1912. The patient gave a history that, while eating soup with his dinner, a piece of plate broke and he thought he ate a piece of the dish, and that he could feel it in his throat. On January 1, 1913, at 1 p. m., Dr. Coakley was notified that there was a patient in the ward of the hospital with a foreign body in the larynx, as shown by *x*-ray, and who had a temperature of 105° F. rapid pulse and a suspicious pneumonic area in the right lung. On examining the pharynx he found an edema extending from the vault of the nasopharynx as far down as one could see with the laryngeal mirror, or feel with the fingers. It much resembled a retropharyngeal abscess. The *x*-ray plate showed a triangular shaped foreign body, the base of which was uppermost, horizontal, and at the level of the seventh cervical vertebra. It could not be felt with the fingers. With the esophagascope he removed this foreign body which was triangular in shape, measuring 2.3 cm. long on one side of the triangle, 3.2 cm. long on the other. It was jagged and evidently had cut into the mucous membrane so as rapidly to infect the

pharyngeal mucosa, and the secretion from the infected pharynx passing into the larynx set up a septic pneumonia within twenty-four hours. This case illustrated the necessity for prompt operative relief for the removal of sharp foreign bodies. The boy died fourteen hours after the operation from acute septic pneumonia. On the same day he was asked to see a boy, three years old. Three days before admission the child had swallowed a coin about the size of a quarter and the *x*-ray showed it at the level of the sixth cervical vertebra. The child had no symptoms, swallowed its milk perfectly, had no respiratory symptoms, but whether the coin had been pushed down to the stomach or not, the staff did not know. On January 3 he removed the coin, a five centesimi, 2½ cm. in diameter. The child had no discomfort following the operation. Here was a smooth object in a small esophagus that did not even interfere with deglutition, and had been in position five days before it was removed.

Dr. Emil Mayer presented a unique object which he said he had removed from the esophagus. It was a metal tag with the wire attached. When the child was brought to his office in the middle of March he was told that the patient had had a retropharyngeal abscess in December. The condition looked like some suppurative affair connected with the retropharyngeal abscess. The child was sent to the hospital to have an *x*-ray picture taken. The picture showed the presence of a foreign body which looked like a locket. The following day the foreign body was removed which he presented. The child died about twelve hours after without any apparent reason. If the child had been seen earlier it was possible that this foreign body could have been removed without a fatal injury.

Dr. Chevalier Jackson of Pittsburgh said that it should be a crime to pass the esophagus violently. Internes in hospitals thought they could do this and not refer the operation to those experienced in the work. Many cases were brought to the hospitals in a moribund condition after the attempts of inexperienced men to remove foreign bodies blindly. He recalled one instance in which an inexperienced man had attempted to remove a portion of one of the cervical vertebrae; in another instance the man passed the instrument down into the mediastinum.

Dr. Christen Quevli of Tacoma, Wash., reported an instance in which an attempt was made to push a coin down the esophagus. The operator became frightened and sent for a surgeon who, with the aid of the esophagoscope, soon got hold of the coin However, it slipped away again, and as he made a second attempt to get it the child suddenly died. He wondered what killed that child so quickly—if it was pressure on the recurrent laryngeal nerve?

Dr. Harmon Smith of New York reported the case of a child sent to him, who the same morning had an *x*-ray picture taken showing the presence of a coin in the esophagus. He entered the esophagus with the esophagoscope, and went on into the stomach where the coin was still not visible. An *x*-ray picture then taken showed that the coin had passed into the small intestine. The following day the coin was in the sigmoid flexure and the third day there was no necessity for an *x*-ray picture. Dr. Smith related another case in which a diagnosis had been made of papilloma of the larynx after a culture had proved that there was no diphtheria. He had prepared to remove any growth and to do a tracheotomy, but on entering the larynx discovered a closed safety pin.

Dr. George LeLand of Boston, Mass., said he wondered how often the old-fashioned methods were used nowadays when there was so much instrumentation. If there was foreign body in the esophagus, the first thing done was to run a tube down the throat. Formerly an emetic was administered and frequently the body was dislodged

(*To be continued.*)

Postdiphtheritic Bulbar Paralysis.—E. Trömmer and A. Jakob report the case of an eight-year-old girl who six weeks after an attack of diphtheria manifested a facial paralysis and a few weeks later a difficulty in swallowing. At the same time there developed a slight degree of ptosis, and a partial paralysis of the soft palate. Speech became indistinct. There then occurred an attack of suffocation, with ptosis, facial paralysis, spasmodic contractions of the extremities and of certain facial muscles, paralysis of the right oculomotor nerve, cardiac weakness, and death. Autopsy showed subacute inflammatory changes involving the vessels of the bulb and their vicinity. There were also changes in the peripheral nerves. The authors reach the conclusion that post-diphtheritic paralysis is the result of central as well as peripheral lesions, sometimes the one, sometimes the other, predominating.—*Zeitschrift f. d. ges. Neur*

Books Received.

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Sterilisation und Kastration. By von Dr. Friedr. Ludw. Gerncrop. Price, 1.20 marks; 42 pages, paper. J. F. Lehmanns Verlag, Munchen.

Die Rassenhygiene in den Vereinigten Staaten von Nordamerika. By von Geza von Hoffman. Paper; 236 pages. J. F. Lehmanns Verlag, Munchen.

Aids to the Diagnosis and Treatment of Diseases of Children. By John McCaw, M.D., R.U.I., L.R.C.P. Fourth edition; cloth; price, $1.25 net; 431 pages. William Wood & Company, New York.

Aids to Practical Pharmacy for Medical Students. By A. Campbell Stark, M.B., B.S., L.S.A., Ph.C. Second edition; cloth; price $1 net; 165 pages. William Wood & Company, New York.

Aids to Gynaecology. By S. Jervis Aarons, M.D., M. R.C.P. Fifth edition, twelfth thousand; cloth; price, $1 net; 124 pages. William Wood & Company, New York.

Grundriss der Psychiatrischen Diagnostik. By Prof. Dr. Julius Raecke. Illustrated; cloth; 191 pages; price, 3 marks. August Hirschwald, Berlin.

Abhandlungen aus dem Gebiete der Geburtshilfe und Gynäkologie. By Prof. Dr. W. Tauffer. Volume II, Part II. Paper; price, 6 marks. S. Karger, Berlin.

Die Augeneiterung der Neugeborenen. By Dr. C. A. Crede-Horder. Paper; price, 5 marks; illustrated; 140 pages. S. Karger, Berlin.

Hysterie. By Dr. J. M. Raimist. Paper; 101 pages; price, 5.50 marks. S. Karger, Berlin.

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Treatise on General and Industrial Organic Chemistry. By Dr. Ettore Molinari. Cloth; price, $6 net; illustrated; 770 pages. P. Blakiston's Son & Company, Philadelphia.

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SOME PHASES OF THE SURGERY OF THE STOMACH.*

BY GEORGE WOOLSEY, M.D.,

NEW YORK.

ONE, if not the most, essential thing in the surgery of the stomach is the diagnosis. I have been impressed with the considerable number of cases in which a probable diagnosis of gastric ulcer or, to a less extent, of cancer, made by internists in or out of a hospital service, and often concurred in by the surgeon, has been found a mistaken diagnosis on operation. To be sure the surgeon's examination in such cases is often a cursory one, and he is apt to depend on the written history and examination. I think an independent anamnesis and examination would always be better. "Mistakes in diagnosis," says W. J. Mayo,[1] "are oftener the result of a lack of examination than of a lack of knowledge."

In the diagnosis of a chronic ulcer we depend chiefly on the symptoms, of which the following are the principal ones: pain or distress, gas, pyrosis, sour eructations, and sometimes nausea and vomiting. These in whole or in part occur in other conditions, so that it has been estimated that only about 10 per cent. of patients presenting symptoms suggesting a stomach lesion have ulcer or cancer. The remaining 90 per cent. may be about equally divided into three groups.

In Group I. the symptoms are due to general medical diseases, such as cardiovascular and renal diseases, pernicious anemia, pulmonary tuberculosis, and tabes. I have the record of two cases with gastric symptoms suggesting ulcer, referred to me for operation some years ago, which were explored without finding any lesion of the stomach. One had chronic cardiovascular and renal disease and the other advanced chronic tuberculosis of the left apex and pleura.

In Group II. the symptoms depend upon the closely associated conditions, congenital or acquired visceral displacements, such as gastroptosis and enteroptosis, atonic dilatation of the stomach, and gastric neurosis. I am inclined to believe that a neurosis is held responsible for a number of cases with gastric symptoms, in which the latter depend upon some other cause, such as a ptosis or something that we fail to diagnose. However that may be, it is now acknowledged to be bad surgery to do a gastroenterostomy in such cases, as I did in two cases some years ago, with a negative result. These patients are often rendered even worse than before by the operation, so that W. J. Mayo has reported closing the anastomosis in such cases. It may be justifiable, and in one or two cases I have found it beneficial, on the principle of suggestion, to explore doubtful cases of this class. But operation is too serious a means of psychotherapy for routine use in gastric neurosis. I make it a rule not to do a gastroenterostomy unless I can demonstrate a lesion for which it is indicated. These ptoses, and the kinks that may result from them, may in some cases be much improved by operation, and the patient thereby relieved of the chronic dyspeptic symptoms referred to the stomach or to the right lower quadrant, which they present. Hence it is highly important that they should be carefully *x*-rayed to arrive at a correct diagnosis. I have employed Coffey's "hammock operation" in a few cases of combined ptosis of the stomach and transverse colon with considerable benefit.

Lane's kink in its various forms comes under this group, as it often causes reflex gastric symptoms. In fact Lane holds that duodenal and also gastric ulcers are due to intestinal stasis, depending on some form of intestinal kink, and that their proper treatment consists in exclusion of the colon, or a relief of the kink, rather than in gastroenterostomy, etc. Though this view is not at all generally accepted, these kinks and their baneful effects may be relieved by proper surgical procedures.

In Group III. the gastric symptoms are a reflex expression, manifested by the stomach, of some chronic lesion of the alimentary tract, outside of the stomach and duodenum, viz., the appendix, gallbladder, pancreas, and also tuberculosis of the large intestine, tumors of the intestine, chronic intussusception, etc. Such chronic disturbances in the alimentary tract, outside the stomach, bring on pylorospasm, which results in indigestion and gastric distress. Our only conscious knowledge of disturbances in these organs is received from the stomach. It has been a not uncommon experience of my own, as of all surgeons, to operate for a supposed gastric or duodenal ulcer and find none present; but on further exploration to find a chronic appendicitis or pancreatitis, gallstones, etc. I have a number of records of such cases and in a large proportion the gastric symptoms subside if we can relieve the cause of the reflex disturbance. In a few cases the removal of a chronic appendix has failed to relieve the symptoms. In one recent case I found on a second operation an old chronic tuberculous inflammation of the colon on either side of the hepatic flexure with adhesions in the form of an obstipating double-barreled stenosis, to which the omentum was firmly adherent. The relief of these adhesions has so far resulted satisfactorily. In other cases we find an intestinal kink or an adherent or distended cecum, perhaps associated with a mild colitis. So that the operator should not be content with a simple appendectomy, but should make a wide exploration, in justice to the patient, especially if there is a history of habitual constipation or mucous

*Read before the Surgical Section of the New York State Medical Society at Rochester, April 30, 1913.

colitis. For this purpose a more generous incision than a short muscle-splitting incision is required.

In view of the above, can we not diagnose these causes of gastric symptoms in Group III. from true gastric or duodenal ulcer before operation? In most cases, yes. These patients may have all or several of the symptoms of ulcer in recurring attacks, but in chronic recurring appendicitis they are more irregular, coming on after one meal and not after the next, and food rarely gives relief as in ulcer. There is more of a distress than a pain, combined with nausea and gas, and exertion may greatly aggravate the distress. If in the dyspeptic attacks the pain radiates to or below the umbilicus, the appendix should first be considered. If there is a history of the presence of tenderness or pain at McBurney's point the diagnosis is more certain, but this is not the type of case that usually gives stomach symptoms.

Typical gallstone attacks are unmistakable, but often there are equally typical but less well recognized mild attacks of gastric distress and an upward pressure from gas, coming on soon after eating or at irregular times, and eased by belching or slight vomiting. These attacks often come on suddenly and are of short duration, but there is another group of cases due to gallstones in which there are more prolonged attacks of dull epigastric or right sided pain, which may be increased by motion, deep respiration, or food. These two forms should be more readily differentiated from ulcer than many cases of chronic appendicitis, but in late cases of chronic gallbladder trouble complicated by adhesions, or perforation, or infections of the duct, chronic gastric disturbances may so simulate cases of chronic ulcer, with complications, that the diagnosis can only be clearly made by developing the early history. Tenderness over the gall bladder, especially on deep inspiration when the gall bladder is pressed down against the fingers, is very suggestive of gall-bladder trouble.

Chronic pancreatitis presents less typical symptoms. There may or may not be pain or a dull distress, nausea, and vomiting. Jaundice may occur, except in the 30 per cent. of cases where the duct does not tunnel, but grooves the pancreas, but the stools may be white without jaundice. Loss of flesh and strength, anorexia, and flatulent dyspepsia are common. Pancreatitis is often associated with gallstones or gastric and duodenal ulcers, and I have been struck with its common occurrence and the relative frequency with which it has been the only finding in operations for ulcer in former years. The conditions named in Groups I., II. and III., which may possibly cause the symptoms in a given case, must be excluded by a careful examination before considering the question of a gastric lesion.

As emphasized by Moynihan, Graham, and others the diagnosis of pyloric and duodenal ulcer is made almost entirely from the history of the case, and the symptoms, which in many cases in the early stages are pathognomonic. The one diagnostic symptom is pain in the epigastrium, varying from severe pain to a feeling of distress and occurring in periodic attacks alternating with normal health. But its pathognomonic feature is the time of onset, varying from two to four hours after a meal, and the means of relief by vomiting, lavage, and the taking of food, drink, or alkalies. There may be other symptoms—gas, causing a feeling of pressure, eructations of gas, pyrosis, vomiting, hematemesis, and melena. These are neither as constant nor as characteristic.

In my experience I have been impressed with the number of cases which were diagnosed as pyloric or duodenal ulcer by various clinicians, without the presence of the typical hunger pain, and which on operation showed no ulcer, but perhaps a chronic appendix or gallstones. I do not operate with the confident expectation of finding a duodenal or pyloric ulcer, in the absence of the typical hunger pains, unless the diagnosis is strongly confirmed by some other diagnostic means.

But one purpose of this paper is to emphasize two other points. First, we may have duodenal or pyloric ulcer without this typical pain. I did partial gastrectomy, about a year ago, on a woman in whom a pyloric ulcer was already becoming a carcinoma. She had anorexia, nausea, and vomiting, but never had pain except once, and then not typical ulcer pain. Like most surgeons, I have also operated on patients with perforated duodenal ulcer who had no pain before the perforation. Some of these ulcers run a latent course and never give ulcer pain; other patients, after the operation has established the diagnosis, give a fairly good ulcer history on careful inquiry. Struthers[2] in reporting 27 cases of perforated duodenal ulcer, of whom 10 had few or no symptoms, says that typical hunger pain was observed in gastric and not in duodenal ulcer. From his experience he draws the inference that the exclusive or decisive significance is not to be attributed to the anamnesis that is done by some. Second, I have operated on patients giving the typical pain and found no ulcer. In one case with a typical history nothing but chronic pancreatitis without gallstones was found. In a very recent case with a perfectly typical history of duodenal ulcer with profuse melena, treated medically for some time, there was no ulcer demonstrable in the duodenum or stomach. This brings up the question: can medical treatment cure these chronic ulcers, with periodically recurring symptoms? I cannot answer it, though such a cure might explain some of these cases. A statement of W. J. Mayo's[3] suggests another explanation of some of these cases. In several of his cases operated upon without finding any evidence of ulcer, continued symptoms led to a second operation some months later, when an ulcer was found. He says, "Either the ulcer had been overlooked at the primary operation, or it had been confined to the mucous membrane, and the musculoperitoneal coats were involved later." Also Blad[4] reports two cases in which ulcer, not found at operation, was discovered later at the autopsy. Experiences such as these seem incompatible with the statement of Moynihan that in the last 100 cases of chronic gastric and duodenal ulcer a mistaken diagnosis was revealed by operation in only three cases.

When in time an ulcer is complicated by adhesions, interfering with gastric motility, or by stenosis of the pylorus, the symptoms are more persistent and less typical. The pain is more constant and not relieved, but increased by food, the vomiting is more irregular and shows the residue of former meals. As these symptoms are common to many types of chronic dyspepsia due to gallstones, the appendix, or the pancreas, we must bring out the former history to establish the diagnosis. The further from the pylorus the ulcer the less typical the symptoms, but as 90 per cent. of gastric ulcers are pyloric we are chiefly concerned with them.

But are there no other means of making or confirming the diagnosis? Palpation is of little service.

and we cannot rely independently on the gastric analysis, which is only a help, often but a slight help, in the clinical diagnosis. Many conditions give hyperchlorhydria, and it is most marked in the early stages and by no means always present in ulcer patients at the stage when we see them. Still at some time in its course hyperacidity and hypersecretion occur in ulcer, either as a cause or an effect. Moynihan says that "persistent recurring hyperchlorhydria is duodenal ulcer." But it occurs in many cases in Group III. Out of 112 cases of so-called chronic hypersecretion, followed by Soltau Fenwick to the operating table, every one showed chronic gastric or duodenal ulcer, cancer of the stomach, appendicitis, or gallstone disease. It must be remembered that the two last named conditions may give rise to it. Hypersecretion is more persistent than hyperchlorhydria.

As the motor is more important than the chemical function of the stomach, so is its disturbance the more important. Hence a most important sign in the examination of the stomach contents is food retention, especially of small particles of food, more than six hours after a meal. We must make the diagnosis without the presence of blood in the stomach or stools in a large majority of cases. When present it may be an aid to diagnosis.

The *x*-ray promises more helpfulness in the future than it has given in the past. The six-hour plate, after the bismuth meal, may plainly show delay in emptying the stomach. Two things are necessary, good plates and their proper interpretation. The better the plates the easier and surer the interpretation. My own experience is that the interpretation by the average radiologist of the average plates is not as accurate as the clinical diagnosis. Still in many cases it is of great assistance, sometimes in proving, at other times in disproving a doubtful diagnosis. The *x*-ray is of much value in showing changes in the shape, size, and position of the colon and stomach. Series of plates may also show interference with the peristalsis. The Haudek symptom of a small bubble-like appendix to the regular shadow is of much value when present. According to Moynihan[5] the *x*-ray may help to distinguish a duodenal from a pyloric ulcer. In the former the gastric motility is greatly exaggerated so that the bismuth meal begins at once to pass into the duodenum and by the commencement of the pain the stomach is almost empty. With pyloric ulcer on the contrary there is usually delay in emptying the stomach.

Cancer of the stomach is the commonest form of cancer, comprising 30 per cent. of all cases. In the diagnosis of gastric carcinoma there is no one pathognomonic symptom as in ulcer. The symptoms are those of chronic dyspepsia. As compared with ulcer the pain is more constant and not relieved, but increased by food, and is often a depressing ache or a strange distress; the vomiting more often contains altered blood (75 per cent. of cases) and food residue; the gas is more annoying, continuous, and offensive, and the regurgitation is less acid. A palpable tumor is present in 60-70 per cent. of the cases coming to the surgeon, and 95 per cent. of the palpable gastric tumors are carcinoma, 5 per cent. calloused ulcers. An important diagnostic point is the steady downward course without complete intermissions, as in the early stage of ulcer, and the marked mental depression. The skin becomes saffron colored and dry and the patient emaciated. The *x*-ray and the test meal are of more service than in ulcer. Nearly half the cases have free hydrochloric acid, but its absence and the presence of lactic and butyric acid, undigested food and altered blood strongly suggest cancer, though they only indicate diminished motility or pyloric obstruction. There is much truth in Deaver's remark that the greatest source of delay in the diagnosis of gastric cancer is the test meal. That is, depending upon it and waiting until it becomes pathognomonic in the late stages is responsible for the hopeless condition of many patients when they reach the surgeon. There are no symptoms of the cancer proper during the curable period, so it is a fortunate thing that 80 per cent. occur in the pyloric portion, where they attract attention by obstructive symptoms. The great need of cancer of the stomach is early diagnosis. The test meal is diagnostic only late in the disease, when a diagnosis is not difficult. The earlier the stage the less positive is the *x*-ray.

What are the available means of early diagnosis? In the 80 per cent. and over in which the cancer is in the pyloric portion the more or less early appearance of a palpable, movable tumor and of obstructive symptoms, with the discovery of food remnants in the stomach eight to ten hours after eating, are the principal if not the only definite early signs of gastric cancer. These demand exploratory incision at once. Cancers further away from the pylorus do not give signs of obstruction or a palpable mass so as to indicate early operation. Operability therefore depends largely on the location of the growth in the pyloric antrum and along the lesser curvature (80 per cent.), for this is the part that can be palpated and that can be resected.

While exploration is demanded in the above conditions, it is often most advisable in patients of a cancer age with chronic dyspepsia without known cause and not cured by medical treatment in a reasonable time. If this exploration were practised more often we would save more cases of gastric cancer by early operation. Probably less than half of the cases are diagnosed early enough to allow of a radical operation. All cases of suspected gastric cancer should be admitted to the surgical side of a hospital. No case has ever been cured by medical treatment and it is a surgical and not a medical disease.

In a former paper on this subject I spoke hopefully of the tryptophan reaction as a means of early diagnosis. Further experience has proved it to be not so reliable, though perhaps more so than any of the serodiagnosis tests in their present development. Giani[6] found that it gave both positive and negative results in both cancerous and benign cases, and that the saliva often gives a positive test. He concludes that it gives neither a sure nor a probable indication of the presence of gastric carcinoma. It is also a complicated and expensive test. According to Jacque and Woodyatt[7] the test is more reliable if the gastric juice is filtered through a Berkefeld filter.

It is not imperative, even if it were possible, to diagnose between cancer and ulcer of the stomach. What is essential is the diagnosis of a surgical condition indicating operative treatment.

TREATMENT.

What is the proper treatment of chronic pyloric or duodenal ulcer? Medical treatment, with careful diet by the Lenhartz or v. Leube systems should first be tried and continued for a longer time than

in the case of acute ulcers. Under proper medical treatment, or without it, the patients become symptomatically well, until another periodical attack occurs. This is the natural course of the disease. It is an open question, as to which Mayo says he has grave doubts, whether chronic calloused ulcers undergo permanent spontaneous cure. Mayo has operated in many cases in the interval between attacks and has never seen a complete definite closure of such an ulcer. Definite healing probably takes place in a high percentage of acute ulcers and other ulcers in the early stages under medical treatment. When we operate for pyloric stenosis, with a previous history of chronic ulcer, we not infrequently find what appears to be the scar of a healed ulcer causing the stenosis. In some cases also of perigastric adhesions we assume an ulcer, that is no longer apparent as such, to be the cause, in the absence of any sign of a neighboring source of inflammation. In both these conditions there is delay in emptying the stomach, the contents become less acid, and therefore the conditions are more favorable for the healing of the ulcer. It seems at least possible, therefore, that chronic ulcers may cicatrize without operation. Most supposed symptomatic cures suffer relapses and the results of medical treatment are far inferior to those in acute ulcer.

I do not believe in delaying operation when careful medical treatment and diet have failed more than once, that is twice or more, on account of the dangers inherent in the ulcer, perforation, hemorrhage, and malignant degeneration. The latter danger is almost nil in duodenal ulcer, but that of hemorrhage and the resulting anemia is greater.

The result of posterior no-loop gastrojejunostomy for duodenal ulcers and those obstructing the pyloric end of the stomach is excellent and its mortality is almost nil. It is often wise to infold the crater of the ulcer and this is imperative if it looks as if perforation was imminent. If hemorrhage has been free it is well to pass a catgut ligature beneath the main vessels running to the ulcer. Excision is considered the proper treatment for ulcers more distant from the pylorus where the cicatricial contraction of the ulcer, or of the scar left by its removal, will not cause stenosis of the lumen. I have found that some of these patients still complain of gastric trouble, apparently from the interference with gastric motility by the operation or the resulting adhesions. Hence gastrojejunostomy has to be added to insure the complete cure of the patient. When gastrojejunostomy is done for a pyloric ulcer that, at the time, does not stenose the pylorus, the results may be better if the pylorus is artificially stenosed or closed by infolding or constriction, by one of the many methods used for this purpose, especially among Continental surgeons.

It stands to reason that after gastrojejunostomy or any operation for chronic ulcer, especially where the ulcer remains, medical treatment and diet should be instituted and continued for some time. I generally put these patients on a modified Lenhartz diet, with the use of alkalies to neutralize hyperacidity. If this is done I think the more radical procedures of so-called pyloric exclusion, such as v. Eiselsberg's, in which the stomach or duodenum is divided on the cardiac side of the ulcer and the two ends closed, are generally unnecessary. The ulcers heal without this.

Better than this and more effectively radical is the resection of the ulcer-bearing area, as recommended by Rodman. The main object of this is to avoid the possibility of malignant degeneration of the calloused ulcer, since Wilson and MacCarty have shown that 71 per cent. of the gastric cancers, resected by the Mayos, apparently developed on an ulcer basis, and Graham found that 59 per cent. of the cases of cancer coming to the clinic gave a clear history of gastric ulcer. In two cases of large indurated ulcer, resected by me not long ago, carcinoma was already present.

Gastrojejunostomy by encouraging the healing of the ulcer, with the help of medical treatment, prevents its malignant degeneration. Only an exceedingly small percentage of these patients ever develop cancer. I do not think, therefore, that every chronic pyloric ulcer demands resection, but only the larger and more calloused ones which, from inspection and palpation, the surgeon cannot differentiate from cancer. Here resection should always be done if the general condition of the patient, and the local condition of the mass, justifies it. The operation is surprisingly well borne, but the mortality is decidedly higher than that of gastrojejunostomy in ulcer cases. If there is any doubt about the patient's condition we can do the operation in two stages, in the first the gastrojejunostomy, or in addition as v. Eiselsberg suggests, the division of the stomach on the cardiac side of the ulcer; in the second the removal of the indurated mass. To be sure many, probably most, of these large indurated ulcers heal up after gastrojejunostomy. I did this operation some years ago in a man presenting a large, hard pyloric tumor which I thought a cancer and so gave a bad prognosis. I saw him in perfect health two and one-half years later and have since heard of his continued good health. Many surgeons have had similar experiences. I have never had a vicious circle after posterior no-loop gastrojejunostomy. That it provides gastric drainage, even in the absence of pyloric stenosis, may be readily shown by the bismuth *x*-ray.

In two cases where the local conditions did not permit this operation I have brought a short jejunal loop up through the mesocolon and then through the gastrocolic omentum and made the anastomosis anteriorly. One of these patients, a laborer, was reported perfectly well and working hard many months later. In several cases of perigastric adhesions, interfering with the motility of the stomach, the results of freeing such adhesions have been excellent. If the adhesions reform they apparently do not do so to the same extent as before. As before stated, unless I can see or feel an ulcer or cancer I do not do a gastrojejunostomy. Under these circumstances the other sources of gastric symptoms should be explored and appropriately treated. Moynihan removes the appendix after the gastrojejunostomy is made, on the ground that absorption from a pathological appendix is a leading factor in the etiology of ulcer.

The proper treatment of gastric carcinoma is resection. The Billroth II. method is the best. I have done one case by Kocher's method, but was obliged subsequently to add a gastrojejunostomy. The operation is surprisingly well borne; the mortality is due to the patient's condition rather than to the operation itself. Among ten cases of my own there was but one death, and that from pneumonia on the fifth day. This patient, with only 30 per cent. of hemoglobin, was otherwise doing well. The mistake was in doing such an operation in such a poor subject, or perhaps in not doing it in two stages.

One of these 10 cases, a large tumor six inches long, was pronounced by the pathologist to be gastritis polyposa.

The presence of a large palpable tumor is not a sure indication that resection cannot be done. Two of these 10 cases had a tumor as large as a small grape fruit. The operation was easy and well borne; one patient lived eighteen months, and was in perfect health until the last month or two, when the cancerous liver began to give him trouble. Naturally we can hardly expect these advanced cases to make a permanent cure. Fortunately lymphatic invasion is relatively late and slow in carcinoma of the stomach, occurring in only 50 per cent. of cases, according to Bland-Sutton. No resection should be done if tumor metastases are found in the liver, bowel, umbilicus, peritoneum, pelvis, supraclavicular lymphatics, etc., all of which should be searched for metastases.

If the disease is too far advanced for resection, gastrojejunostomy may be done as a palliative drainage operation, but the mortality is nearly the same as in resection. It is in these cases that almost the only mortality from the operation has occurred in my experience. Moreover, the relief afforded is not as great as might be expected. Hence it is better to take some risks and do a resection; and it is here that the two-stage operation is most applicable, doing the gastrojejunostomy in the first stage.

The ultimate result depends upon the lymphatic involvement. Hence the earlier the case is operated on the better is the ultimate as well as the immediate prognosis. This leads back again to the supreme importance of early diagnosis.

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THE CAUSE AND PREVENTION OF CARDIOSCLEROSIS.*

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The theory of cardiosclerosis that I bring for consideration of the International Medical Congress is the outcome of a practice now for many years devoted to this problem and that of late years has excluded all work not bearing upon diseases of the heart and blood vessels. It is clear to my own mind, but whether I can present it in ten minutes with sufficient detail to call forth the discussion that I desire remains to be seen.

My first proposition is that cardiosclerosis is only a part of a general disease which is also called arteriosclerosis, Bright's disease, fibrosis, and presenility, according to the point of view of the observer. It is not primarily an organic disease, but a general cellular disorder from which hardly any cells of the body are exempt. The heart, blood vessels, liver, and kidneys suffer conspicuously because of their importance and activity in the body and because in the presence of cellular damage they are put under extra strain.

My second proposition is that the nature of this cellular disease is an irritation of the cells that leads to damage and finally to their destruction and replacement by connective tissue. This irritation is in the nature of a reaction against some material with which the cells have to deal in the process of cellular nutrition, or, as it might be termed, digestion. The irritation is in the nature of an anaphylaxis, but of a degree that does not produce any conscious phenomena, in other words, a subsymptomal anaphylaxis. It may involve the cells of one part of the body more than another so that it may become symptomal in one place or another—in the eye, producing what is known as albuminuric retinitis; in the kidney, producing what is known as subacute nephritis; in the heart muscle, leading to cardiosclerosis; in the liver, impairing its function.

My third proposition is that the foreign material is some protein or protein derivative to which the cells of the individual are, or have become, sensitive. This sensitization dates usually from some definite medical event which alters the relation of the cellular physiology of the person to some ordinary food material; or the protein derivative of bacteria may be at fault, derived from some focus of bacterial activity. Hence, most arteriosclerotics give a history of a severe illness or shock about four years before they develop conscious symptoms. This illness may have been an enteric fever, an attack of gallstones, appendicitis, malaria, or some very great nerve strain.

As a practical matter, routine treatment consists of such drugs as are indicated in the individual case and in the removal from the dietary of all meat, fish, eggs and stock soups, the administration of serial doses of castor oil, and the institution of a course of physical training suited to the individual.

The proteins are returned to the diet one at a time, beginning with cheese, which seems to be the safest of all. Fruit, vegetables, bread, butter, and cereals are allowed without restriction.

This diet I have named the "few protein" diet in contradistinction to the low protein diet of many other writers, and it is founded upon the belief that damage is due to the action of protein poisons that are specific to the individual, and that if they are harmful at all, small quantities may be nearly as bad as larger amounts. The proteins are *counted* and not *measured*.

The discovery of the proper diet must depend upon the study of the particular person. The offending protein may be one that has been abused, and often enough, according to the analogy of other chronic poisonings, it may be the one most craved when it is taken away.

It has seemed to me that those under my care have done much better on the few protein diet of liberal quantity than on the low protein diet. I should hate to repeat the years when I tried to restrict protein quantitatively instead of qualitatively. There is no arithmetic and no chance of protein starvation on a diet that allows an unlimited amount of specific proteins.

This diet is founded on the belief that arteriosclerosis in all its stages is often general cellular disease due to chronic poisoning by particular protein derivatives of food or bacteria that differ with the individual.

*A paper read before the International Medical Congress, London, August 12, 1913. (Section on Medicine, Sir William Osler in the chair).

Protein chemistry is in its infancy, but some amazing discoveries have been made. Less than a year ago I was called to account at the meeting of the International Congress of Hygiene at Washington for speaking in my paper of the presence of amino acids in the blood. Since then the Rockefeller Institute has found and measured them in the blood, and furthermore determined that they are stored in the tissues immediately after the digestion of proteins.

Draw a mental picture of the cells of the body constituting a great sponge in which is soaked up after each meal all the split products of the disintegration of proteins in the intestines, and it is easy to imagine in how great danger are the cells of the modern man with his frequent exposure to sensitizing events and his intake of many protein foods of unknown origin with an uncertain cold storage history.

It has not been possible to discuss the now popular topic of intestinal putrefaction, or to mention the symptomatic treatment of cardiac irregularities or blood pressure changes, but it is enough for one occasion to hold out the hope of a successful treatment of cardiovascular disease founded upon a definite theory.

Somewhere between me and the printer of the program of this meeting the name of my paper was changed from "The Cause and Prevention of Arteriosclerosis" to "The Cause and Prevention of Cardiosclerosis," but as I regard cardiosclerosis as only the manifestation in the heart of the same general disease that is known as arteriosclerosis, I have been able to conform to the changed title without materially modifying the presentation of my theme.

This conception, the disease so badly named arteriosclerosis, by the light of which it would seem that it can be prevented, is so simple and yet so far-reaching that, even now, after months of consideration, I hardly trust myself to hope that it is as free from fallacy as I truly believe.

Fortunately, indeed, many of the conclusions are only newer reasons for what is already the common practice of the profession and the unformulated belief of mankind in general. Cardiosclerosis is a part of a general condition including so-called hardening of the arteries, progressive heart failure, Bright's disease of the kidneys in its chronic form, presenility, and is closely allied to the clinical condition called neurasthenia. It is often spoken of by the laity as "blood pressure," "heart disease," "kidney trouble," etc.

Granting to the usually enumerated causes one-tenth of all examples of this degenerative condition, I believe the remaining nine-tenths can be best explained on the hypothesis of a persistent irritation of the cellular elements of the body by specific protein derivatives to which the cells of the particular individual have become sensitive. This material is usually derived from ordinary articles of food, but may be derived from the bodies of bacteria.

A close analogy is found in food idiosyncrasies, such as are a matter of common observation, but with this difference, that the long-continued irritation that produces a destruction of cells and their replacement by connective tissue is usually without symptoms while ordinary food idiosyncrasies produce immediate and often profound discomfort.

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ANAPHYLAXIS AND ASTHMA.*

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Anaphylaxis is one of the most fruitful and interesting fields of research to which the attention of medical scientists has been directed during the past decade. In it have been found explanation, not only of certain phases of immunity and hypersusceptibility to infections, but also of various diseases and symptoms, such as asthma, hay fever, serum disease, urticaria, etc., which are apparently of far different origin. We have also been enabled to group and study logically by animal experimentation these conditions in ways that promise still greater revelations for the future.

Although observations of anaphylactic reactions had been made previously, no very extensive systematic experimentation was recorded until after the Theobald Smith[1] phenomenon was reported in 1903. Immediately following this, researches by Roseneau and Anderson,[2] Otto,[3] and others began to yield results truly startling in their relation to many common clinical problems.

The serum disease was among the first of the phases of anaphylaxis to be carefully studied as to its etiology, symptomatology and pathology. The blood or serum of many animals, when introduced parenterally into the blood or tissues of certain other animals, is more or less toxic. But men, rabbits, guinea-pigs, and other animals receive horse serum without reaction, except in the cases of individuals having the state of hypersusceptibility called allergy or anaphylaxis. The reception of the initial dose of serum by an animal not previously sensitized may or may not induce symptoms. The absorption of the second dose of serum from the same species will, under favorable circumstances, produce a changed or allergic reaction. It has been found subsequently that a great variety of protein substances will produce the anaphylactic reaction, but that symptoms of reaction are essentially the same in animals of the same species no matter what antigen be used. An animal sensitized to a certain protein may react to certain other proteins, but the maximum of reaction occurs only when the protein of both the sensitizing and toxic doses are taken from the same species of plant or animal. The condition of anaphylaxis may be either congenital or acquired. Inherited anaphylaxis is found in a portion of the offspring of sensitized females.

Acquired anaphylaxis may be either active or passive. Active anaphylaxis is produced by the parenteral absorption of a foreign protein, and requires an incubation period of 6 to 21 days. Passive anaphylaxis occurs only when artificially produced by the injection of the blood or serum of a sensitized animal into another animal of the same or another species. It requires an incubation period of only one day at most and may be immediate. After hypersusceptibility has been established it persists throughout life, but probably diminishes slowly and constantly after its maximum at about twenty-one days. A condition of anti-anaphylaxis usually follows recovery from a dose of antigen, but it is a transient phase and disappears after a length of time proportionate to the violence of the reaction.

Reaction to the toxic dose of antigen may be immediate or delayed. Immediate anaphylactic reac-

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tion or shock exhibits a variety of symptoms of which the most important is dyspnea. This may become extreme and end in death from asphyxia. It was at first assumed from inconclusive experiments by Gay, Southard,[4] and others that the dyspnea was caused by the emphysematous condition of the lungs due to violent contraction of the diaphragm under control of the central nervous system upon the respiratory centers of which the antigen acted. The more recent experiments of Auer and Lewis[5] have, however, demonstrated conclusively that both of these hypotheses were errors. Distention of the lungs persists after their removal from the thoracic cavity, indicating that the emphysema is an effect and not the cause of the distention. Moreover, by various ingenious methods of recording at the same time the variation of intrathoracic pressure and the flow of air to and from the lungs during anaphylactic shock, they discovered that although the former were equal to or greater than normal, yet no air entered or left the lungs, which remained in a state of extreme distention. This was found to be due to tonic contraction of the muscular coat of the bronchioles which prevented the escape of air from the alveoli. Sections of the lungs of animals dead of anaphylactic shock are dry, showing that neither pulmonary edema nor hypersecretion of viscid mucus plays an important part in the occlusion of the alveoli or bronchioles.

The solution of the question as to whether the phenomenon of shock depended on the central or peripheral action of the antigen was equally conclusive. Section of both vagi had no effect on the character or severity of anaphylactic shock, whether the antigen was injected immediately after the section or after an interval of time sufficient to allow complete atrophy of the peripheral nerves. The use of curarin for the same purpose was also lacking in effect, although the superficial appearances varied somewhat on account of the necessary use of artificial respiration. Likewise, in a pithed animal the toxic dose was followed in from 1 to 3 minutes by gradual decrease of respiratory oscillations until the rhythmic blast could force no more air into the distended alveoli from which tonic contraction of the bronchioles prevented its escape. Thus it appears that the reaction may and probably does normally occur without the assistance of the nervous system. The demonstration by Schultz[6] that pieces of smooth muscle from a sensitized animal would contract far more upon contact with the specific antigen than would similar pieces taken from normal animals supports this view, by showing that the antigen may act directly upon the muscles of the bronchioles.

Under certain conditions animals may be sensitized by the taking of an antigen into the stomach, as guinea-pigs become sensitized to the horse by the eating of raw horseflesh, and will give the characteristic anaphylactic reaction to the serum or other tissues of the species.

The many individuals who suffer violent gastrointestinal and sometimes respiratory disturbances on taking certain articles of food are undoubtedly subject to the same reaction. This is caused by the absorption into the blood and lymph-channels of a protein which has not been sufficiently digested to lose its identity and which thus becomes an antigen capable of the same action as though introduced parenterally into the blood or tissues.

Guinea-pigs become sensitized to the horse by confinement in the same room, through the inhalation of emanations, and it seems probable that the individuals who are sensitive to the horse, cat, or other animal have received their sensitization in the same way. The majority of the deaths following the therapeutic injection of horse serum have occurred in persons subject to horse fever and asthma or in those sensitized by previous injections. The symptoms in these cases, while exactly typical of anaphylactic shock, are those of an extreme asthma resulting in asphyxia and death. Hay-fever, rose-cold and similar affections occur in those individuals whose membranes are hypersensitive to specific varieties of pollen and their reactions are analogous to and undoubtedly identical with the local reaction of experimental anaphylaxis. The asthma often associated with the local symptoms of hay fever is induced by the entrance of the same antigen into the blood or tissues, usually through the mucous membranes of the upper respiratory tract, and is the typical respiratory disturbance of acute non-fatal anaphylactic shock. Clinically, asthma produced by these known foreign proteids differs in no respect from the more common form of the disease known as spasmodic or bronchial asthma except that in the latter the identity of the foreign protein causing the reaction is unrecognized.

Susceptibility to anaphylaxis has been observed to vary greatly in individuals, families, and varieties of guinea-pigs. The so-called asthmatic tendency has in a similar way long been known to be marked in certain persons and families, and heredity has undoubtedly an important bearing on the etiology of the disease. It has been assumed that this predisposition was inherent in the nervous system and this may be so in some cases, but there is no proof of this assumption, whereas it has frequently been observed that many of the individuals subject to heredity have very evident etiological factors in nasal polypi, suppurating sinuses, etc., the removal of which has relieved the asthma. From this it would appear that the essential inheritance has been an anatomical or functional predisposition to affections of the upper respiratory tract, probably associated with a susceptibility to anaphylactic sensitization. This makes it especially important to favor in every possible way the development of the upper respiratory tracts in children who might be expected to inherit this tendency.

Osler[7] states that diseases of the lungs are rarely if ever the cause of asthma, and the fact that the emphysema and bronchial lesions commonly associated with asthma of long standing are rarely if ever seen in early cases, favors the belief that these conditions are results and not causes of asthma. However, it is not improbable that severe chronic bronchitis, especially if associated with bronchiectasis, whether or not the result of asthma, may, in certain cases, furnish the site for the retention and reabsorption of mucous secretions. The cures obtained by treatment with the bronchoscope in a series of such cases after all other means had failed, as described by Horn,[8] Freudenthal,[9] and others, would agree with this hypothesis.

An interesting case illustrating some of these points was that of a young girl who suffered violent symptoms of anaphylaxis on contact with wheat flour. In early childhood she had fallen headforemost into a partly filled barrel of flour, by which she was nearly strangled. Quantities of flour were inhaled and she probably absorbed undigested proteins from it through the mucous membrane of some portion of her respiratory tract.

Since that occurrence any dust of flour in the air has occasioned severe hay-fever and asthma, and the eating of incompletely cooked wheat flour has sometimes caused violent gastrointestinal as well as respiratory disturbances. Urticaria has often followed these attacks. The recurrence of the nasal reaction occasioned by the contact of flour has gradually resulted in chronic rhinitis and ethmoiditis, with polypoid degeneration of nasal mucous membrane of the region. During the past winter she has had asthma without the agency of flour and evidently caused by the pathological condition of the nose, since it ceased promptly on the correction of the local lesions.

The development of chronic rhinitis and sinusitis by the recurrence of vasosecretory disturbances in cases of recurring hay-fever is a logical sequence and has been commented on by many writers. Asthma likewise is a frequent accompaniment of hay-fever and will usually be found to correspond in time and severity of occurrence with the pathological changes in the nasal structures. At first, it occurs only on exposure to contact with the specific external irritant which causes the hay-fever, but later develops a tendency to recur without this contact. Therefore, it is evident that there has developed another substance capable of acting as an antigen, and, since the changed conditions of the nose and nasal sinuses furnish a new factor in the retained and autolocyzed mucous secretions, it seems reasonable to look on this as the probable cause of symptoms.

Pus and mucus aspirated from the antra of asthmatic and non-asthmatic patients were used by Sanford (Mayo Clinic) as antigen in a series of experiments on guinea-pigs. The initial dose was received in each instance without symptoms and the reaction to the toxic dose was uniformly the typical shock ending in death. This proves that mucus as well as pus is capable of acting as an antigen and that the products of bacteria are not essential in producing either sensitization or shock. Further experiments are being carried out, the results of which would have a more important bearing on the subject of this paper and which I had hoped to report at this time. But failure to obtain a sufficient amount of proper material to give conclusive results makes it necessary to delay the report.

During the past four years there have been examined in the Mayo Clinic about 300 cases of asthma which I will not report in detail as the series differs only in numbers from the report previously made.[10] In over 90 per cent. of the cases the principal lesions which might be considered as etiologic were in the upper respiratory tract. Chronic suppuration or the retention of mucoid secretions in the nose or accessory sinuses occurred in the majority of these cases. Treatment was directed toward the object of securing free and continuous drainage of every portion of the tract and little attention was paid to possible reflex factors of etiology. In the majority of the cases the relief of the asthma corresponded almost exactly with the degree of success in obtaining the result sought, that is, the prevention of the retention and reabsorption of mucous secretions. The relief of asthma by any known treatment does not mean that the patient is permanently cured, since the susceptibility remains through life and symptoms will recur whenever there exist conditions favorable to the production and absorption of the specific antigen to which the individual is sensitive.

Various methods of desensitizing animals have been discovered but no method yet reported gives a lasting immunity and all are attended by high mortality. Until a safe and efficient method of desensitization is possible the treatment of asthma must be directed as in the past to the relief of symptoms by whatever measures are indicated in each individual case.

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THE ADMINISTRATION OF TUBERCULIN BY THE GENERAL PRACTITIONER.*

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THE majority of tuberculosis specialists will doubtless regard with concern the notion of permitting the general practitioner to administer tuberculin. Many of them consider him incompetent to treat tuberculosis by even simple measures or to diagnose it, except when far advanced. Tuberculin, a dangerous remedy even when employed by the most experienced, they would never dream of placing in his hands. For it is truly an agent capable of much harm when improperly administered. Indeed a celebrated internist, professor of medicine in a leading university, declared at a medical meeting last year that if any of his family or his patients had to take tuberculin treatment he would send them to Saranac Lake. But if the supervision of experts of this character be demanded, only a small percentage of the millions suffering from tuberculosis would be able to get the benefit of tuberculin therapy.

To those that regard such treatment as a fad or as an adjuvant of questionable value, such an attitude would seem to work no serious hardship. On the part, however, of those who are convinced that in tuberculin, properly administered, we have one of the most important weapons for fighting tuberculosis there would be considerable hesitation at depriving so many sufferers of this remedy, especially when its ill effects can usually be avoided by observing the precautions in regard to initial very minute dosage, cautious and slight increase of dose, and careful watch for the slightest signs and symptoms of reaction, to be detailed later on.

There are several alternatives before the millions of tuberculosis subjects in this country: (*a*) they can avoid tuberculin treatment; (*b*) they can be given tuberculin by a sanatorium physician who has had years of experience with tuberculin of various

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kinds; (*c*) they can be given tuberculin by the general practitioner; (*d*) they can be given tuberculin by a tuberculosis specialist; (*e*) they can be given tuberculin by an internist or by one specializing in diseases of the respiratory passages.

Believing, as I do, that tuberculin, administered in the method about to be described, is the remedy *par excellence* in the treatment of nearly all forms of tuberculosis—incipient or advanced, quiescent or active—I would not entertain the proposition to deprive a tuberculous patient of such an important aid to his recovery. If dangers exist in our methods of administering tuberculin, it behooves all of us who have opportunities of studying it to endeavor to learn how to eliminate these dangers instead of lazily and ignorantly avoiding it because of them.

The best course would be for a patient to put himself in the hands of one of those who, living at a sanatorium and observing their patients daily, have been using and studying tuberculin for years, physicians whose worth is recognized by the profession, who keep themselves familiar with the literature of their specialty, and who themselves contribute to our sum of knowledge on the subject and who meet with others interested in the same line of work to exchange views and compare experiences. Some of these have had experience with many forms of tuberculin and with different methods of administering it, while others have used only one form of tuberculin and administered it in only one way. Of such workers we have many in this country, but they are too few to treat all those suffering from tuberculosis. The majority of such experts, moreover, are only accessible to people of means. To go to a sanatorium for treatment, a patient who otherwise might be treated while remaining at work has to leave his employment and stop his source of income. For the favored few such a course might prove ideal. To the masses it is impossible.

There still remain the tuberculosis specialist, the internist, the specialist in diseases of the respiratory passages, and the general practitioner.

In the eyes of the average tuberculosis specialist the general practitioner is grossly incompetent to either diagnose or treat tuberculosis. He has been pictured as an ignorant, unskilful man, who never makes a physical examination, or, when he does, merely listens through the coat, and who, if he did examine the chest, would be unable to detect tuberculosis except in its last stages. His treatment is supposed to consist of cod-liver oil and morphine and close confinement to stuffy rooms except for those occasions when the febrile patient takes active exercise.

If this picture, so often held up to the contemplation of medical audiences, is true, further discussion would be useless. The man who is considered competent to diagnose and treat pneumonia, typhoid fever, meningitis, diabetes, heart and kidney diseases, all affections of the other organs, and all the infectious diseases except the one that attacks over ninety per cent. of the people and kills one-ninth, should certainly not be permitted to diagnose or treat this one disease in which his incompetence is so notorious; and, above all, he should be prevented from administering tuberculin. Indeed, I question whether such a man ought to treat the other serious affections.

The general practitioner, as I see him in Philadelphia and Pennsylvania, presents, however, quite a different picture. A graduate of a good medical school, in many instances having served an interneship in a hospital, he tries to do good, conscientious work; he reads his medical journals, buys the latest medical books, often attends the meetings of his local medical societies, and may be found even at state and national meetings. He usually serves or has served in a dispensary and may even hold a hospital position or teach in a medical school. He may be a little lax in not making a thorough physical examination of every patient, but usually does go over the chest of a patient who presents suspicious symptoms. When one considers the number of patients some men see in a short time, the small fees they receive for their labor, and the superficial character of many of the ailments they are called upon to treat, we can understand, even if we do not condone, their laxity in not stripping all their patients. And yet there are thousands of general practitioners who do thoroughly examine all their patients.

When the tuberculosis specialist discovers unrecognized tuberculosis in a patient who has been under the care of a general practitioner and therefore condemns the latter, he fails to consider a number of things. In the first place, a patient visits a tuberculosis specialist only when he has symptoms referable to the chest, while there may have been no cough or other suspicious symptom when he was attended by his family physician. I believe that the tuberculosis specialist rarely sees that common type of incipient case with symptoms only of nervousness, anemia, digestive disturbance, and, especially in children, poor development and malnutrition, for such a person has no cough, expectoration or night sweats, and very little loss of weight, and never suspects tuberculosis. It is the apical lesion, which a thorough physical examination would have disclosed, that the specialist finds when the appearance of cough and expectoration causes him to be consulted. The neurologist would make the same mistake if he omitted a chest examination. Besides, the tuberculosis specialist is on the watch for only one disease. He makes a physical examination of every case, because it is for this the patient comes to him.

Nearly every general practitioner at the present day uses the usual hygienic measures in treating tuberculosis. His drug therapeusis will often bear comparison with the specialist's. In tuberculin therapy he is usually guided by the recorded experience of recognized authorities, as gleaned himself from the literature or as reprinted and abstracted in the circulars supplied by the manufacturer.

Let us now transfer our attention to the tuberculosis specialists, examining them fairly and impartially, without being confused by words or names. Many, through study and practice, have acquired considerable skill in diagnosis and treatment. A few present more or less valuable contributions to the sum of our knowledge of tuberculosis. Even those whose sole claim to the title of tuberculosis expert rests on their connection with some tuberculosis dispensary, or maybe sanatorium, derive some benefit from such association even though this may be limited by their mental or critical equipment. Only a small proportion I would regard as accurate in their diagnosis of the amount and character of lung involvement. A number will find cavities where only compensatory emphysema exists and will regard as evidence of consolidation the impairment of resonance due to atelectasis. I doubt if many are even familiar with Abrams's

method of eliciting his lung reflex to distinguish between the two. Even when the physical signs are negative, there are some who make a diagnosis of tuberculosis from the symptoms alone, while others, although unable to definitely decide in their own minds that tuberculosis is present, will, nevertheless, tell the patient he has tuberculosis. The latter justify themselves by stating that if they say tuberculosis is absent the patient may neglect hygienic living and thus permit a latent lesion to become active; while telling him he has tuberculosis and putting him on a tuberculosis régime can only benefit him whether or not tuberculosis is really present. They do not consider the alternative of telling the patient the truth and advising that he be kept under observation and live the life of a consumptive, nor do they suggest a consultation with another expert. So, in lieu of the honest expert opinion the patient comes for, is entitled to, and pays for, such specialists give him a guess, which may be a lie, and which could have been given without an examination.

In treating their patients, some tuberculosis specialists employ all the therapeutic measures which the combined experience of workers in this field have proven to be of advantage. Many, however, ignore the recorded observations of others and employ those measures which they used when they began to specialize or which are routinely used in the dispensary or sanatorium with which they are connected, or which are employed by the head of such institution. If the diet there be milk and eggs with one meal a day, this is the diet they recommend to their patients, though all other tuberculosis workers of prominence may condemn it. Ignorant of, or ignoring, the fact that accuracy is required in every hydriatric procedure, they order a cold morning bath without specifying the temperature or duration. They prescribe rest and graduated exercise without studying the technique as practised by Patterson and Latham. They condemn breathing exercises on some hypothesis of their own, ignoring the clinical reports of competent observers. Especially in regard to drugs are the fads and prejudices of the teacher transmitted to the disciples. They condemn drugs they have never used or seen used, but which have been effective in other hands, for no particular reason or because the head of their dispensary condemns it. Certain drugs they give after the particular fashion of themselves or their teacher, never trying other preparations of this same drug or other methods of administering it. Even in regard to particular combinations, while preaching to the general practitioner to individualize, they themselves give stock prescriptions, their sanatoria always keeping in bulk Dr. So-and-So's cough mixture, Dr. What's-his-name's stomach mixture.

All tuberculosis specialists have not had the same experience in tuberculin therapy. Many, of course, have used it in its different forms and are personally familiar with the various ways of administering it. Some have never used it, others not until recently. A number are familiar with only one kind and one form of administration. They may even deny its efficacy in any other form, despite competent testimony to the contrary. The method of administration is often routine and hidebound, with the same initial dose and the same rate of increase, although some, of course, employ a more flexible dosage.

Is it safe for the general practitioner to administer tuberculin? The internist is possibly better equipped for differential diagnosis than the tuberculosis specialist. Some internists have never used tuberculin; others have had a wide experience with the different kinds. In like manner those who specialize in diseases of the respiratory passage may or may not be expert in the use of tuberculin.

This review of the general practitioner, the tuberculosis specialist, the internist, and the specialist in diseases of the respiratory passages as to their equipment for administering tuberculin, is for the purpose of determining whether it may be regarded as safe and proper for the family doctor to give this treatment. Unquestionably, as has already been emphasized, the best person to give tuberculin is the man in the sanatorium who has had experience over a long period of years with tuberculin of all forms given according to different methods. The tuberculosis specialist outside the sanatorium whose experience with tuberculin is similar to the former and the internist with the same experience are probably next best. Those who are poor observers and who lack critical judgment and those who are inaccurate and careless in their work I regard as unsuited to undertaking tuberculin therapy, no matter to what branch of medicine they belong. But I see no reason why the general practitioner who is careful and accurate, who is able himself to observe and also to assimilate the recorded experience of others, is not competent to give tuberculin according to a safe method. He has as much experience in this line as the specialist who has never given tuberculin or as the latter had when he began to use it. The earnest student can gain a vicarious experience from the recorded work of those who have been giving tuberculin for years. The careful study of ten cases under tuberculin treatment will render the well-read physician better equipped for tuberculin therapy than is a less studious and observant man who has treated two hundred cases himself and yet has ignored the work, including the mistakes, of others. How many thousand patients were given the larger doses of tuberculin before it was found that the smaller doses were just as efficacious and less dangerous! And millions probably will have received the dose most people are giving today, both here and abroad, before the profession as a whole realizes that it is one thousand to one million times too large.*

Unless the general practitioner learns to give tuberculin, the greater number of sufferers will be deprived of this method of treatment: they are too poor to go to the specialist or to enter the private sanatoria, and too numerous to be all cared for by the free institutions. The incipient case, who is able to keep at his work while taking tuberculin, ought not to be asked to leave his work and withdraw his support from his family, when he could receive the treatment from his family physician without this inconvenience. Besides, a course of tuberculin treatment may extend over a long period of time, and even the wealthy may not be willing, while feeling well, to remain at a sanatorium until the course of treatment is over.

The intimation that the general practitioner is unable to diagnose and treat tuberculosis is a serious reflection on our medical schools and on our State examining boards. To undertake to teach the practice of medicine and then neglect instruction in the best treatment of one of the most widespread and fatal of diseases is unfair alike to the physician who

*Myer Solis-Cohen: The use of a very minute initial dose in tuberculin therapy. *N. Y. Med. Jour.*, 1913, xcviii., 268.

has attended the college and to the patient who employs him. It is the duty of the medical school to see that all its graduates are competent to recognize and treat tuberculosis.

A Safe Method of Giving Tuberculin.—The main question then is: Can tuberculin be given safely, so that it is not too dangerous in the hands of the careful and observant general practitioner who has had little or no personal experience with its use? I think at the present time it can be given fairly safely if the following rules are observed, and I am convinced that in a few years we will know how to give it even more safely.

The initial dose, however, must be minute—not the minute dose of the ordinary writer and manufacturer, but one-thousandth to one-millionth of their minute dose. No patient should be given over one-millionth of a milligram (1-1,000,000 mg.) as an initial dose. Patients with fever should not begin on more than one-ten-millionth of a milligram (1-10,000,000). When the disease is active the first dose should not exceed one-hundred-millionth of a milligram (1-100,000,000 mg.), or one-billionth of a milligram (1-1,000,000,000 mg.). At the present time I would advise against the general practitioner giving tuberculin to septic cases, with high afternoon fever and very rapid pulse after prolonged rest.

The next most important thing is to observe and question the patient closely for signs and symptoms of a reaction, both on the day tuberculin is given and on the succeeding day, and also during the intervening days until the next dose. Every patient on tuberculin should keep a temperature record. Reactions naturally vary in degree, but any of the following signs and symptoms occurring on the day tuberculin is given or on the following day are to be regarded as evidence of reaction, no matter what other explanation presents itself: Any rise of temperature above the curve of the previous few days, râles over the pulmonary lesion that were not present before, any loss of or diminution in appetite, the appearance of or an increase in headache, however slight, the appearance of or an increase in malaise, however slight, any increase in cough or expectoration or hemoptysis, the appearance of blood in sputum that had immediately previously been free from it, the occurrence of or an increase in weakness, or tire, no matter how slight, the appearance of or an increase in pain or ache in the chest or anywhere in the body, sleeplessness or an increase of insomnia, nausea, loss of weight in a patient who had been gaining or whose weight had been stationary, hoarseness or increase in hoarseness, aggravation of an aphonia, and any new symptom or sign or any aggravation of any existing symptom or sign occurring on the day the dose was given or on the following day. When the tuberculin is given hypodermically, any marked redness, edema, or pain at the site of the injection may be regarded as evidence of a reaction.

The interval between doses should at first be five to seven days. In careful hands after the first few doses an interval of three days may be allowed. To patients at work I usually give tuberculin every Sunday morning so they can rest should a slight reaction occur.

There is no necessity of increasing a dose that seems to do good—which apparently ameliorates the symptoms and depresses the temperature curve—unless it seems to lose its effect. A dose that causes a slight reaction, from which the patient recovers in a day, may be repeated, but must never be increased. When a dose causes a moderate reaction it should be reduced one-tenth, the administration being withheld until all symptoms of the reaction have passed away. Should a marked reaction occur, the treatment should be suspended for at least a week after the disappearance of the signs of the reaction and then given in the dose of one-hundredth to one-thousandth of that previously given.

The increase in dose should be gradual. I believe it should not exceed thirty-three and one-third ($33\frac{1}{3}$) per cent. of the dose immediately preceding. I also believe that the percentages of increase should be fairly equal, although it is often advisable that the increase be less than one-third. But I would condemn the usual method of increasing eleven and a half ($11\frac{1}{2}$) per cent. every tenth, twentieth, thirtieth, etc., dose and then increasing the following dose one hundred per cent. The common way of administering tuberculin and that recommended by the manufacturers is in series of nine doses, the increase in each series being of the same quantity but naturally of a gradually diminishing percentage of the immediately preceding dose. The series of increases is usually given as follows: 100 p.c., 50 p.c., $33\frac{1}{3}$ p.c., 25 p.c., 20 p.c., $16\frac{2}{3}$ p.c., $14\frac{2}{7}$ p.c., $12\frac{1}{2}$ p.c., $11\frac{1}{9}$ p.c., 100 p.c., 50 p.c., $33\frac{1}{3}$ p.c., and so forth. The jump from the first to the second of each series I regard as too great and consequently reduce it.

Discussion as to the method of introducing tuberculin into the system I have reserved for the last, as it is of least importance. I am personally familiar with only three methods—oral, hypodermic, and intramuscular—which seem equally efficacious. I prefer giving tuberculin by mouth because it is less troublesome, it avoids the possibility of infection, it keeps the patient in ignorance of what he is getting—when this is desirable, and chiefly because the patient can administer the tuberculin to himself. Among poor people the last is an important consideration. If one desires to personally watch the effect of each dose of tuberculin, only one professional visit is required, instead of one for injecting and another for observing. A patient kept on the same dose of tuberculin which has proven satisfactory can take several doses before being seen by the physician. The oral dose is the same as the hypodermic dose or at least no larger. The reaction is the same, except for the local manifestations at the site of the injection.

Finally, a repetition of caution. A severe reaction means always damage and sometimes death. This can usually be avoided by beginning with very minute doses, increasing very gradually and only when indicated and when the previous dose has not caused the slightest reaction, and by examining the patient carefully and questioning him closely as to the occurrence of the slightest sign and symptom of a reaction. Administered thus carefully and cautiously I believe tuberculin to be safe in the hands of the observant and critical general practitioner.

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Impartial Weighing of Evidence.—R. P. Rowlands reminds one that rational treatment must be based upon accurate diagnosis, and that accurate diagnosis can only be made by carefully weighing all the available evidence, without paying too much attention to any part of it, however fascinating that may be.—*Clinical Journal.*

THE VACCINE TREATMENT OF TYPHOID FEVER.

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An article upon the vaccine treatment of typhoid fever may seem to be almost superfluous at the present time, so many having appeared in the recent past upon the same topic. During the past few months, however, a quite large series of cases has become available, and as it is only by steadily adding to those already reported that the correct conclusions can finally be drawn, this paper has been prepared. When antityphoid inoculation was first employed as a prophylactic measure it was universally considered that the use of the emulsions in the actual disease could be followed only by harm. This was based entirely upon theoretical considerations. Accordingly there was great fear that some might be treated during the incubation period, when, on account of the so-called "negative phase," the person might be rendered much more susceptible to the infection. Gradually, however, the "negative phase" fear has subsided until it is now not recognized as of clinical importance. At present we have numerous records of persons inoculated during what was undoubtedly the incubation stage with nothing but benefit following.

For a long time we had held the opinion that convalescence in typhoid depended upon the production within the body of various antibodies that were able to neutralize the action of the bacilli and their toxins, and thus produce immunity. These antibodies could not be produced in some other animal and then be introduced into the patient by any known means analogous to that so successfully employed in diphtheria. That such antibodies could be produced in the normal human body was abundantly proven by the prophylactic inoculations. It seemed, therefore, a possible supposition that by proper dosage the production of these antibodies might be stimulated, even in the presence of the actual disease, and convalescence be hastened thereby.

Accordingly in 1907 two cases were selected for careful trial. This was, as far as I am aware, the first attempt thus to treat typhoid. The two cases selected were both far advanced and both had unfavorable prognoses, one being recognized to be hopeless. A single inoculation of twenty-five million was given to each. The worse one progressed steadily to a fatal termination, uninfluenced by the treatment in any way. The other began to improve and made a complete recovery.

Influenced by this absence of unfavorable symptoms of aggravation in conditions where they should theoretically occur, it was determined to give to the method a more extensive trial the following year.

Accordingly in 1908 a series of thirty cases was studied. Apparently coincident with this, Smallman in India was similarly treating a parallel series. The results of both were published within a few months of each other, one in England, the other in America, and were surprisingly alike in their conclusions, arrived at independently.

The favorable reception encountered by this article gave encouragement to proceed further. Accordingly this has been done as opportunity offered to such an extent that now, after nearly six years, I am able to report a total of one hundred and fifty-eight cases of typhoid treated by this means.* These cases have been in all stages of the disease, incipient, moderately advanced, far advanced, in relapse, and moribund. In the entire number there have been seventeen deaths, or a percentage mortality of eleven. Among these, however, were eight cases where for one reason or another but one dose of vaccine was given, and that when the patients were moribund or *in extremis*. These, I believe, should be discarded in ascertaining the true mortality, as should also one in which death occurred from pneumococcic meningitis after the typhoid had subsided, and my original case where, after a month of fever and with a hopeless prognosis, a single dose of vaccine was given. Excluding these, there has been a total of seven deaths in the remaining 148 cases, or a percentage mortality of 4.7 among those where the treatment "had a show." And even here some further exceptions might well be made, as one patient in delirium escaped the nurses and was found in the street some distance away clad only in his night clothes. A second fell or jumped from a window, and a third was found lying under his bed without covering. During this time a parallel series of 100 cases not receiving vaccines has been watched, and here there have been thirteen deaths, or a mortality of 13 per cent.

From these two series have been eliminated all those in which the clinical history was indefinite, or where treatment was begun in a relapse. There are left the following: Cases with vaccines, 89; cases without vaccines, 87. Both series were treated in the same institutions and received the same care. Neither series is a selected one. A carful study of all of these cases shows that the average duration of fever in the hospital was nearly ten days less and the total residence before discharge was five days less among those receiving vaccines than among those not receiving them, and that in the former class the number of relapses was just one quarter that of the latter. The results may be tabulated as follows:

Total number of cases treated	158
Number treated *in extremis* and therefore excluded	10
Total number properly treated	148
Number of deaths	7
Mortality	4.7 per cent.

Number of control cases watched	100
Number of deaths*	13
Mortality	13 per cent.

*It would be perfectly fair to add to this number at least seven of the number excluded from the treated list, as these deaths were inevitable before vaccines were tried, and occurrd usually within twnty-four hours of the treatment, being entirely uninfluenced thereby.

Cases under hospital supervision:	
With vaccine	89
Without vaccines	87
Average duration of fever, vaccines	19.9 days
Average duration of fever, no vaccines	29.3 days
Difference favoring vaccines	9.4 days
Average residence in hospital, vaccines	39 days
Average residence in hospital, no vaccines	43.8 days
Difference favoring vaccines	4.8 days
Percentage of relapses, vaccines	4.9
Percentage of relapses, no vaccines	20

It will be seen, therefore, that the advantage lies entirely on the side of the vaccines. I may further add that in no instance have I been able to detect any injury or harmful effect from the treatment even in those cases in which there was no demonstrable benefit.

In order to obtain the opinions of others I have

*A considerable part of this work has been conducted in the Evans Memorial for Clinical Research and Preventive Medicine, and to this institution due credit should be given.

Reporter	Number of Cases	Fever Duration	Fever After Vaccine	Hemorrhage	Relapse	Death	Dosage and Comments
Semple	60	..	..	..	2	2	50-200 M.
Hollis	51	..	..	..	8	2	10-250 M.
Mackins and Foster	41	..	..	.	1	1	1,000-2,000 M.
Sadler	92	..	..	.	..	14	½-2 M.
Smallman	36	..	..	..	0	3	100-300 M. Two deaths fulminating cases.
Richardson	28	..	..	..	1	0	10-100 M.
Collison	38	..	..	..	1	5	500 M.
Sappington	22	24	19	2	0	3	5-50 M.
Tukey	20	..	..	2	2	0	
Tukey (second series)	20	..	..	.	..	1	
Williams	16	..	..	2	3	0	
Reams	18	..	..	..	..	0	
Binney and Dorset (second series)	16	20	12	7	0	0	100 M.-500 M.
Luders	19	31	19	4	3	1	10-800 M.
Fletcher	14	20	..	1	2	2	500-1,000 M. (1 death from cerebral embolism in convalescence. One death from hemorrhage 10 days after first treatment.)
Jewett	15	..	..	0	2	2	50-150 M. One death by perforation.
McLaughlin	13	..	..	0	0	0	25-50 M.
Binney and Dorset	12	12	..	3	..	0	250-1,000 M.
Nichols	11	..	..	1	2	0	
MacKay	9	24+	15	0	2 (?)	0	500-1,000 M.
Childress	8	25	14	1	0	1	300-1,000 M. Died from hem. First dose given on twentieth day, third after hem. started. Died on twenty-fifth.
Anders	8	..	..	..	1	0	Data inadequate.
Gleason	6	32	24½	0	0	0	100 M.
Levison	4	19	13	0	0	0	250 M.
Maerker	1	..	..	0	0	0	
Moore	2	19	..	1	0	0	2,500 M.
Broeser	3	..	..	0	0	0	
Weaver	1	..	..	1	0	1	500 M. Dose given 3 weeks after fever began fulminating.
Lyon	1	18	14	0	0	0	500 M.
Lyon	1	..	..	..	..	1	500 M. Thoroughly toxemic and far advanced when vaccines given.
Wooldridge	1	15	8	0	0	0	500 M.
Roberts and Wyatt	1	15	5	0	0	0	150 M.
Sanborn	35	..	..	.	.	4	
Judkins and Davies	1	20	13	0	0	0	75-800 M.
Wright	1	23	15	0	0	0	30 M.
H. R. McCanall	3	37	..	0	0	0	
Kaven	4	..	..	0	0	0	
Lowe	2	..	..	..	..	0	
Knickerbocker	4	33	25	1	1	0	
Winchell	1	49	..	0	1	0	500 M. Vaccine discontinued after second dose
Parker	1	25	13	0	0	0	
Donald	6	28	21	0	0	0	50-500 M.
Luders	5	46	33	0	1	0	Relapse before treatment began.
Smith	1	22	16	0	0	0	50-100 M.
Grace	6	19	15	0	1	0	500 M.
Bundesen	4	..	..	..	..	0	
Cooper	6	22	12	..	..	0	100-500 M.
Scott	1	..	..	0	0	0	
First	4	14	11	0	0	0	100 M.
Constantine	4	18	13	0	0	0	500-1,000 M.
Kingsley	3	14	..	0	0	0	250-500 M.
Van der Berg	5	..	..	.	..	0	50 M.
Dotterweich	1	32	..	0	0	0	
Keppel	1	..	..	..	..	0	
Norton	1	14	9	0	0	0	
Clary	2	..	.	..	..	0	
Burns	1	38	.	1	1	0	200-300 M.
Caldwell	1	35	32	0	0	0	50-100 M.
Hudson	1	37	31	0	0	0	
Davis	1	..	.	.	..	0	
Law	5	27	19	2	0	1	50-200 M.
Hubbard	4	25	17	0	0	0	50-75 M.
Stiles	2	..	.	.	..	0	
Arnson	2	28	23	0	0	0	100-200 M.
Porterfield	1	17	9	0	0	0	750-1,000 M.
Winchell	1	..	14	..	..	0	
Rawson	3	..	.	.	..	0	5-10 M.
Arthur	1	22	11	0	0	0	125-1,000 M.
Roudot	1	70	60	0	0	1	Death from nephritis.
Respess	5	..	.	..	1	0	
Grace	6	22	.	1	2	0	
Kennedy	1	20	12	0	0	0	50 M.
Wilson	6	..	7	0	0	0	250-500 M.
Duncan	6	..	.	1	0	0	50-1,000 M.
Illment and Duncan	1	..	.	0	0	0	
Simons	6	..	.	1	..	1	Death shortly after admission.
Ruffin	1	..	.	..	..	0	
Martin	2	..	.	..	..	1	Fatal case treated on fortieth day with moribund
French	1	..	..	..	..	0	
Allen	1	..	.	.	..	0	50 M.
Behrend	12	..	.	.	0	0	
Elliott	3	..	..	..	0	0	
Pollack	1	..	.	.	0	0	
Renaud	1	..	.	.	0	0	
O'Connor	1	..	.	.	0	0	
Persson	1	..	.	.	0	0	
Carr and McArthur	2	..	.	.	0	0	
Wolverton	12	..	.	.	0	0	
Gray	126	..	.	.	..	5	
Watters	158	20	.	5	8	17	Ten deaths should be excluded
Lowe	2	..	.	..	0	0	
McCullough	3	..	.	..	..	0	
Zierath	3	..	.	..	..	0	
Wollin	10	..	.	.	..	1	
Keppel	1	..	.	.	..	0	
Arthur	1	..	.	.	..	0	
Gage	2	..	.	..	..	0	
Cox	2	..	.	..	..	0	
Gates	6	..	.	..	..	1	
Stiles	2	..	.	..	..	0	
Pulver	1	..	.	..	.	0	
Childress (Second series)	10	..	.	..	0	0	200-300 M.
Emory	2	..	.	..	0	0	400-800 M.
Randolph	8	..	.	..	..	1	
Total	1120					71	

collected the following series, largely by personal correspondence, but partly from papers that have already appeared in various medical journals. I wish to here express my appreciation of the courtesy and cooperation that have been received from so many different sources, and my surprise and gratification that these reports have been so uniformly optimistic.

In this connection it will be of value to examine similar comparative tables of others.

Binney and Dorset state that in a series of nineteen unselected cases twelve received vaccines with a resultant fever of twelve days and no deaths, while seven received no vaccines with a resultant fever of from twenty-five to forty-five days and two deaths. They state, "we have not had any bad effects from inoculations and the patients' strength remains remarkably good, eyes bright, tongue clean, and they are always anxious for the next dose of bacterin. After three or four inoculations the appetite returns and the patients are very hungry. . . . The therapeutic use of bacterin is a harmless procedure (with antiseptic precautions), and we have not had any bad results, no depressing effects, and those we have used large doses on (700 to 1,000 millions) were markedly improved on our next daily visit, and remarked that they were feeling better."

Jewett compares a series of fourteen treated cases with thirteen untreated and gets a mortality of 7.1 per cent. in the former against 23 per cent. in the latter. He states that the percentage of complications was much larger in the latter.

Gray treated 126 cases with vaccine and 72 without, with the following results: Mortality—vaccine cases, 3.9 per cent.; routine cases, 9.7 per cent.; residence in hospital, vaccine cases, 26.5 days; routine cases, 33.5 days. He also states, "I believe the sequelæ are much lessened—no patient died of hemorrhage or perforation—there was also a great lessening of mental symptoms.

In drawing conclusions, it would seem that a series of cases thus collected and studied might give results that should be rather dependable. In this series of 1,120 there has been a total of 67 deaths. Of these, ten of my own series should be excluded for reasons already given, one in Fletcher's series, and the fatal cases of Childress, Martin, and Simons. This leaves a total mortality of 57, or a percentage mortality of 5. Even this might be still further reduced if we were to exclude those protracted or fulminating cases in which vaccines were used late and when other measures had proven unavailing. When the percentage is compared with that usually occurring in the disease, and variously estimated at from twelve to twenty, the results are very gratifying.

In not all cases were the relapses reported. In those reported, however, forty-five relapses are found, or a percentage of 6. This compares favorably with the 15, 20, or 25 per cent. usually reported.

It has been a cause of much surprise to note the practically universal approval that has accompanied these reports, particularly from those who have given the method somewhat extended trial. So far as I am at present aware, the only note of discouragement comes from Anders, who, after treating eight cases is not at all optimistic. From his report of these, however, the reasons for his opinion are not clearly apparent.

No attempt has been made to collect favorable cases only, as the appeal went out for all cases treated by vaccines, and all that have been thus reported have been included.

The opinions of some have already been quoted, a few others may well be included. Thus, Mackay of Sherbrooke says: "I have used it (vaccine) in all of my cases but three with the greatest satisfaction. I am quite convinced that it is *the* treatment—when one sees the temperature drop almost invariably within five days of inoculation and stay down after it touches the red line with one more injection it is rather convincing." Mackay further states that "Cases from the same districts admitted at the same time ran a temperature from thirty-nine to sixty days and more, *i.e.* from two to three weeks longer than the vaccinated cases. The nurses in charge remarked upon the ease of managing the patients (with vaccines) and the absence of delirium."

Semple of London writes: "In the hands of physicians with good knowledge of bacteriology, immunity, and vaccine therapy, I believe that it is the treatment of the future for typhoid fever, but in the hands of physicians without that knowledge it may have a struggle before being finally appreciated. Personally I am very favorably impressed with it and in future I shall have no hesitation in using it when an opportunity offers."

Tukey of Bridgeport makes the following remarks: "We observed that after giving the bacterin it was seldom necessary to use baths, the temperature remaining below 102.5° throughout the day, although without exception it had been above that before giving the injections. Relapses were less frequent than is commonly seen in any given series of twenty cases not treated by vaccine. The course of the fever appeared to be shortened, the mind remained clear throughout the illness as a whole, and improvement began almost without exception before the third inoculation. No bad effects were seen in any case; only stock typhobacterin was used."

Sappington of Philadelphia thus writes his opinion: "I believe the vaccine treatment of typhoid fever to be distinctly valuable and have a theory that it is usually easy to tell which cases are suitable. This, I believe, is seen by giving two small injections on succeeding days, say eight million the first and ten or fifteen millions the second; if these produce a favorable effect, the case will commonly subside in a short time either on the two doses or with the addition of one or two more. But if the first and second doses produce an unfavorable or no effect, I have found the case, as a rule, unsuitable for this treatment, and I believe it is unwise to pursue it. Such cases, however, seem distinctly in the minority."

Sanborn, who has done such good work with vaccines in the Boston City Hospital, states, in a personal conversation, that he has treated thirty-five cases of typhoid with vaccines. In this series the mortality was not different from that in other cases seen at the same time in the same institution. He believes, however, that the duration of the fever and the total residence in the hospital were materially shortened, expressing his opinion that, following the use of vaccines, the clinical symptoms of the patients showed a marked improvement, manifest by the absence of delirium, clearing of the tongue, and general condition of well-being. He expresses himself as fully convinced of the efficacy of the method.

Opinions of many others, already in print, might

be quoted; also others from personal communications, but as they all express practically the same ideas they will be omitted.

After this experience in the treatment of these cases during the past six years and in the collection of the above statistics, there are certain things that I believe I have learned and certain measures that can probably be improved. These may be given as follows:

1. The best results have been attained by preparing the vaccine from an old non-virulent culture that has been subcultured for years in connection with the Widal tests. A new culture is made from this and incubated for twelve hours. In the fall of 1909 a fresh culture taken directly from a patient was used for several months. The cases treated during this time were apparently entirely unaffected by it in any way, following the usual untreated course. It was here that three of my seven fatalities in regularly treated cases occurred; not caused by the vaccines, but not in any way affected by them.

2. In comparing my dosage with that of others, it seems probable that mine may be increased to 100, 200, or possibly 500 million.

3. An early diagnosis of the disease is most important. This can often be first made by blood culture, days before the Widal reaction appears. It is probable that every day gained in diagnosis, and hence in inception of the treatment, means several days gained in the duration of fever and appearance of convalescence.

4. The vaccines when properly used by an immunizator will do no harm in any stage of the disease or in a relapse. The earlier they are used, however, the greater may be the hopes of benefit therefrom.

5. A safe rule to remember is that the more severe the case, the smaller should be the dose. Amounts as small as one or two million have seemed to transform some most critical cases into convalescents.

6. The interval between doses is variable, averaging from two to four days. A dose or two administered after the temperature has reached normal will render relapses less frequent.

In conclusion I wish to state that the present paper is intended as a report of progress rather than as a final one. It will, therefore, be much appreciated if any who read it who have already used vaccines in the treatment of typhoid or happen to do so within the next two or three years, or know of any one who has done so, will send a report of such, whether good, bad, or indifferent. By this means it is hoped to obtain an even larger collection of cases and to draw conclusions correspondingly more valuable.

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THE FUNCTIONS OF THE PSYCHOLOGICAL CLINIC.*

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The psychological clinic is a very modern American creation. The first clinic was started in a small way only seventeen years ago in the University of Pennsylvania. The growth of these clinics was at first very slow, but during the last three or four years they have rapidly multiplied so that, according to an investigation which I have made this year, we now have from thirty-five to forty clinics which may properly be called "psychological clinics" in universities, normal and public schools, institutions, and juvenile courts. There is besides a considerable number of amateurs in psychology who are testing children in schools, juvenile courts, and institutions, but the work of most of these amateurs can scarcely be considered in speaking of clinical psychology. Prof. O'Shea has recently predicted (*School Review*, 1913, April, p. 285) that within a decade there will be a psychological clinic in every community with 2,500 or more school children. That may be so if we agree to call any place in which mental tests may be given a "psychological clinic." The psychologist, however, would probably just as strenuously object to having these testing stations called "psychological clinics" as the psychiatrists would object to having them called "psychiatric clinics."

The development of the psychological clinic has come in response to a demand for more accurate psychological diagnosis—and this is the first function of the psychological clinic which I wish to discuss.

I. Expert diagnosis of mentally deviating cases and expert prescription and consultation. The central aim of the psychological clinic is psychological diagnosis and consultation and advice in regard to mental cases, particularly children. In other words, the aim of the clinic is essentially practical. The clinical psychologist is engaged in serious work and not mere play. His interests are not confined to the theoretical or academic. His efforts are in the field of human conservation, individual orthogenesis, and remedial philanthropy. All the psychological clinics, so far as I know, are doing purely philanthropic work. The psychoclinicist is concerned with the proper mental hygiene, the correct educational classification, and the skilled pedagogical training of the mentally exceptional child.* The aim, in one word, of his basic effort is orthogenesis (particularly that phase of orthogenesis which I have elsewhere called "orthophrenics": *Psychological Bulletin*, 1912, October, p. 394).

It is rapidly becoming generally recognized that the nature and extent of mental variations or abnormalities cannot be adequately ascertained by the method of mere observation or inspection, or by the ill-adapted methods of specialists in other fields. Many mental deviations are so subtle that they entirely escape common observation. Common observation, moreover, rarely penetrates so far as to reveal the cause of the defect. Before the advent of experimental and clinical psychology, mental diagnosis was based almost wholly upon common observation, if we except the pedagogical tests of the schools and a few tests of the trained psychopathologists. Many mental variations or abnormalities, however, are harder to get at by mere observation than many physical disorders. Many of the latter can be detected by the relatively simple methods of so-called inspection, auscultation, palpation, percussion, or mensuration. Nevertheless, the

*Delivered, in substance, before the Conference and Exhibit on Mental Hygiene, Pittsburgh, April 22d, 1913.

*It would seem better to call the psychological clinics in the schools *psycho-educational clinics*, just because of the fact that the character of the diagnosis attempted is distinctly both psychological and educational, and because the aims of the diagnosis are distinctly the scientific pedagogical training, correct educational classification and mental hygiene of the educationally exceptional child.

skilled physician does not depend solely upon these crude methods of diagnosis, but has developed a more refined laboratory technique, consisting of radiographic and microscopic inspection, serum reaction tests, mechanical and electrical tests of nervous sensitivity and response, etc. Likewise the psychologist within the last decade or two has developed a new science, which is now usually called "clinical psychology," and a delicate controlled laboratory technique. This technique sometimes involves the use of the most delicate apparatus for precisely measuring the functional capacity of the various sensory, motor, and intellectual processes. At other times it involves the use of less elaborate testing appliances. For purposes of practical mental diagnosis the tendency at the present time is to make a more extensive use of the simpler forms of testing devices, such as test blanks, form and construction boards, set questions, and graded scales of intellectual, motor, and socioindustrial capacity The most popular of the developmental scales is the Binet-Simon scale of intelligence, which consists of a series of tests gradually increasing in difficulty and arranged in age-steps. The stimulus to the development of this scale was the enactment in Paris in 1904 of an educational measure which required the individual examination of all mentally defective children. At first this work was left to the medical inspectors, but it soon became evident that they could do no more than they already had done in the way of medical inspection—namely, detect physical defects and diseases. It became evident that there was no scientific method of examining mentally exceptional children in existence, and hence Binet and his assistant, Simon, set about to establish normal mental age-norms by examining certain pedagogically average children in the elementary schools of Paris (from the poorer sections). They arranged certain tests in age-steps, and it is this arrangement of the tests into age-norms that has made the tests so popular. This scale is of considerable value for grading intelligence, but it has recently been subjected, particularly in this country, to indiscriminate exploitation and popularization, so that many erroneous ideas have arisen in respect to its real function or the real function of psychological examinations in general. Almost everything that has been written about the Binet scale (until very recently) has been in the nature of praise—both judicious and extravagant, rather more of the latter. I think it is worth while, therefore, to call attention to some of the current misconceptions, and to sound a few warning notes, regarding psychological examinations.

1. Very many persons who are not trained mental examiners seem to think that the Binet testing is all there is to a mental examination; that it is the only serviceable method we have; that it is the Alpha and Omega of psychoclinical work. Indeed that is about all there is to the mental examinations conducted by amateurs. This is a preposterous notion. It is quite possible to give from one hundred to five hundred other valuable psychological tests in the examination of a case. Of any one single scheme of testing, the Binet scale is probably at present our most valuable instrument, but it is only one among many diagnostic devices at the command of the trained psychological examiner.

2. Another fact that needs to be emphasized again and again is that simply putting a child through the Binet scale does not tell one very much about his real mental idiosyncrasies, the peculiarities of his mental constellations, his particular shorts or longs What the Binet test does is to give one a preliminary, rough, or approximate rating of the child's mental level. If the child is in the schools and has been carefully classified, we already have a parallel approximation of his mental standing. All that can be expected from the Binet testing by persons who are not expert psychological examiners is usually merely an independent confirmation of the pedagogical rating already assigned the child in the schools. Sometimes, however, the Binet rating will be at variance with the teacher's rating, and I have known of cases in which teachers maintain that, because they have been coming into contact with the child, and have been studying its mentality, day by day for months or years, their judgment in regard to the child's mental standing is more reliable than the judgment of a teacher, nurse, or physician who has spent only a few minutes with the child in putting him through the Binet tests.

The Binet testing of itself will certainly not confer any remarkable insight or comprehension upon any person using the scale. If he already has accurate knowledge and deep insight into mental mechanisms, the Binet testing will better enable him to use his skill, but without prior erudition or technical skill, the Binet testing is not a magical something that will transform a person into a mental wizard and give him occult powers to penetrate into a child's mental peculiarities and reveal the treatment he requires. The Binet testing is not a device for supplying brains or a substitute for a technical university course. It is just as preposterous to think that one can become a skilled mental examiner merely by reading books on mental tests, as to think that one can become a skilled surgeon by simply reading books on surgery. A clinical psychologist uses certain formal tests merely as the physician feels the pulse or takes the temperature. A physician must know a good deal more than how to take the pulse or temperature in order to physically diagnose his cases. Because of the large number of mental defectives in the schools, we shall always need a number of assistants to give certain psychological tests, but their function is that of the nurse in relation to the physician. A physician no more thinks of intrusting the diagnosis of his case to the nurse than the clinical psychologist intrusts his diagnosis to the teacher, nurse, or any amateur, however skilled in other lines of professional service, who has merely learned to give mental tests. Assistants, if properly trained, can be of much service to the clinical psychologist, but they should not be regarded as expert diagnosticians.

3. In the third place, the notion has gotten abroad that the Binet scale is "infallible" or "amazingly accurate." It is true that in a considerable percentage of cases the scale gives one an approximately correct measure of a child's general mental level. In testing groups of children it enables us to classify them relatively to one another with a far degree of accuracy. This I have attempted to show by classifying an institution of epileptics according to the Binet system and then plotting age-curves for a number of individual tests. I assumed that if the patients were correctly classified there would be an increase in the strength of each mental trait with each successive Binet age. For example, the ten-year-olds should be able to give more words in three minutes than the nine-year-olds; the eleven-year-olds more than the ten-year-olds, etc. As a matter of fact, the curves thus constructed for a

number of traits increase with a fair amount of regularity, thus indicating that the classification was fairly, although by no means absolutely, accurate (see my "Experimental Studies of Mental Defectives," Warwick and York, Baltimore, 1912, Graphs II to VIII, pp. 112 to 115).

I have also attempted to test the accuracy of the scale, in view of certain criticisms which have been made because my results are based on epileptics, by applying the tests to public school children. I have classified the consecutive clinical cases examined at the University of Pittsburgh by two methods: first, by grading them strictly according to the Binet system, and, second, by classifying them according to my final diagnosis as based on all the available facts, on the entire symptomatology. A comparison of the two graphs thus constructed (not yet in print) shows that there is a certain degree of correspondence between the two classifications. The Binet rating gives 4.7 per cent. more supernormals and 2.6 per cent. more subnormals. The most important difference is in the number of feebleminded and backward cases. The Binet rating gives 10 per cent. more feebleminded and from 15 to 20 per cent less backward cases than the symptomatological, even if we merely follow the rule of considering only those as feebleminded who are retarded over three years. Binet also considered the child under nine years of age who is two years retarded as feebleminded. If these cases were added, the discrepancy would be still larger. It is entirely clear to my mind that 27 per cent. of these children (as shown by the Binet tests) were not feebleminded. I am entirely clear on the proposition that the Binet rating in the hands of mere Binet testers will give us too many feebleminded cases. This conclusion seems to me to be corroborated by the diagnosis made by Binet testers in some schools. Thus 49.7 per cent. of 600 retarded cases tested in the schools of a certain city were classified as feebleminded, while 80 per cent. of 296 children in the special classes in another city were diagnosed as "defectives." If a similar ratio held for the 6,000,000 retarded children in the public schools of the country, we would have from 3,000,000 to 4,800,000 feebleminded cases in the schools alone. This is, of course, absolutely absurd. Even if we assume that the cases tested in Cleveland and Rochester were rather extreme, the figures would, without doubt, still remain entirely extravagant. More than that: I will venture the assertion, after years of experience in teaching in the public schools and in clinically examining public school cases, that the statement that "at least 2 per cent. of the children in the public schools are mentally defective," exaggerates the real situation. The number is nearer 1 per cent., and rather below than above 1 per cent.

When it comes to the diagnosis of individual cases, the Binet system, or any other system of formal testing, cannot be used as an infallible measuring rod of intelligence. It is quite certain that if the psychological diagnosis of school children is to be intrusted to laymen, whether teachers, nurses, or specialists other than psychological experts, some very inaccurate and pernicious diagnoses will be made of individual cases. In my own laboratory my diagnoses of individual cases are often quite at variance with the Binet findings. I have sometimes diagnosed cases with only a slight degree of intellectual arrest as "feebleminded," and I have sometimes diagnosed others with a very considerable degree of deficiency as merely "backward."

Thus, to cite only two cases. "A" is a gentleman, 28 years of age, who has spent five years in university work. He had been diagnosed as a "moron," as a "degenerate," as "a case of constitutional inferiority," as "a case with paranoid trends," etc. According to the Binet tests which I first gave him, he was clearly "feebleminded," as he measured only 11.4 years in the 1908 series. Anyone knowing no more about the technique of psychological examination than the Binet-Simon scale would at once have classified him as "feebleminded," but he did not impress me at all as being feebleminded. His appearance, speech, and conduct suggested the polished and cultured gentleman. Accordingly, I put him through approximately thirty sets of mental tests (other than twenty-five individual Binet tests) and thirty moral tests. These tests demonstrated that there was a considerable difference in the strength of his different mental traits. Some traits were on the twelve-year plane, some on the fifteen-year, some on the sixteen-year, and some on the adult plane. In some mental tests he did as well as college men. He passed correctly practically all of the moral tests. Here is a case showing more or less deficiency in respect to various mental traits; but the man is not feebleminded, contrary to the Binet rating (a sexual complex was at the root of his trouble).

"B" is an attractive girl of considerable culture, age 17, studying Latin, history, algebra, and English in the tenth grade of a private school. She entered school at the age of 7, but has attended rather irregularly because of precarious health. Her school work is not very satisfactory. The most marked mental defect noticed by her teacher is her forgetfulness. By the Binet tests she would be rated as "feebleminded," since she graded only 11.4 years. But no one but a psychological tyro or a mere Binet tester would so classify her. (Her condition borders on psychasthenia.)

While intelligence defect is the most obvious trait of feeblemindedness, there are other clinical and developmental phases which must be taken into consideration before a positive diagnosis can be pronounced in many cases. It is a hazardous proceeding to condemn every child as "feebleminded" solely because he shows a considerable degree of intelligence retardation; and it is a serious matter always to brand any child as "feebleminded." Parents ought to have a right to demand an independent examination by a competent psychoeducational specialist before a child can be placed in a special class. In London, parents, by statutory right, may demand an examination of children placed in special classes every six months. The London County Council has recently appointed an expert psychologist to mentally examine school children. In Paris, a special examination for mentally defective children is enjoined by law. It is certain that parents will be far more ready to accept a mental diagnosis if it is made by a competent psychological expert. In some cities considerable friction has arisen because parents and teachers have not always been willing to accept the diagnosis of feeblemindedness made by teachers, nurses, or physicians who are amateurs in psychological work. As already stated, learning how to give a few tests is no substitute for a prolonged course in psychoclinical diagnosis. Mere tests, whether in psychology or medicine, are not always conclusive. Even positive or negative serum reactions sometimes prove nothing. The psychologist, just like the physician, must base his diagnosis on

the entire symptomatology of the case. The tests used by the trained psychoclinicist are invaluable in that they enable him to arrive at a more accurate clinical picture of the mental condition of his case But once the mental condition has been determined, there remains the more difficult task of locating the causes of the trouble and prescribing a differential treatment for each case. The accurate determination of the causation can only be made by investigating the personal and family history of the case; the hereditary factors, birth condition, record of diseases, physical and mental development, school history, mental habits, social heredity, environments, and present physical and mental condition. In order to secure all the desired data, the psychoclinicist should be able to command the services of social workers, nurses, medical specialists, trained helpers to assist in some of the formal testing, and record and filing clerks. Some of the university psycho-educational clinics have a physician on their staff; others have a staff of consulting physicians in the medical school or affiliated hospitals or dispensaries.

To repeat: The first function of the psychological clinic is to make an accurate diagnosis of mentally deviating children, in order to give expert advice in regard to the child's mental hygiene (and in regard to the physical treatment in so far as this is orthophrenic in its bearings), and educational care and training.

II. The second purpose of the psychological clinic is to serve as a clearing house for mentally exceptional cases. The psychological clinic has no special interest in cases which are not mentally or pedagogically exceptional or abnormal. Moreover, its interests thus far have been largely, if not entirely, restricted to juvenile cases. The psychiatric clinic, on the other hand, deals more largely with adult than juvenile cases; and technically these cases are psychotic or incipiently psychotic in character. The psychological (i. e., the psycho-educational) clinic aims to serve as a focal point where the data bearing on mentally and educationally exceptional children may be brought together for careful analysis and collation, and where the cases may be finally disposed of—some to institutions, some to special classes, some to hospitals or medical clinics or private practitioners, and some to special courses of corrective pedagogics. Some psychological clinics also conduct medicopedagogical schools. They conduct classes during the regular or summer terms and offer special work in corrective pedagogics (particularly in speech training).

Most of the psychological clinics in this country which are properly organized have become clearing houses of this character for juvenile cases in the schools and courts. Thus in New Orleans the clinic, which is jointly supported by Tulane University and the public schools, serves as a clearing house in the city for these cases. In Seattle the university psychoclinicist is also the consulting psychologist to the public schools and the juvenile court. He also spends part of his time examining cases throughout the state. In Minneapolis the university psychologists do the work both for the public schools and for the juvenile court. Here the juvenile court has a room equipped for the examination work in the court house. In New Haven the Yale clinical psychologist, who is in the department of education, but who has his laboratory in the medical school, does what psychoclinical work there is done in the city. In Baltimore the study of mentally abnormal children is undertaken by the clinical psychologist, who is connected with the Phipps Psychiatric Clinic. The University of Kansas examines cases at Lawrence and elsewhere in the state.

III. The third function of the psychoclinicist is research, particularly with a view to increasing and perfecting diagnostic tests and to extending our knowledge of the nature, causes, and treatment of mental abnormalities. One interesting phase of psychoclinical research is the quantitative measurement of mental improvement from the removal of physical handicaps (see my "The Relation of Oral Hygiene to Efficient Mentation in Backward Children," *The Child*, London, autumn, 1913. Other references to this experiment are given in this article).

IV. A fourth function of the psychoclinic comprises education and propaganda—the dissemination of reliable information and knowledge regarding the condition and needs of the mentally abnormal classes. This is done through the offering of lecture and clinical courses, the publication of memoirs and investigations, the conducting of demonstration clinics, etc. There is constant need, *e.g.*, to develop a sympathetic and enlightened public opinion in regard to the needs of the unreached children in the public schools, in order that they may be properly classified and segregated, so that they may receive the pedagogical training which befits their peculiarities. There is need for enlightened public agitation in Pittsburgh, to the end that facilities may be provided for the large army of subnormal school children in our public schools. Over 10 per cent. of all the elementary pupils in the Pittsburgh public schools are retarded three years or more. It is safe to say that at least one-half of this 10 per cent., or more than 3,000 pupils, should be in "special" classes instead of in the regular, "ungraded," anemic, or tubercular classes. And yet Pittsburgh today does not have a single special class in which differentiated training is provided for feebleminded and backward children. It is the one city of its class in the United States without special classes for these children. In March, 1911, there were 319 cities in the country which had organized special classes for backward and feebleminded children This is an entirely new phase of work in Pittsburgh, which must be organized from the very beginning.*

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BIER'S ARTIFICIAL HYPEREMIA AS A THERAPEUTIC AGENT.

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That this method of treatment is worthy of application there is no doubt. Although it seems to be generally known among practitioners, it is not used as often as good results from it would seem to warrant. Particularly is this so since it requires no special training, skill, or dexterity to acquire the technique and the few rules governing its application. The treatment can easily be administered at the patient's home or elsewhere, and no special attention is required in the intervals.

The treatment of inflammation dates back many centuries. In former days this was regarded as a distinct affection and therefore the indications were

*For an article bearing on other phases of the same topic, see "Clinical Psychology: What It Is and What It Is Not," *Science*, 1913, p. 895. See also *The Psychological Clinic*, 1913, p. 89.

to suppress or diminish it as much as possible. Hot fomentations, hot air, poultices, scarifications, counterirritations, blisters, cupping, etc., were used for producing local hyperemia on the theory that this would relieve congestion in more deeply inflamed areas. Modern study and investigation, however, have logically changed the views regarding inflammation but not the means to control it. For instance, inflammation is now looked upon not as an unfavorable process but as one of nature's means of protecting the tissues from the effects of bacteria and toxins. In this light it is no longer an entity but merely a symptom produced by the defensive action of the tissues. Bier's teachings are based on the modern idea of inflammation being the effort of nature to protect the body against bacterial invasion and to restore the part to a healthy condition, and present a modernized theory based upon the present understanding of inflammation as a process. He argues that hypermia is a biological means of the organism which, if it could be produced in artificial ways, would assist nature in the way of cure. While this is against the older ideas, the results reported strengthen the correctness of Bier's theories and explain his results. The first effort to employ hyperemia artificially for a therapeutic purpose was made by Ambrose Paré in the sixteenth century, who employed it in cases of delayed union of fractured bones. Following him, von Dumreicher explained the action of venous hypermia in the same connection; and Jules Guyot, in 1835, described the first hot-air apparatus. After this, Bier established his method along logical and scientific lines, basing it upon the observations of Farre and Travers, Louis, and Rokitansky, from which he drew logical conclusions which led to the investigation of hyperemia in general. Hyperemia results from either the slackening or the acceleration of the blood current; hence, there is a venous or passive hyperemia, or arterial or active hyperemia. It is the passive hyperemia which accompanies inflammation for the purpose of removing noxious substances and forming new connective tissue. Active hyperemia is a physiological occurrence in organs which are in activity. Between the blood of active and passive hyperemia there are important physical and chemical differences; the blood of the former contains much free oxygen with but little free carbonic acid and alkali, while the blood of passive or venous hyperemia represents exactly the opposite. The effect of both types of hyperemia is to diminish pain. By accomplishing this, the reflex contraction of muscles is avoided, and early motion of a part is established. This is easy of demonstration in infections involving tendon sheaths and joints. The blood in an artificially congested area possesses properties to which the curative effects of both forms of hyperemia are due; these being analgesic, bactericidal, absorbent, solvent and nutritive. The latter deserve being described in some detail with the hope of encouraging the employment of this method of treatment more generally than at present.

Analgesic effect is noted in the relief of pain by the application of a hot-water bottle or hot poultice. We know that dry air may be applied to the body at higher temperatures than the boiling point of water. The reason of this is because the dryness of the air abstracts fluid from the body, in that way protecting the skin. Such dry air applications are useful in joint pain from various causes, the pains of sciatica, lumbago and trifacial neuralgia, acute gonorrheal arthritis, tuberculous affections, and so forth. In these conditions the relief is accomplished by an effect upon the specific gravity of the inflammatory exudates and the relief of tension and toxic influence. Regarding the beneficial effects in bacterial conditions, there is considerable difference of opinion. Metchnikoff has shown that blood serum has a decided bactericidal effect and that the white blood corpuscles play an important part in the destruction of bacteria. Buchner believes that the beneficial effects of hyperemia are due to increase of the leucocytes rather than to the blood serum. Hamburger attributed the action to increase of alkalies and carbonic acids, both in the blood and in the lymph of the edema of a hyperemic area. Burt Notzel studied the action by animal experimentation. He inoculated sixty-seven rabbits in different parts of the body with anthrax and virulent streptococci, and then subjected the parts to constrictive hyperemia. Fifty-one of the rabbits survived; in the sixteen that died, true hyperemia had not been produced. This would seem to prove that hyperemia protected the fifty-one rabbits by these injections. Each of these rabbits was injected a few weeks later with similar bacilli as at first but was not protected by hyperemia and all of them died.

That the absorption of watery substances or solids soluble in water takes place through the blood capillaries and not through the lymphatics, as was formerly believed, is now a physiological fact. Klapp, Bier's assistant, demonstrated this by experiments on dogs. He excluded all the lymph channels by ligation of the thorax and right lymphatic ducts and injected sugar of milk into the abdominal cavities of the dogs. Nevertheless, all of the sugar of milk appeared in the urine in the same interval and same quantities as before ligation. Bier discovered while treating chronic joint diseases alternately by active (hot-air) hyperemia and constrictive hyperemia that the hot-air hyperemia caused a quick disappearance of the edema which occurred very often after constrictive hypermia. This led him to the employment of the hot-air method in the treatment of edema and elephantiasis. Landois has demonstrated that the blood serum of every animal dissolves the blood corpuscles from a different species. This biological solvent effect is seen in the softening of scar tissue in the lower maternal canal observed in hyperemia accompanying pregnancy. Bier noted the disappearance of arthritic granulation, blood clots and nodules on tendons when placed under the influence of hyperemia produced by the various methods of constriction, hot air, and suction. The fact of the disappearance of a catgut ligature in the body is another proof that the blood has solvent powers. Nutrient effects of both active and passive hyperemia are noted in the increase of hair growth, and the transplantation of certain tissues of the body into better nutritive zones when their growth will be enhanced. The literature contains certain case reports of those treated by hyperemia wherein increased growth of tissue in bulk was noted.

Passive, venous or obstructive hyperemia has for its object the increase of the amount of venous blood to the part and may be produced by means of elastic compression of the venous circulation or by suction cups. Active hyperemia is obtained by means of dry hot-air. In applying an elastic band or bandage for constriction hyperemia the following principles must be observed. The constriction

should always be applied well above the area of inflammation; the bandage must be firm enough to slightly constrict the lumen of thin-walled veins but not enough to press the more resistant walls of the arteries. The blood must always continue to circulate and Bier draws distinct attention to this and warns against tight constriction as being dangerous. The first he terms "warm damming" because of the elevation of temperature to the part, and the second "cold damming" because of the lowering temperature. Thus, coolness of the extremities, complaint of pain, the appearance of red spots on the skin, are signs of too severe compression. The two cardinal rules to follow here are that no pain must be experienced after the bandage is applied, and the pulse must be palpable below the constriction at all times. To accomplish this in a measure, a piece of soft flannel beneath the rubber helps to reduce undue pressure. The limb should be absolutely free during this treatment. Should edema result, care must be taken that this has been entirely absorbed during the intervals. But on the other hand, if the hyperemia is prolonged to most of the day, effort should be made to control the edema by elevation of the limb or employment of massage. Acute processes are best benefited by prolonged applications, that is, for from ten to twelve hours, and should then be removed for one to two hours, and reapplied. In tuberculous affections prolonged application is contraindicated and one or two hours once or twice a day suffices. It is not always easy to obtain the proper amount of hyperemia and we may have to resort to immersion of the part in a bath of very hot water for ten minutes before the constriction is applied. Should this fail the part may be exsanguinated by means of an Esmarch bandage by which, when removed, profuse congestion is obtained. In the presence of pus, surgery and not active hyperemia is indicated, because drainage is required, while hyperemia only fights the infection. About the only joint of the body in which this form of treatment is not possible for anatomical reasons is the hip.

Hyperemia by means of cupping is practical in the more simple conditions such as furunculosis, styes, carbuncle, and breast and other local abscesses, The cup must be of sufficiently large diameter to extend well outside the limits of the area of inflammation and have edges that are thick and smooth. Such suctions are applied for five minutes, removed for two or three, and reapplied, the entire treatment lasting for from one-half to three-quarters of an hour each day. Complaint of pain, distinct blueness, or a mottling of the skin, indicates an excessive amount of suction and demands limitation of the treatment. Cupping may be employed to stimulate the secretion of milk and drawing out retracted nipples. Meyer and Schmieden in their work on hypermia claim most beneficial effects in the treatment of puerperal mastitis. Suction hyperemia is now being employed in gynecology in connection with inflammatory conditions of the uterus and cervix such as are present in erosions, endometritis, metritis, and parametritis. Benefits have been claimed in the treatment of amenorrhea and dysmenorrhea. In these cases special cups shaped like the old-fashioned glass tube speculum may be used. These treatments by hyperemia are contraindicated in lesions complicated by thrombosis, have doubtful value in erysipelas, and should not be used in tuberculosis of the joints when there are amyloid disease, advanced pulmonary involvement, large joint abscesses or faulty positions of the joint. It is plain that, in most of these, frank surgery answers to better purpose.

Active hyperemia by means of hot-air apparatuses is especially useful for the absorption of products of chronic non-tuberculous inflammation, this including exudates, infiltrates and adhesions. These cases include inflammatory conditions of the pelvis, fracture of bones, ulcers of the leg, rheumatic conditions, gout, pulmonary tuberculosis and certain skin affections. Here again care should be taken that no pain is produced from the heat, and also that there be no escape of the hot air to burn the skin or any other part of the body. This form of hyperemia cannot be applied for longer than one hour a day. Hot-air hyperemia is contraindicated in lesions complicated by thrombosis; in tuberculosis of the joints; in the presence of fever, pregnancy, and hemorrhage (when latter is not of ovarian origin, thus, in menstruation and hemorrhagic endometritis), and in advanced pulmonary and cardiac disease.

In conclusion it may be stated that these methods of treatment deserve more consideration and general application than are being given them today. While there is nothing panacea-like about them, they are valuable adjuncts in the treatment of many of the more simple forms of disorders. The fact that they take some time in their application is no reason why they should be passed by, for in the armamentarium of physicians there are not many things of definitely useful purpose, and there is no doubt that we have here a means that often is satisfying, not only to the patient but also to the medical attendant.

249 East Broadway.

THE ABSENCE OF THE "SAUSAGE-SHAPED TUMOR" AND THE "MASS PER RECTUM" IN INTUSSUSCEPTION IN INFANTS.

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In a recent article* on intussusception in infants I called attention to the fact that the two well-known signs of intussusception, a sausage-shaped tumor and a mass felt in the rectum were often either not present or late signs and that it was necessary in order to decrease the mortality to make the diagnosis if need be without their presence. Additional experience has proven the correctness of this position and it may now be confidently asserted that with a straightforward history of intussusception one may proceed to its operative reduction with security. The time lost in waiting for a sausage-shaped tumor to be palpable or for the intussuscepted gut to appear in the rectum may be sufficient to cost the life of the little sufferer.

There are good anatomical reasons why intussusception may be present and no tumor be palpable, chief among which is that with the small gut distended palpitation of the cecum may be impossible There may be an intussusception of such slight proportions that no mass is palpable or the whole mass, as in a recent case seen with Dr. Livingston, may be hidden behind the ribs in the splenic flexor of the colon. On opening this abdomen the entire cecum, the ascending and half of the transverse colon along with the appendix and about six inches

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of ileum were invaginated into the splenic flexure of the colon. The abdomen was soft and at no time either before or during anesthesia could this mass be felt. The history, however, being clear, operation was advised and this condition was found. In the rectum nothing could be felt. This is the second case I have operated upon within eight months in which the intussusception was well advanced and the bowel blackened, and still neither sausage-shaped tumor nor mass in the rectum was present.

Entirely too much emphasis has been laid, in the past, upon finding a mass (the intussuscepted loop of gut) in the rectum. For this loop to present itself there must of course be a length of gut twice as great as that of the entire large intestine and the drag on this loop produces the very great shock seen. In the cases seen early, when treatment is most efficacious, the mass in the rectum is rarely met with. In the last five cases that I have seen no intussuscepted gut was present in the rectum. That it does occur is true, but to my mind it bears the same relation to the diagnosis and prognosis of intussusception that a palpable mass in the stomach does to cancer of the stomach, for a mass in the stomach that is palpable in carcinoma of that organ already argues a far advanced process.

It would seem necessary to revise the teaching regarding intussusception so that with a history of sudden onset of screaming, intractable vomiting, evidence of continuous pain and bloood and mucus in the stool, with an absence of fecal matter in the stool, a diagnosis of intussusception, particularly in infants under a year, may be safely made. There need be no great prostration at first and this is the ideal time for operation. The *x*-rays are now available for diagnosis in the doubtful cases and should not be neglected.

It must be repeated that if we are to lower the mortality in this disease the diagnosis must be made by the first physician who sees the patient.

223 West One Hundred-and-Thirteenth Street.

AN EASY METHOD OF ADMINISTERING SALVARSAN AND NEOSALVARSAN INTRAVENOUSLY.

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AND

OMAR F. ELDER, M.D.,

ATLANTA, GEORGIA.

The 50-c.c. syringe shown herewith facilitates the intravenous injection of salvarsan and neosalvarsan. For some time we have administered neosalvarsan with a 20-c.c. Leur syringe. We also cautiously administered medium size doses of salvarsan in this manner, but found that phlebitis would occasionally follow when the remedy was so slightly diluted. By diluting the salvarsan with 50-c.c. of sterile water, rendering the solution weakly alkaline, and injecting it slowly, allowing the blood flowing through the vein to provide further dilution, we have not had any untoward effects from the salvarsan. We think, dose for dose, salvarsan is more potent than neosalvarsan, though the latter is absorbed better if given intramuscularly, and so we always administer the neosalvarsan to babies where it must be given intramuscularly. The small caliber of the needle used, besides making its accurate introduction easy, makes it practically impossible to inject the solution too rapidly.

The shoulder of the larger Leur and Record syringes interfered with the introduction of the needle and the injection of the solution. We devised, therefore, a syringe with the needle offset from the center so that the needle may be easily introduced into the vein parallel with it. An ordinary ¾-inch 24-gauge needle may be used; the necessary pressure in inserting it does not flatten the vein and thus prevents passing the needle through the posterior wall of the vein. Slight traction on the piston draws a few drops of blood into the barrel of the syringe and shows if the needle has entered the lumen of the vein. While the injection is being made the syringe lies flat upon the arm where it may be steadied. An ordinary soft rubber retention catheter wrapper twice around the arm and slightly tucked under will give satisfactory distention of the veins. The elasticity of the retention catheter is superior to the ordinary catheter or tourniquet and immediately unwraps itself when released, provided this part of the arm does not rest upon the table. In this manner the needle is prevented from being disturbed while releasing the tourniquet. The very small hole left by the needle soon heals without leaving any tell-tale marks or scars.

About 0.3 of salvarsan or 0.4 of neosalvarsan may thus be administered to ambulant patients every one or two weeks, until seven, eight, or more injections have been administered, and more when necessary to secure permanently negative tests of the blood and spinal fluid. Mercury and iodides should also be given as indicated. Only slight reactions

are produced by these small doses of salvarsan and neosalvarsan, and the patients do not object to prolonged courses of the remedies when so administered. A free supply of water should be drunk by the patient during the treatment, so as to dilute well the remedy during its elimination through the kidneys and thus prevent their irritation. The small doses frequently repeated effect a more satisfactory cure of syphilis and with less disturbance and danger than large doses administered at longer intervals. For less robust patients smaller doses should be administered and repeated about once a week until the desired result is obtained.

Atlanta National Bank Building.

Appetizing Chewing Gum.—The gum chicle, from which chewing gum is made, is the milky exudation of the *Achras sapota* L. As it exudes from the tree, it is milky white. If it is collected and boiled down without any admixture of foreign substances, the result is a pinkish white mass, but as the juice is collected in the tropics during the rainy season by workmen of a very low type, we have a very considerable mixture of foreign substances, including bark, leaves, insects which have been attracted by the flowing sap and become entangled in its sticky rivulet, and all the flotsam and jetsam of a tropical forest and of a camp of careless and ignorant laborers. A microscopical examination of the commercial gum even shows, as might be anticipated, bits of epithelial tissue, probably from the hands of the Mexican peons.—*American Druggist.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

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THE CURABILITY OF CANCER.

THE medical mind is far too pessimistic regarding the therapeutics of malignant disease. Ask one hundred physicians if cancer is curable and ninety-nine, if not all, will answer that it is not, except by early and radical operation, and at least fifty will express themselves as somewhat sceptical of any permanent relief to be obtained even by operation save in rare and truly exceptional cases. Yet these same men read constantly, if they read medical literature at all, of positive and lasting cures following the employment of Coley's fluid, of fulguration, of radium, the *x*-rays, the metallic ferments, the pancreatic enzymes, thyroid extract. But these reports make no impression on them; the cases are isolated, the results are not always good; the tentative employment of any one method is seldom continued long enough to be convincing even to the experimenter; the reader is interested for the time, but his subconscious verdict is "spontaneous cure," and the report is forgotten. What is needed to break through this wall of incredulity and pessimism is the presentation of a large number of cases successfully treated by one method—and not a single report, but many reports by many observers.

In a paper on "Radium in Malignant Disease," read by Abbe of this city at one of the sectional meetings of the recent International Medical Congress (*The Lancet*, August 23, 1913) some cures of a most arresting character were related which can be interpreted in no other way than as proving that cancer can sometimes be cured by the gamma radium rays. A papilloma is not malignant in the sense of a carcinoma or sarcoma, but it is cousin german to cancer, at least in its obstinate tendency to recur after removal. On growths of this character, in Abbe's experience, radium acts with the surety and definiteness of a specific. He says: "Obstinate and seemingly unapproachable warts on every part of the body, tongue, palate, buccal lining, eyelids, soles of the feet, underneath finger-nails, and elsewhere, have infallibly disappeared after one radium application and have left a normal bed. Clear proof of this extraordinary retrograde is more brilliantly shown in vocal-cord papillomata. No matter how extensive the growth is which fills the larynx, or how many years it has existed, or what former treatment had been given, it disappears before the gamma radiation." In one reported case the growth had existed forty-seven years, during which time it had been extirpated not less than twice each year; in another there had been many operations, the last one by splitting the larynx, excising the mass from both cords, and cauterizing the surface; and one even more striking case is cited. Coming nearer to pure cancer, Abbe avers that radium will infallibly cure epithelioma of the skin, and he bases his assertion not only upon his own experience but upon that of Danysz and Danlos and of many since their early experiments. In the case of a fully developed carcinoma, unless very superficial, Abbe urges operative removal with the subsequent application of radium to the bed of the disease. He does not claim that all or even most cases of the worst types of cancer of the breast and uterus in women, or of the tongue, stomach, and rectum in man can be cured by radium, yet in many instances temporary relief was afforded, and in some an apparent cure was obtained. The destructive types of sarcoma illustrate in a remarkable way the curative action of radium. Abbe reports a number of such cases, sarcomata of the eyelid, of the scalp, and of bone, absolutely and permanently cured by the gamma rays.

An experience such as Abbe has had in the past ten years—250 epitheliomas of all parts; 180 carcinomas of the tongue, throat, esophagus, rectum, uterus, breast, etc.; 50 sarcomas of the skin, parotid, bones, etc., with numerous failures, but with an ever greater proportion of successes as knowledge of how to avoid errors in the application of radium increased—should compel attention. This is only one method of treatment; the use of Coley's fluid and other measures have been followed by a disappearance of malignant neoplasms with sufficient frequency to invalidate the objection of pure coincidence. A specific cure for cancer has not yet been found—perhaps it never will be, but to say that cancer is never cured except by the knife is to assert what is disproved by the experience, not of one man but of hundreds. The idea of the utter hopelessness of malignant disease is so ingrained in the medical consciousness that it tends to kill incentive and to discourage the search for curative measures. The growth of a more hopeful sentiment would inspirit the workers in cancer research and would have a by no means to be despised influence for good on the minds of the sufferers from this frightful disease. The active work of a radium institute in each of the larger cities of the country, and the publication of the annual reports of all of them in one volume would, by the mass of testimony thus presented, go far to convince the world that cancer is not always and absolutely incurable.

COLLOIDAL NITROGEN AND THE DIABETES PROBLEM.

IN spite of the important advances that have been made in the study of diabetes, the knowledge of the underlying factors in this disease is to-day more involved than ever. The fact that seems to stand out most clearly from the mass of available clinical and pathological data is the recognition that dia-

betes is not a homogeneous clinical entity, but is a manifestation in which the pancreas, suprarenal capsules, pituitary body, liver, and other organs may be at fault either singly or in various combinations. Accompanying or resulting from this disturbance of one or more internal secretions there is a faulty metabolism of sugar, fat, and protein, with an accumulation in the blood of toxic bodies, and the resulting train of symptoms indicating cachexia and intoxication. The investigation of the chemical problems in diabetes has passed through three stages. At first the sole interest centered upon the excretion of sugar. Next came a realization of the importance of acetone and allied bodies in the production of the dangerous symptoms of diabetes. To-day the third stage has been reached. The focus of clinical interest is the relation of protein and of its decomposition products to the diabetic syndrome.

In 1911 Hugo Pribram showed that the non-dialyzable constituents of the urine are, in addition to their antigenic properties, markedly toxic. He demonstrated also that these colloidal nitrogenous substances are excreted in diminished amount in some cases of nephritis and assumed that they represent protein decomposition products whose retention is closely connected with the evolution of uremia. A litttle later Pribram and Julius Löwy, who are both assistants in the medical clinic of von Jaksch in Prague, called attention to the fact that the increase in colloidal nitrogen in the urine (which nitrogen is differentiated from the other form by being precipitated by lead salts) is not only characteristic of carcinoma, but is also present in numerous disturbances of nutrition associated with a disintegration of circulating or of tissue protein. In fact they found that in certain cases the increased excretion of colloidal nitrogen is even greater than in cases of carcinoma. The increase was particularly high in three cases of diabetes. Of eminent importance was the fact next discovered, namely, that in the course of a case of diabetes, corresponding to the improvement or deterioration of the patient's condition, there are variations in the content of colloidal nitrogen in the urine. Upon these facts Pribram and Löwy erected a theory as to the significance of this urinary component in the pathogenesis and course of diabetes. They record their results in the *Zeitschrift für klinische Medizin*, Vol. 77, Nos. 5 and 6.

A series of 200 determinations of the colloidal nitrogen in cases of diabetes enabled these observers to reach the conclusion that there is a substantial difference between the severe cases of this disease, on the one hand, and the moderately severe and mild cases, on the other. The amount of colloidal nitrogen and the percentage of the latter when compared to the total nitrogen, are relatively high in the moderately severe cases, but in the severe cases they are lower. The ratio of the urinary sugar to the colloidal nitrogen increases *pari passu* with the severity of the case, but on the appearance of coma this ratio diminishes. In diabetes there is a greater excretion of colloidal nitrogen in the urine than in the condition of health. This fact should be considered in connection with the other fact, already mentioned, that the colloidal nitrogen in the urine is also increased in other diseases in which there is a disturbance in the protein metabolism. The conclusion is drawn that probably in diabetes, in addition to the impairment in the catabolism of sugar there is also a disturbance in the catabolism of protein, so that there appear in the urine less of the end-products of nitrogen metabolism, which end-products are nitrogenous substances of high molecular weight. Indeed, it is regarded as not improbable that the disturbance in protein metabolism is the primary factor in diabetes. In some of the cases studied at times when there was no glycosuria and hence when there was a condition of carbohydrate metabolism approaching the normal there was, nevertheless, evidence of disturbed protein metabolism, which evidence consisted in the persistence of the increased urinary output of colloidal nitrogen.

The source of the disturbed nitrogenous metabolism in diabetes is supposed to reside most probably in an impairment of pancreatic function, particularly with reference to proteolysis. Such metabolic derangement must be invoked to explain the cases of gastrointestinal diabetes and the successful results of ferment therapy. The practical points in the treatment of diabetes which may be derived from the theory of Pribram and Löwy are the following: In mild cases of diabetes with a predominating perturbation in the carbohydrate metabolism, the best results are obtained with a diet poor in carbohydrates. In severe cases of this disease, with a pronounced disturbance of the protein metabolism, as revealed by a diminished colloidal nitrogen output and therefore a colloidal nitrogen retention, the proper diet is one poor in proteins, which diet may be obtained by the intercalation of hunger days and vegetable days, and finally by the administration of carbohydrates, such as oatmeal.

The conception that the toxic factors in diabetes consist of the high molecular protein derivatives which are retained in the organism readily explains the origin of diabetic coma, which in this respect presents a close analogy to uremic coma and coma carcinomatosum. Pribram and Löwy are inclined to attribute diabetic coma to an autotoxicosis with protein disintegration products, all the more in view of the fact that French investigators have recently loudly called into question the theory that diabetic coma is the result of an acidosis and an acetonemia.

An important prognostic index is perceived in the estimation of the colloidal nitrogen in the urine of diabetics. In the moderately severe cases the amount of this substance is parallel to the severity of the case. In the severe cases the colloidal nitrogen sinks, probably on account of a retention. Improvement in mild cases is accompanied by a diminution in the excretion of colloidal nitrogen, while an improvement in the severe cases is accompanied by an increase in the excretion of this substance. By means of this estimation of the urinary colloidal nitrogen one can accordingly gauge the value of the therapy employed in any particular case of diabetes. An increase in the ratio of the amount of urinary sugar to the amount of urinary colloidal nitrogen augurs a bad prognosis.

The Control of Trachoma in Public Schools.

An interesting account of the measures adopted for the control of trachoma in the public schools of Cebu, P. I., is given by Dr. Louis Schwartz of the U. S. Public Health Service, in Public Health Reports for September 12, 1913. Cebu is a city of 60,000 inhabitants with a public school attendance of about 2,500. At the suggestion of the author an examination of all the public-school children was made by himself and the district health officer, with the result that 318 cases of trachoma were found. Most of the cases were of the chronic benign type, the granulations being confined chiefly to the retrotarsal fold of the upper lid. Incipient pannus was frequently observed even in these mild cases. Only ten cases of acute trachoma were found in the whole series. More pupils in the schools in the poorer districts were infected with trachoma than in those in the better residential quarters of the city. With the aid of the district health officer Dr. Schwartz undertook to treat these children in the out-patient department of the local hospital, one hour on each of two mornings in the week being devoted to that purpose. The treatment varied according to the character of the case. In those of moderate severity, the conjunctiva being anesthetized, the lid was everted and the granulations were curetted away by the sharp edge of a lance-shaped crystal of copper sulphate. A boric-acid wash was freely used and ice was applied to the eyes continuously for four hours after the treatment. This treatment was repeated once or twice, if necessary, at intervals of two weeks. Between operations a 50 per cent. solution of glycerite of boroglycerin was applied to the lids twice a week. Those cases in which the granulations were comparatively few and more or less discrete were treated only by the application twice a week of a 50 per cent. glycerite of boroglycerin or of a 20 per cent. solution of copper sulphate in glycerin. The acute cases were first treated by the instillation of atropin to relieve the photophobia and by instillations of a 20 per cent. solution of argyrol until the acute symptoms subsided. Then the copper sulphate crystal was used as described above. In five months after this course of treatment was begun thirty cases had been discharged as cured and all the others showed marked signs of improvement. Dr. Schwartz says his experience demonstrates that trachoma in the schools can be controlled by measures easily carried out, and he thinks the procedures adopted for its control in Cebu are applicable to towns of similar size in the continental United States.

Ozone for Public Buildings.

Now that the question of ventilation is being discussed in the lay and medical press as never before, it is eminently fitting that all methods of ventilation should be carefully considered. It is notorious that public buildings, theatres, music halls, office buildings, subways, and so on are not, as a rule, ventilated in a satisfactory manner. Of course, overheating of such places is too frequent by far. Also there seems to exist a strong prejudice against opening windows if the temperature be at all low in spite of the active fresh-air propaganda, the consequence being that the majority of public buildings and the like are extremely stuffy. In this country open fires being lacking, there are really few if any means of natural ventilation. Moreover, natural ventilation is seldom sufficient to render the air of a large building free from any suggestion of stuffiness and the provision of artificial or forced system of atmospheric interchange is a costly undertaking. What, then, is the alternative? A considerable degree of success has been obtained by the introduction of a system whereby currents of ozone are dispersed throughout the air of a closed space. One of the London tube railways is making use of this method with a good deal of success, and it is suggested that it might be tried in public buildings. By way of experiment it might not be a bad idea for those responsible for the management of the New York subway to give this method a trial. The air of the subway, although not so far down in the bowels of the earth as most of the London tubes, is, to speak mildly, not altogether fresh. The Hudson tunnels, also, so far as fresh air is concerned, are susceptible of improvement and would provide a suitable field for experiment in this direction. It may be said that ozone currents, while not directly assisting in the removal of so-called foul air, impart freshness to the atmosphere and their employment is in line with the latest views on ventilation.

News of the Week.

Asiatic Cholera in Eastern Europe.—An official statement made at St. Petersburg on September 13 states that the districts of Yekaterinoslav, Taurida, Tchernigov, and Kutais, the Kuban and Batum territories, and the prefectures of Sebastopol and Kertch are infected with Asiatic cholera and that the disease is spreading dangerously in Russia. Cholera is also reported to be present in Constantinople, Budapest, and (one case) in Marienbad.

Bubonic Plague on the Pacific Coast.—It is reported that a man died of bubonic plague at Martinez, Cal., on September 13, and that following telegraphic communications with the Pacific Coast Surgeon-General Rupert Blue has urged all citizens of California to cooperate in a campaign of extermination against gophers and ground squirrels. Surgeon-General Blue made the statement that the plague is not being brought in from other countries, but is in this country and has been for some time.

Rail Accidents Increase in New York.—The Public Service Commission reports that the number of accidents on the railroads and street railways of the city increased in July by 334 over the number for July, 1912. The number of persons killed was 29, exactly the same as for July of last year. There were 197 persons seriously injured. Altogether there were 6,884 accidents, including 156 collisions between cars, 310 persons struck by cars, and 1,152 vehicles struck by cars, and 320 derailments.

New York's Hospital Death Rate Increases.—The mortality figures of the Health Department for the week ending September 13 show a very marked increase in the number of deaths in medical institutions compared with a similar period of last year, but a corresponding decrease in the number of deaths in the tenements. This is ascribed to the fact that the benefits of hospital treatment are being appreciated and a greater number than formerly prefer to take advantage of the facilities offered by the hospitals. The total death rate for the week was 12.17 as against 12.39 for the corresponding week of 1912. Bright's disease and heart disease

showed an increase, while there was both an actual and a relative falling off in the number of deaths from pulmonary tuberculosis.

Increase in Cancer Mortality.—In an address before the American Public Health Association at its recent meeting at Colorado Springs, Dr. F. L. Hoffman of Newark presented statistics showing that the mortality from cancer had increased from 67.9 per 100,000 population for the average of the five years ending 1905 to 74.3 in 1911.

Typhoid Fever in Oklahoma.—The State Commissioner of Health declared that contrary to the general belief typhoid fever is less prevalent this year than in former years. In the month of July, 1911, there were 525 cases and 83 deaths reported, in July, 1912, 308 cases and 44 deaths, and in the month of July, 1913, 363 cases and 41 deaths. The Health Commissioner believes that only about 50 per cent. of the cases reported as typhoid fever are really typhoid fever. The State is furnishing antityphoid vaccine free of cost to those unable to pay for it.

Infant Welfare Work in Boston.—The Director of the Boston Milk and Baby Hygiene Association reports that the month of August establishes a new high record for the care of infants in the tenement districts. The number of babies helped was 1,669, which was 30 per cent. more than in August, 1912. An average of ten new patients was treated each day.

Hookworm in Virginia.—A series of investigations of the rural schools of Virginia has just been completed under the direction of the State Health Department. The results show that the average country child is less healthy than his city brother. The investigations show that 23 per cent. of the school children in rural districts are infected with hookworm. Negro children have it to a less degree, about 19 per cent. being infected. This is attributed to the fact that the negroes through long years of suffering from this affliction have become slightly immune. Hookworm is responsible for a large percentage of the defectives in the schools of Virginia.

State Hospitals for Insane Overcrowded.—An attempt was recently made by Superintendent Riley of the Prison Department of New York State Hospitals to relieve the overcrowded condition of the Matteawan Hospital by requesting the Hospital Commission to distribute fifty of the inmates of that institution among other State hospitals. The Commission has informed him that it is impossible to grant the request as all of the State hospitals are overcrowded.

The Medical Society of the County of New York has just sent out through its special committee on new membership a circular letter urging the members to make a personal effort to interest physicians who are eligible to membership in the society to the advantages to be derived from connection with this organization. The membership of the society at present numbers 2,515, but when the Medical Society of the County of the Bronx comes into existence on January 1, 1914, the membership of the society will be depleted by 176 residents of Bronx County. It is stated that there are in New York County 2,724 physicians who are not members of the County Society, of whom 1,500 are eligible.

Stuttering Treated in the Public Schools.—The Board of Superintendents of the Board of Education of New York has had a circular printed containing instructions to parents for the cure of the stuttering habit in children. The circular announces that a speech improvement class has been formed for the purpose of systematically training pupils in correct natural speech and is in charge of a teacher who has made a thorough study of the principles of speech. Parents are urged to place children who stutter in this class and to visit the class themselves so that they may be able to cooperate with the teacher and to supplement his work when the child is at home. The announcement states that they are proving day by day in the class that stuttering can be cured.

Sale of Patent Medicines by Rural Shopkeepers.—The physicians in rural districts of Nebraska have appealed to the State Health Department against the ordinary country merchant who, without knowledge of pharmacy or medicine, is selling proprietary medicines. These merchants frequently attempt to diagnose diseases and the attorney-general has taken the matter up in the belief that in thus doing the merchants make themselves liable to prosecution for practising medicine without a license.

Improvements at Otisville Sanatorium.—A new shack for children, which will accommodate 24, has recently been opened at this institution, which cares for tuberculous patients from New York City. Within a few weeks two additional pavilions for women will be ready for occupancy and will furnish quarters for about 75. This will bring the capacity of the institution up to 600. The corporate stock budget recently passed provides funds for the construction of a Staff House and a Nurses' Home, and a $75,000 building fund has been made available, part of which will be used in the near future in the construction of new pavilions.

A Reunion for Dartmouth Medical Graduates.—There will be a second general reunion of Dartmouth medical graduates from October 4 to 7 at Hanover, Mass. The former reunion proved to be one of the largest gatherings of medical men that has ever taken place in the State and the present meeting promises a very attractive program.

Iowa Health Congress.—A health congress, which is to include all those interested in public health questions and to cover the entire range of preventive science, is to be held in Des Moines in October.

American Journal of Tropical Diseases and Preventive Medicine.—With this title appeared in July of this year a new monthly journal under the editorial management of Dr. Creighton Wellman. The journal is the organ of the American Society of Tropical Medicine and is published in New Orleans. The first two numbers give promise of a journal of much interest and value, for of late years the subject of tropical medicine has assumed a position of great practical importance in this country.

The Lane Lectures.—Sir Edward A. Schäfer of the University of Edinburgh delivered the fourteenth course of Lane Lectures at the Leland Stanford, Jr., University in San Francisco during the first week of this month. The subject of his lectures was the internal secretions.

A New Hospital Journal.—The *Modern Hospital* is the title of a new monthly journal, the first number of which is dated September, 1913. As its name implies, it is devoted to hospital construction and management and therefore cannot fail to be of interest to the physician. The first number is a

very handsome folio of 68 pages, containing original communications, editorial articles, correspondence, book reviews, notes on nursing, and miscellany.

United States Civil Service Examination for Chief Bacteriologist (Male).—The United States Civil Service Commission announces an open competitive examination for chief bacteriologist for men only. From the eligible list resulting from this examination certification will be made to fill a vacancy in this position in the Bacteriological Laboratory of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at a salary of $3,500 a year, and other vacancies as they may occur requiring similar qualifications. Competitors will not be assembled for examination but will be rated on their general education and scientific training, practical experience, and fitness and their publications along bacteriological or pathological lines. Applicants must have reached their thirtieth, but not their fiftieth year. Those who desire to take the examination should apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C. Applications must be properly executed and filed with the Commission at Washington with the material required prior to the hour of closing business on October 6, 1913.

Personals.—Dr. S. T. Orten, who has been physician at the State Hospital for the Insane at Worcester, Mass., has accepted a position at the Hospital for the Insane at Philadelphia.

Dr. Benjamin Newhouse has resigned his position as resident physician at the Emergency Hospital at Washington, D. C., and Dr. George D. Boyce will succeed him.

Dr. William Jepson has resigned as head of the department of surgery in the Iowa University.

Dr. Truman W. Brophy of Chicago has recently been decorated by the Minister of Public Instruction of Paris, France, for his work in surgery of the mouth and allied parts.

Dr. Herman Hellenstein has been renominated for election as coroner in the Borough of Manhattan. Dr. Hellenstein has filled this office most satisfactorily since January, 1910.

Post-Graduate Course at Düsseldorf.—A clinical course in surgery and gynecology will be given at the Düsseldorfer Akademie für practische Mèdizin, October 13 to 18 inclusive, under the direction of Professors Witzel and Pankow, during which many of the foremost surgeons of Europe and England will operate, each in his own specialty. The week following the operations a clinic will be held at which the results of the operations will be demonstrated. There will be special demonstration of cases treated by radium, mesothorium, fulguration, etc.

Obituary Notes.—Dr. Richard Van Santvoord of New York City died at the Presbyterian Hospital after an operation on September 10, at the age of 60 years. He was graduated from Bellevue Hospital Medical College in 1875, and was a member of the American Medical Association, the American Academy of Medicine, the Pathological Society, the New York Academy of Medicine, and the Harvey Society. He was also visiting physician to the Harlem Hospital.

Dr. Benjamin F. Miller died at his home in Cincinnati on August 23 at the age of 83 years. Dr. Miller was graduated from the Medical College of Ohio in 1859 and served during the Civil War as surgeon of the Second Ohio Volunteer Infantry. For a number of years he held the position of assistant professor of anatomy in the Ohio-Miami Medical College.

Dr. Charles H. Reinsberg of New York City, a graduate of the College of Physicians and Surgeons of Columbia University in the class of 1900, died August 27, aged 40 years.

Dr. Smith Rumble of Barnesville, Ga., a graduate of the Atlanta Medical College in 1887, died after a lingering illness on August 20, aged 54 years.

Dr. Edward Worcester of Waltham, Mass., a graduate of the New York University Medical College in 1851, died on September 2. He was believed to be the oldest homeopathic physician in this country and had lived in Waltham for fifty-three years.

Dr. Joseph Benson Marvin of Louisville, Ky., together with his wife and daughter, met death in the wreck on the Hartford and New Haven Railroad on September 2. He was graduated from the Medical Department of the Central University of Kentucky, Louisville, in 1875, was president of the Norton Infirmary of Louisville, and professor of neurology in the University of Louisville. He was 50 years of age.

Dr. E. H. Gordon of Cairo, Ill., a graduate of the Homeopathic Medical College of Missouri, St. Louis, in 1897, died September 1, aged 40 years.

Dr. Araba Read Green of Troy, N. Y., a graduate of the New York Homeopathic College in 1880, a member of the American Institute of Homeopathy and pediatrist to the Albany Homeopathic Hospital, died on September 2, aged 59 years.

Dr. George Y. Pierce of Atlanta, Ga., a graduate of the Southern Medical College, Atlanta, in 1890, died after an illness of eighteen months, aged 49 years.

Correspondence.

THE SEVENTEENTH INTERNATIONAL MEDICAL CONGRESS.

FAILURE OF STATE HOSPITALS—EUGENIC LEGISLATION—BRAIN TUMORS—MEDICAL HISTORY—DISCOVERY OF THE TEMPLE, HOSPITAL AND MEDICAL SCHOOL AT COS—PUBLIC HEALTH—LORD MORLEY ON MEDICAL CONTRIBUTIONS TO LAW-MAKING—NOTIFICATION OF VENEREAL DISEASES—TRAVELING HEALTH MUSEUMS—STATE MEDICAL INSURANCE—THE DOCTOR'S REALIGNMENT—SUFFRAGETTES.

The recent International Medical Congress was by far the best and most important meeting from a social and public point of view that it has ever held. Incidentally it proved the Englishman to be still a great administrator, for all the scientific work and the public functions went off admirably.

Perhaps the one great, specific, important thing which the Congress did was to show the public that medicine is no longer an empirical art, but a definite science; that we are no longer guessing, but know the nature and history of most diseases, the indications, methods, and results of most surgical operations.

The technical work of the Congress has already been fully reported. I can only say that it was good and helpful, but that no epoch-making things were presented.

In psychiatry Sir James Crichton-Browne an-

nounced the failure of the asylum or state hospital system of caring for the insane, in the United Kingdom, at least. He said:

"The segregation in asylums of a growing number of the insane, during the period of sexual activity, ought to have diminished the hereditary predisposition to insanity. Other factors have been in operation to check its progress—the diminished consumption of alcohol and increased sobriety, the more scientific treatment of tuberculosis, the great diminution in puerperal sepsis, the abatement of syphilis, the decline in prevalence of influenza, the amelioration in after effects of measles—here were six indubitable causes of insanity, which took a primary or contributory part in the production of 47 per cent. of the male and 39.4 per cent. of the female admissions to our institutions for lunatics in this country. But all these causes had undergone a material restriction in their range of action; while the admissions to institutions for the insane showed no equivalent reduction. The accumulation of chronic lunatics rolls on apace. The general health prospect of the country is brightening all round, but over our lunatic asylums there is a settled gloom. Notwithstanding the vast sums expended on their construction, and notwithstanding improved administration and the assiduous labors of enlarged medical staffs, the rate of recovery in our asylums has fallen during the last fifty years."

There is an answer to or explanation of much of this, but I have not space here to go into it. It is, certainly, however, futile for a State to go on building expensive hospitals for the custody of the lunatic and do nothing more. It would be wiser to erect hospitals for the care of the nervous and unstable and to promote activity in behalf of mental hygiene and sane eugenics. For we have such excess of insane, not alone because of alcohol and lues and other physical diseases and poisons, but because the forces of science and philanthropy have been for fifty years working to preserve weak and unfit strains. One of the counteracting forces was presented by Dr. Adolf Meyer in his description of the Psychiatric Clinic at Baltimore. Incidentally, I would like to quote here an abstract from the important address on "Genetic Science" by Prof. W. Bateson regarding American eugenic legislation, a form of activity that is becoming popular. Prof Bateson said: that in the Mental Deficiency Bill before Parliament he recognized a serious beginning of reform. But he should be very unwilling to go much further than that. He heard with the greatest disquietude of the violent and extraordinary measures put forward in Pennsylvania and New Jersey—measures which threatened to forbid marriages that were not sanctioned by civic officials as fit and proper. To do anything of that kind was to tamper with the structure of society in a way for which there was no warranty whatever. Nothing yet ascertained in genetic science justified such a course. They knew nothing of the genetics of the artistic faculties, and he wondered how the arts would prosper in a community where any marriage that was not acceptable to the civic authority was prohibited.

The neurological section of the Congress was rich in technical contributions. A discussion on tumors of the brain and brain surgery held jointly with the surgical section, brought out some sharp debate on the technical procedure and on the too frequent futility of brain operations. One would gather that the neurological surgeon with increased skill has become haughty to the point of dogmatism regarding his technique and skill in diagnosis, and even willingness to operate. An occasional conservative view is helpful and it was brought out in this debate.

Medical History.—It is becoming apparent that the best medical writers and thinkers of our day and country are men who have studied the history of medicine and the development of the sciences. The organization of the Congress recognized the importance of the subject and for the first time we had a section on medical history. Its work, being largely non-technical, attracted a great deal of attention and full reports of the meetings appeared in the daily press.

A good deal of rubbish was presented, but on the whole the work was kept in hand by wise hands and some valuable and serious contributions were made. The study of medical history is not carried on very seriously in America; we have some amateurs, who play with it, and a few serious students. Among them is Dr. John Streeter of Boston, who succeeded with some difficulty in getting recognition of the United States, in the formal and permanent organization of the Section.

Discovery of the Temple and School of Hippocrates at Cos.—One of the especially interesting papers was that by Dr. Richard Caton "On the Temples, Hospital, and Medical School of Cos." This was the scene of the labors of Hippocrates, but all traces of the sanctuary had been lost for centuries. Prof. Rudolf Herzog of Tubingen began some years ago to investigate the site with most interesting results.

Dr. Caton described the temple precinct, which consists of three terraces arranged in a series of steps on the side of the mountain. The north side of the quadrangle contained many rooms on two or three floors, probably employed as consulting and waiting rooms and operating rooms, dispensary, library, and rooms for teaching purposes. Here Hippocrates and his pupils may have written the careful notes of cases which have come down to us. Here also, probably, Hippocrates kept the skeleton which he used and which he gave later to the Oracle at Delphi. About the center of the second terrace there stood a huge altar, reminding the visitor of that at Pergamon, though on a smaller scale. This spot is interesting as being the scene of the fourth Mime of the Alexandrian poet Herondas. On the south side of the naos, the floor contains a rectangular coffer or cyst composed of great slabs of marble, each a foot thick. Professor Herzog believes this to have been a treasure chamber. It is more likely to have been the lair or den of the sacred serpents, from which those reptiles emerged when fed by priests or patients with the "popana" or cake offerings. The temple was surrounded by a great stoa, the east and west arms of which were doubtless the abatons or sleeping-places for men and women respectively, where incubation was carried on; the sick spent the night on their couches hoping for illuminating visions from the god, for visits from the sacred serpents, and for miraculous healing. Higher up on the mountain were two springs. That termed Burinna, or the fountain of Hippocrates, is specially remarkable. A tunnel of Mycenean architecture leads to a curious stone-built subterranean chamber, shaped like a champagne bottle; an open central fountain and circular seats occupy most of the floor, and a curious aperture in the wall above is arranged probably for some ritual or re-

ligious ceremony. The Kokkino Nero or red water spring was and still is believed to be of great efficacy by the Coans.

Public Health.—I doubt if at any International Congress so much attention has been given to questions of public health and the economic problems associated with it as done in this meeting. Mr. John Burns, representing the Government, chose this subject for his address. The statistics which he gave showing the economic achievements of preventive medicine have probably been published in the American press.

In connection with this one cannot refrain from referring to Lord Morley's admission of the increasing importance of medical knowledge and opinion in political life and in the enactment of laws. He said: "The extension of medical influence in the political and social field in our country is one of the most striking signs of the times. Its power in the framing and administration of laws grows greater every day. You see it on every hand. It is the physician's influence, for instance, that has insisted on the notification of diseases, on the enactment of a whole code of housing Acts, shops Acts, and health Acts, and lastly, the Mental Deficiency Bill.

Lord Morley, at the same time, intimates that politics and law making are different things from prescribing and operating. When one recalls the trouble over the medical insurance law—and other things—I think he had in the back of his mind that medicine should approach statecraft carefully and ingenuously—not with paid lobbies, freak bills, and hopes of official reward.

Notification of "Social Diseases."—One phase of the public health question should interest the New York profession before which it has been acutely presented, viz.: the notification of "social diseases." At a joint meeting of two sections of the Congress, after a three hours' debate, the following resolutions were adopted:

"That, sensible of the ravages brought by syphilis in the health of the community, and deploring the inadequacy of existing facilities for checking its dissemination, the International Medical Congress calls upon the governments of all the countries here represented:

"(1) To institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does not already obtain.

"(2) To make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for."

It is to be hoped that our medical organizations will follow the policy thus outlined.

Traveling Health Museums.—A rather novel development of medical activity is the Traveling Medical Museum. It is, I believe, particularly an American product, but it received attention at a conference promoted by the International Association of Medical Museums. The point was made that medical museums should not only contain pathological and technical displays, but should be extended to the fields of hygiene and preventive medicine. This has been done in connection with tuberculosis. It was planned to make traveling museums cover the subjects of all preventable disease and hygienic education. The conference approved of the organization of an International Association of Medical Museums.

State Medical Insurance.—The scheme for insuring the poor and indigent against sickness is being worked out and ought to be watched by the medical profession in America. One very high authority assured me that it will tend to make two very distinct groups of doctors—the inferiors who go on the "panel," *i.e.* are willing to work for the government at club rates, and a superior group—*i.e.* men who decline to become government officials because of greater personal or economic independence. This separation into classes of club doctors and independents will not be a good thing for the solidarity or progress of the profession. However, this is perhaps mainly a city view. Meanwhile the law has, if anything, increased the work of the general practitioner in the country. Similar laws exist in Germany, where the economic position of the doctor is very unsatisfactory—unless he has a rich wife. Whatever the result there will certainly have to be some realignments. Dr. Harvey Cushing, in his address, which received enthusiastic comment and approval, emphasized this fact. With our greater and more definite knowledge, our increased technical resources, our changing economic conditions, the physician is to be something different. He will be partly a government officer, a society official, practising medicine and surgery, administering health boards, working in a laboratory, everywhere supplied by the government, or his hospital, or college, or by his own funds, with every resource for diagnosis, operation, and treatment. There will be dull and unskilled doctors, but none who are uneducated, untrained, or unequipped.

Suffragettes.—I met some suffragettes—non-militants. They are confident that their cause is gaining. Mr. Asquith will now listen to them—not to the militants. The militant movement is distinctly a failure. It annoys and antagonizes without persuading or converting. It really is not a noticeable factor at all in daily life in London or elsewhere, except that it makes admission to some of the galleries and museums difficult or impossible.

CHAS. L. DANA.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

INSURANCE ACT AT WORK—PROPRIETARY MEDICINES—PUBLIC SCHOOLS MEDICAL SERVICE—CONFERENCES—PLAGUE IN RELATION TO TARBAGANS AND RATS—DENTAL REPORT—MALINGERING—"KAT"—WILLS AND CHARITIES—OBITUARY.

LONDON, August 29, 1913.

MR. MCNAMARA, Secretary to the Amiralty, has undertaken the defense of the Insurance Act in the *Contemporary Review* for September, of which early copies are to be had today. He boasts that 13,000,000 persons are now members of approved societies and 20,000 have already received treatment for consumption, while week by week 500,000 are receiving medical attendance, 270,000 drawing sick pay, and 18,000 maternity benefit. Already since benefit began, he said, two and one-half millions of money have been spent on medical attendance and another two and one-half millions distributed in sick pay. "Can the most ardent friend of the act," he asks, "be charged with exaggeration that he is gratified beyond expectation?" As to the amending act he regards "adjustments" as only to be expected in so complex a piece of State machinery and thinks it likely that a series of amending acts will be required.

To a complaint of an "Odd Fellows" club addressed to the Chancellor to the effect that the doc-

tors now demand the government rate for their aged and non-insured members, Mr. Lloyd-George has replied that there is nothing in the act to prevent societies arranging with doctors to attend members over 65 on a lower scale than for insured persons. It was not anticipated that a practitioner who had treated them in the past would require a higher fee because the act gave more for insured persons, but on the contrary that would place him in a position to continue.

At a meeting of governors of the Cumberland Infirmary on Wednesday it was stated that from the past six months' experience it was seen that the Insurance Act would cost the institution £2,000 a year. Under the act people found they had ailments which could be treated without pay and there was an enormous increase in the number of patients. Chancellor Prescott declared that what with approved societies, insurance commissioners and committees and Parliament there was such confusion they hardly knew what to be doing.

Employers who refused to stamp cards or collect their men's wages have been prosecuted, although they tendered the amount of their own contributions. In some cases fines of 1s. have been levied, but the costs amount to more. In one case goods of the protestors were seized in order to put them up to auction, but no auctioneer in the town would act. The goods were, therefore, removed to a distant town, but the owner and a neighbor went there and bought them in—no one else bidding.

The Insurance Commissioners having been asked whether proprietary medicines should be prescribed by panel doctors or supplied by panel chemists, have replied dividing them into two groups, (*a*) when the composition is kept secret. Such should not be prescribed for or supplied to insured persons; (*b*) when the composition is published without reserve, though made up in a particular form or called by a special name. These may be prescribed or supplied. The commissioners assume that they will not be ordered unless the doctor regards them as having some advantage over pharmacopecal or other non-proprietary preparations of similar composition; and in prescribing he will no doubt bear in mind that some drugs appear under different titles in the British Pharmacopeia.

Regulations have been issued under which grants may be made for the medical inspection and treatment of children in the elementary public schools. They will be assessed according to the work done and payments made by the local education authorities. When the school medical service is adequate and efficient, half the expenditure will be allowed, but when otherwise a lower grant or none may be given according to the scope, character, and working ascertained by the Board of Education as to the medical inspection of groups of children, the following up of cases of defects found thereby, securing treatment as required, co-ordinating the medical service with the Public Health Service in the area and rendering the school medical service an integral part of the system of elementary education in that area.

We are still in the conference season, which can hardly be said to close until after the meeting of the British Association for the Advancement of Science due to open on the 10th proximo. In speaking of it we commonly use the first word or the two first of its portentiously long title, or as often initials, as every one understands that the "British" or the "B. A." can only apply to the society which professes to embrace all science. In some of the sections we naturally look for things which, more or less, concern medicine, but always from the strictly scientific aspect. Chemistry and physiology, for example, often furnish us with food for study; the latter this year is to have a sub-section, viz.: psychology, and that in turn must claim a good deal from our profession. There is also to be a joint discussion with the Section of Agriculture on the subject of fermentation.

Dr. Wu Lien Teh, Chinese delegate to the International Medical Congress, gave the Tropical Section some details of his work in regard to the Manchurian Plague Prevention Service of which he was director as well as president of the 1911 Plague Conference. At this there was a good deal of discussion about the connection supposed for a long time to exist between the tarbagan or marmot and epidemic, pneumonic plague. There was little or no evidence of such connection, but the popular notion was widespread and so little was known about the tarbagan that the doctor organized and carried out an expedition into the country where it is hunted. He gave very full information of this work, which led to the conclusion that although the animal may sometimes suffer from plague, the disease does not spread as an epizootic and is not nearly so important in relation to the plague in man as the more or less domestic rat which comes into contact with man. A second conclusion is that the bubonic and sometimes the pneumonic form prevalent in the Russian Ural district long before the Manchurian epidemic of 1911 may have been responsible for it. No case has occurred in Manchuria since that epidemic, either in man or animal, and the only proof that the tarbagan may be affected with the disease is the one examined by Zabolotny. Dr. Wu Lien Teh expressed regret some medical men were so obsessed by the erroneous idea of the infectivity of tarbagans that as late as last March he had difficulty in obtaining them for research in the laboratory at Harbin.

Mr. F. St. J. Steadman, dental surgeon to Queen Mary's Hospital for Children, in a supplement to the report of the asylum's board (mentioned in my last) states that 2,002 children were examined between July, 1911, and February, 1913. There were 1,884 extractions of temporary teeth, 688 of permanent, and 203 stoppings. When decay infected the pulp the tooth and its antagonist were both extracted. He replied to objections which have been raised to this treatment that as to any effect on the growth of the maxilla or, later on, overcrowding, that "nothing of the kind happens." The teeth are not overcrowded and no irregularity in their arrangement follows. The "sooner this old bugbear dies the better for the health of the children."

"Kat" is the name of a drug used by the natives of Harrar, in Abyssinia, and apparently only in that district. The British Consul there, Mr. Dodds, in his report for 1912, says it consists of the succulent leaves of a small tree somewhat like a coffee bush. True Abyssinians, he says, do not use it, but only the male members of Mohammedan population. It seems to act as a temporary stimulant, leaving the consumer in a listless condition, without appetite and unable to sleep. The faces of constant "kat-eaters" lack the intelligence of the Northern African natives. Their lack of intelligence, poor physique and indolence are obvious, and, Mr. Dodds thinks, may be due to consumption of kat for generations of the race.

A Departmental Committee has been appointed to inquire into and report upon the alleged malingering under the Insurance Act and any special circumstances which may cause it.

The will of the late Sir J. Hutchinson has been proved at £92,209, the net personalty being £39,226. In it he expressed a desire to be buried in the same grave as his late wife. He left his three museums and their contents to trustees to dispose of at their absolute discretion, but his desire was without imposing any trust that they should dispose of them in accordance with wishes he had expressed to them in his lifetime.

The will of Sir W. Dunn, M. P., has been proved at £750,000. After providing for his family and dependents a long list of charities are to receive the remainder in the various sums stated.

Mr. J. A. Nunneley, consulting ophthalmic surgeon to the Leeds Infirmary which he has served for thirty years as ophthalmic and aural surgeon, has died at Bath. He qualified at the Royal College of Surgeons in 1863 and took M.B., London, the next year. He was also senior on the staff of the Leeds Eye and Ear Infirmary. At one period he lectured on Anatomy at the Leeds Medical School and on his specialty at the Yorkshire College and the Victoria University.

Dr. James F. Allen of Pietermaritzburg, where he had long practised and had held many important positions, has died there. He had been medical officer of the corporation, consulting medical officer of the government railways, surgeon of Grey's Hospital, etc. He was president of the South African Medical Congress held in 1895. In 1901 he was the Natal delegate to the British Congress on Tuberculosis and contributed an account of "Natural Immunity of Natal" to the disease.

The death has occurred at sea of Dr. Tempest Anderson, consulting ophthalmic surgeon of York County Hospital and president of the Yorkshire Philosophical Society. He had a high scientific reputation, was president of the Museums Association, member of Council and ex-vice-president of the British Association, and had filled many other honorary offices, both scientific and professional. He was M.D. London and B.Sc., also D.Sc. (London) of Leeds. He contributed on ophthalmic subjects to the Royal Society and to the *Lancet*. He was an authority on earthquakes and volcanoes, and after the great eruption in the West Indies seven years ago went out for the Royal Society to report on it. He was Tindall lecturer on volcanoes at the Royal Institution. He was a traveler of great experience, having visited all civilized countries and some others and had climbed most accessible mountains. Naturally he added photography to his accomplishments and obtained magnificent views of little known places. He was real Yorkshire from an old county family and born in York in 1846.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 4, 1913.

1. The Mode of Transmission of Poliomyelitis. M. J. Rosenau.
2. Contributions to the Neurology of the Child. III. Further Observations Upon Nervous and Mental Sequelæ of Encephalitis in Children. W. P. Lucas and E. H. Southard.
3. Cesarean Section; Its Indication. With Report of Twenty Cases. F. L. Good.
4. The Treatment of Diabetes Mellitus. E. P. Joslin.
5. The Complement Fixation Test in Diagnosis. J. H. Wright.

1. The Transmission of Poliomyelitis.—M. J. Rosenau reviews the evidence, both experimental and clinical, that has accumulated with reference to this subject. In the present state of knowledge a definite answer cannot be made to the question whether poliomyelitis is contagious, insect-borne, dust-borne, contracted from lower animals, an alimentary infection, or, like typhoid fever, spread by several or all of these methods of conveyance. Meanwhile the public should be given the benefit of the doubt and the infection fought along all probable lines.

2. Sequelæ of Encephalitis in Children.—W. P. Lucas and E. E. Southard have already shown that of the children suffering from encephalitis that have come under their observation, many showed subsequent to the attack motor or mental sequelæ. A later study of the same cases, and a study of additional cases have confirmed the original findings. Ten per cent. of the cases developed epilepsy. Twenty-eight per cent. of the surviving children showed marked mental defects. Fifteen per cent. showed less marked residual effects, as excessive nervousness in a much shorter reaction period to fatigue. Seven per cent. still show motor sequelæ (strabismus). Twenty-one per cent. of the children show no signs of their previous attack and are apparently normal in every way.

5. The Complement Fixation Test.—J. H. Wright points out that although the complement fixation test theoretically is adaptable to a wide application in the diagnosis of infections with various bacteria, it has proven of practical value only in the last mentioned disease and in infections with the glanders bacillus, with the gonococcus and the *Treponema pallidum*. This is due in part to the great technical difficulties of carrying out the test, and in part to the fact that easier methods of diagnosis in other bacterial infectious diseases are available. In the diagnosis of glanders it has proved of great value. The data regarding this test in gonorrhea are as follows: A strongly positive reaction means an active infection with the gonococcus. Such reactions are usually found in gonorrheal prostatitis, active salpingitis, and gonorrheal rheumatism. Weak positive reactions are common in chronic prostatitis and chronic inactive urethritis. Weak positive reactions may frequently occur in individuals who are clinically cured. They may persist for several months or more. Whether they eventually disappear in all cases after cures are effected, the author has not yet determined. Many individuals who are apparently cured give negative reactions. An individual should not be regarded as infection-free as long as he shows a weak positive reaction. With gonorrheal vaginitis and allied forms of gonococcus infections the author's experience has not been very extensive, but so far as it goes, it is in agreement with his experience in the cases of urethritis and prostatitis in the male.

New York Medical Journal.

September 6, 1913.

1. Orthopedics in General Practice. C. Ogilvy.
2. Vaccine Treatment of Typhoid Fever; Report of Cases. B. M. Randolph.
3. The Foundation of Education. H. J. Mulford.
4. An Analysis of Five Hundred Fatal Medical Cases in the Tropics. W. E. Deeks and W. G. Baetz.
5. Cutis—Index Morbi. W. P. Cunningham.
6. Vincent's Angina. L. Green.
7. The Rational Treatment of Pustular Skin Diseases. J. W. Fisher.
8. Double Drainage Tubes (Inner and Outer) for Nares after Submucous Resection of the Septum. S. Goldstein.
9. Three Cases of Acute Gastrointestinal Intoxication with Constipation and a Suggested Method of Surgical Treatment. R. J. Manion.

1. Orthopedics in General Practice.—C. Ogilvy discusses the importance of the general practitioner making an early diagnosis of weak feet, weak anterior arch, hallux valgus, and anteroposterior postural deformity. If the patient complains of continued discomfort or constant pain in the feet or ankles, and in these joints only for a period of time varying from weeks to months, with

a negative history of any other joint involvement, one will find almost invariably that the trouble is caused by weak feet. If the foot is examined while functionating, it will be found to be everted and the body weight instead of passing over the dorsum of the foot to the second toe, passes down to the inner side of the foot to a point corresponding to the astragaloscaphoid articulation. The proper foot plate can be made only from a plaster model of the foot; which plaster cast is further remodeled to complete the correction of the deformity desired. Furthermore, the employment of any arch support is detrimental to the well being of such feet unless the eversion, which has already been noted and which is always present, is first corrected. This is really the most important point in the treatment of weak feet. It can be corrected and controlled by elevating the inner side of the heel of the shoe and extending the heel forward on the sole some three quarters of an inch. This should be done in every case.

2. The Vaccine Treatment of Typhoid Fever.—B. M. Randolph has a strong clinical impression that the vaccine treatment has a beneficial effect in the acute stage of typhoid, and that this effect is better the earlier its administration is begun. This impression is founded on two things — first on the almost invariable testimony of the patient that he feels better. If this were purely psychic cooperation, it would manifest itself after the first injection. As a matter of fact, it has always come after the second. In the second place, it has seemed to the author that defervescence has proceeded more surely and rapidly than with cases not so treated. In four of the cases the treatment was instituted fairly early in the disease, and all became afebrile in twenty-five days or less from the onset of the disease. Six of the cases became afebrile in nine to eighteen days after the treatment was begun.

4. Analysis of Five Hundred Fatal Medical Cases.—W. E. Deeks and W. G. Baetz, continue their interesting article on this subject. They discuss a group of questionable and undetermined cases constituting 3.40 per cent. of the total 500 cases, in many of which the clinical diagnosis was estivoautumnal malaria. In a group of neoplasms there were 38.46 per cent. failures. In the group of hepatic disorders there were 54.54 per cent. failures. A case of chronic pancreatitis was clinically mistaken for chronic myocarditis and nephritis. Without autopsy findings, one's opinion as to the cause of death is correct in only somewhat over 80 per cent. (81.40 per cent.) of one's fatal cases. With autopsy findings, a satisfactory cause of death can be definitely established in somewhat over 96 per cent. (96.60 per cent.) of all fatal cases. The great majority of mistakes to diagnosticate clinically is due to neglect of some elementary, routine examination, either physical or laboratory. Fortunately, in the authors' presented series of 500 cases, had there been no errors in diagnosis, and appropriate treatment adopted in every instance, the chances of recovery would have improved in only 2.4 per cent. of the total number. If the pathologist would take into consideration more frequently the clinical, as well as the post-mortem findings, in determining the causes of death, the number of undetermined infections and ill-defined diseases would be materially reduced, and in some questionable cases definite conclusions could be reached.

5. The Skin as an Index of Disease.—W. P. Cunningham makes a plea for a greater recognition of the importance of an intensive study of dermatology by the student and practitioner. Skin diseases are very common. They are a great annoyance to the patient, either through their unsightliness, or the positive physical distress that they produce. Acne may not possess the morbific possibilities of neurasthenia, yet the author has seen it more than once bring about the latter condition because of the constant brooding it entailed. It has prevented marriages and lucrative employment. In addition to the dermatoses operating evilly on the mind, and those producing the exquisite agony of pruritus, there are others that are directly dangerous to life. Carcinoma cutis, sarcoma cutis, epithelioma, gangrene, malum perforans pedis, malignant pustule, gumma, and lupus, are illustrations of cutaneous diseases, sufficiently destructive to arouse the interest even of the gravest minds. In constitutional diseases the condition of the skin often furnishes an important clue. Bronzing of the skin points to the suprarenal capsules. One notes the earthy hue of carcinoma. The pallor of anemia is a matter of common observation. The red flush of fever is promptly appreciated even by the laity. The same color disseminated in spots of various sizes over the lower limbs leads to the diagnosis of rheumatism; so do the shiny red painful infiltrations of erythema nodosum. The golden deposits of xanthoma often betray an unsuspected diabetes. The brownish splotches of chloasma hint of diseased uterus or ovary. Melanotic nevi give warning of the sarcomatous predisposition. Rose colored spots on the abdomen of a fever patient may clear up an obscure case even before a Widal is available. Erythema, roseola, or petechiæ, may settle a dubious diagnosis of cerebrospinal meningitis. The muddy look accompanying intestinal torpor is everywhere in evidence. No one mistakes the puffy, pasty skin of chronic parenchymatous nephritis, or the blue of cardiac insufficiency. One may contrast the dry anhidrotic skin of chronic interstitial nephritis with the tense and waxy myxedema of the atrophied thyroid. Herpes labialis was formerly regarded as a sign of malarial infection. Herpetic lesions in association with a belt sensation or lightning pains point to tabes. Of like significance are decoloration of the hair (gray or white in patches), falling of the nails, local perspirations, sudamina, ecchymoses, and bullæ. A knowledge of the multiform eruptions of syphilis and of their differentiation from other dermatoses constitutes in itself a liberal education in cutaneous disorders.

6. Vincent's Angina.—L. Green states that this disease occurs after measles, scarlet fever, whooping cough, and diphtheria—usually in patients suffering from malnutrition. It is easily curable if taken early; in the advanced stages it is rarely curable. In the past nine months seven cases advanced to the progressive stages of noma because of the author's inability to observe the initial lesion; of these, four recovered. Nearly thirty others were checked in from ten days to a fortnight.

7. The Treatment of Pustular Skin Diseases.—J. W. Fisher concludes that in pustular skin diseases vaccines are specific when given in proper doses. They not only act as a specific upon the lesions themselves, but they improve the general nutrition and resistance of the patient. The condition of the surface lesions is a sufficient guide for dose without the necessity for taking the opsonic index. In erysipelas the early use of vaccines shortens the course, relieves constitutional symptoms, and prevents complications.

8. Double Drainage Tubes for Nares.—S. Goldstein has devised these drainage tubes for use after submucous resection of the nasal septum. The larger or outer tube is vulcanized rubber, and the smaller, or inner, soft gum tubing; the latter fitting in the outer tube snugly enough to remain *in situ*, and at the same time sufficiently loose to permit the attendant, or the patient himself, to remove the same whenever it becomes occluded, without disturbing the position of the vulcanized outer tube or displacing any of the packing in the nares. The dimensions of the

outer tubes are about 1¼ to 1½ inches in length, 5/16 of an inch in bore, and about 1/10 of an inch in thickness. The soft gum inner tubing should have about a 3/10 inch bore, and protrude for a short distance, especially at the proximal end, for easy removal from the outer tube. It is advisable to have the inner and outer tubes of different colors, to avoid the patient's erroneous removal of the outer tubing, when he wishes to cleanse the inner one. The author's procedure, after completing the septal resection and replacing the cartilage, is to place a properly shaped piece of paraffin wax sheeting against each septal mucosa, then to adjust the double drainage tubes on the floor of the nares, and to fit all above and external to the tubes pieces of Bernay's sheets, and moisten these. The vulcanized outer tubes may be shaped into any form desired, by placing them in hot water to soften, and patterning them to the configuration of the nares.

Berliner klinische Wochenschrift.

August 25, 1913.

Advances in the Treatment of Syphilis.—Bering refers first to the fact that salvarsan has now been in use for four years. He refers to the old diagnostic difficulties which still prevailed, notably in the first days of the primary lesion, until the discovery of the spirochete by assuring the diagnosis, furnished a great addition to the management of the disease. In fact, we now have a true abortive treatment, not necessarily because of salvarsan, for even an intensive Hg cure is possible if the diagnosis is made sufficiently early by the discovery of spirochetes in the chancre, at a stage when the Wassermann is still negative. We now know that the residues of the chancre and secondary lesions may contain living spirochetes which may not manifest their presence until years have elapsed. The chief value of the Wassermann reaction is in the recognition of latent syphilis. As yet we know nothing of its nature, and there is some doubt as to its exact value as an index of successful treatment. The older the disease the greater the difficulty in obtaining a negative reaction. When we come to paresis we learn that the reaction practically always persists in the negative. After the provocative use of salvarsan without special classification as to age over 75 per cent. of the cases show the negative phase, and many among them had received unsatisfactory treatment. When a patient has been properly and thoroughly treated, has remained free from symptoms, and has had a persistent negative reaction, absence of the provocative reaction from salvarsan should mean a permanent cure, provided also that the lumbal punctate is normal. The latter fluid if it show formed elements, etc., must be reckoned as indicating some form of syphilis of the central nervous system.

Electrotherapy in Obesity.—Carulla, a Spanish physician, refers first to the now well-known method of Bergonie for curing obesity while at the same time exercising the muscles. This idea, however, is not exactly new for the sinusoidal bath has been used for similar purposes since 1892; also static baths and douches, the high frequency current, and even the galvanic current are in use for this purpose. Bergonie's method is one of faradization. He employs the secondary current of the induction spool with a tension of 8 to 10 volts, with a rhythmical interruption produced by the aid of a metronome swinging 120 times a minute. This current is conveyed to the body of the patient by large electrodes enveloped in moist cloths and held in place by sandbags. The intensity of the current is from 40 to 100 milliamperes, and the duration of session increases from 15 to 60 minutes, and two may be given daily. The muscular exertion which results is not followed by fatigue. From four to six weeks are required to take off from 22 to 44 pounds of weight. The subject is now advised to substitute voluntary exercise and diet for some six months, and then take a second course of Bergonization; the cure is now complete and, as appears, permanent. The author now gives his own experience with electrical treatment of obesity. As Bergonization was not available to some of his patients whom he could not send to Bordeaux, he used a substitute method devised by the aid of Civera-Salse in which faradism was the principle resource. He also made some use of high frequency currents and galvanism. Thus far he has treated but one patient and in nine months he has reduced her weight by 66 kilos (145 lbs.) He also made use of diet and voluntary exercise.

Deutsche medizinische Wochenschrift.

August 14, 1913.

Sterile Animals.—Küster shows how young animals may be obtained germ free by cesarean section and then maintained in sterile condition. This represents the solution of a problem of 20 years' standing. The author took up the work of Schottelius, choosing goats. Kids are remarkable for their tireless energy, are easily raised on the bottle, and show superior utilization of nutriment. They are also of size sufficient for blood tests and the like. He subjected a young pregnant goat to cesarean section about eight days before term. The meconium and amniotic fluid were pronounced sterile. The mother was operated on under chloroform-ether, which she withstood well. The kids were asphyctic when extracted, but were soon reanimated, and in due time were fed on sterile milk and later on other sterile food, so that the intestinal tract showed no flora. The trial experiments, however, showed that a highly developed technique was required to fill all requirements for sterilization, so that the conditions are almost prohibitive save for pure experiment. To follow up the life of a sterile animal is vastly significant, in that it shows the general effect of germ life upon the life and health of a warm-blooded animal. The author states that his work thus far has only pointed out the way in this effort.

Röntgen Photographs of Wrestlers' Hearts.—Katz and Leyboff give a historical outline of the study of the athletic heart before and after the introduction of radiography. Even the German literature of this subject is large, despite the fact that sports are far more practised among the Britons and Americans. In certain games, however, like wrestling and cycling, Germany does not lag behind, and these furnish good opportunities for the study of athletic heart. The studies of Henschen as to cardiac dilatation in Scandinavia are also cited freely. If we sum up what is actually known to date in this province, we cannot go much beyond the following generalizations: If a person with sound heart take up athletics in an abnormal degree his heart, as shown by the *x*-ray, becomes smaller rather than larger. If the heart thus tested is weakened by disease of any sort it tends to respond by dilatation under a single act of overstrain. The chief cause of diminished size in the healthy heart, as shown by the rays, is increased actively in diastole.

Psoriasis as a Constitutional Disease.—Menzer, who has been reviving this ancient view, will not yield to criticism of his doctrine that the constitutional element is not arthritism, etc., but simply tuberculosis. He cites case after case, and quotes from Poncet, whose "tuberculous rheumatism" he finds to be an analogous find. He confidently expects that the now sceptical dermatologists will soon accept his views. He concedes that other bacteria may cause the same syndrome, although the *B. tuberculosis* is much more in evidence, mixture of infection being the rule.

Insurance Medicine.

What Is an Accident?—Charles Corfield says the consideration of accidents is a matter which comes to most of us at some time in our professional work and in England mainly arising out of the Workmen's Compensation Act, but under common law as well. While he does not define an accident so that the definition can be accepted as a basis for the settlement of all conditions coming under the term, he illustrates how difficult it is to have a basis either big enough or narrow enough to define an accident. These difficulties are not due to a conventional inflexibility of the judicial mind, but to a trait inherent to any words that define by limitation, namely that wherever the boundary line be drawn some cases will be found to fall always extremely near on either side. Some day an ingenious definition of the word accident may be evolved which will steer between these dangers. In accidents, more importance might be attached, not to the quality of the blow, so to speak, but to the condition of the recipient. Something of the principle of contributory negligence might be introduced and could be made a good defense to a claim to show that the workman had a concealed defect which contributed equally to the condition, such as a congenital hernia, or a heart condition. Another suggestion is that all employees should undergo a physical examination, which is already done in the case of railway and other big companies. This, however, without the privilege of contracting out, would swell the ranks of unemployment, and would cause greater hardships than no compensation at all. The most practical solution with regard to workmen's compensation, would be to include accidents among the benefits of the present insurance act. Then employers would pay their premiums to the state instead of to the insurance companies.—*Bristol Medico-Chirurgical Journal,* July, 1913.

From the Medical Examiner's Point of View.—James Lock says the average medical director has an easy life and position compared to the life and position of the average medical examiner living in a town of average size, but not in the city or metropolis. Man for man, he believes that the medical examiners of this country are of the very highest character as a rule and that on the whole they render to the companies most valuable and reliable service. They must, or else how shall we account for the great savings in actual from expected mortality that has been the experience of life insurance companies for more than half a century? The medical practitioner in an almost or wholly rural community has surely a hard road to travel, and if now and then he makes a careless reply to a question on the examination blank he may deserve the sympathy rather than the criticism of his medical director. Perhaps he drove out the night before over muddy, almost impassable roads, to deliver a woman in a stubborn case, destitute perhaps of every necessity. He may receive a moderate fee for his work in a year or so, if his debtor succeeds in producing a good crop. Who shall estimate the hundreds of thousands of dollars contributed annually in such charitable work by the 8,000 medical practitioners who hold in this country commissions as medical examiners for life insurance companies? The great body of medical examiners is made up in greater measure of good men, ethical men of high professional character, who in larger environments would be today shining lights in their honorable profession. It has been more than interesting to watch the growth of the country practitioner; he ofttimes keeps himself more fully advised as to medical and surgical progress and attainment than his brother of the large cities. It is surprising to see what modern equipment is now found in a country practitioner's office; appliances up-to-date in every particular. With the medical directors manifesting confidence in their medical examiners; with the ranks of the latter filled with conscientious, well-equipped men, there will soon come to pass the entry of a golden era in the realm of medical examiners in the field.—*Lancet-Clinic,* June 21, 1913.

Plain Language from a Life Insurance President.—The following is a portion of a letter written by Mr. E. R. Roberts, president of the Amicable Life Insurance Company, to agents and examiners of that company. "There are numerous factors entering into the success of a life insurance company. The two principal ones being a large volume of new business and a scientific medical selection thereof. If the mortality should materially exceed the basis upon which the premiums are calculated, the company cannot escape failure. However scientific and well equipped the medical department of the home office of a company may be, it is equally necessary that the agents and examiners in the field faithfully and intelligently perform their duties in the selection of insurance risks. Any agent or examiner violating such sacred trust is a criminal and as such should be convicted by the courts and forever barred any future relation to the business of life insurance. . . . . We have certifications to certain tests by the examiner which were never made, also questions as to family history, etc., answered that were never asked the applicant by the examiner. We have taken up policies soon after issue on persons with Bright's disease, etc. These incompetent examinations are but the experience of other companies. This company will require, as soon as sufficient containers can be procured, a specimen of urine to be sent to the home office that microscopical tests may be made there in all cases regardless of the amount of insurance. It is due the good name of the many honorable and efficient agents and examiners that the inefficient and criminal ones be located and punished. This company will join other companies in a crusade to this end, and we expect the earnest assistance of reliable agents and examiners in ferreting out these criminals. We are having many of our policy-holders re-examined within the two-year limit by a traveling assistant medical director, and in some cases, re-examining all the work of certain examiners, and canceling policies where fraud is evident. . . . . There are certain towns in Texas in which there is not a single doctor acceptable to make examinations, therefore it is necessary for an agent to use only examiners authorized by this office, otherwise experience delays and also pay the fee of the unauthorized examination. This company has been compelled to install its own inspection department, and delays in the issue of policies hereafter will be caused by omissions and mistakes of agents and examiners. We have had great delays caused by the carelessness or incompetency of examiners in failing to properly fill out the examination blanks. Every question in each blank is important, or it would have been omitted and must be answered, or consequent delay. Examiners careless in omitting answers to questions are usually considered careless otherwise. . . ."—*Texas State Journal of Medicine.*

Book Reviews.

Medical Supervision in Schools. Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany, and Switzerland. By Edward Millar Steven, M.B., Ch. M. (Edinburgh), Royal Commissioner for South Australia, 1909. Price $2.00. London: Baillière, Tindall & Cox; Chicago: Chicago Medical Book Company.

It will be noted that the title of this book is the medical *supervision* of schools rather than the medical *inspection* of schools. This title indicates the modern attitude with reference to the health of school children, which attitude does not cease with the mere detection of physical defects, but aims to secure their correction. Having been appointed by the Government of South Australia to inquire into the subject of medical supervision of schools in Great Britain, Canada, the United States, Germany, and Switzerland, the author was able to collect a set of data of unusual value and interest. The London system which has already reached a high degree of elaboration is described in detail. Of particular interest is the fact that the parent is requested to be present at least at the first examination of the child by the school physician. The various notification forms which enable the authorities to follow up the cases, and finally to prosecute neglectful parents or guardians are strikingly elaborate in their variety and are undoubtedly effective. The open air schools and the special schools for the mentally defective, the physically defective, the deaf and the blind are described with the aid of a number of excellent photographs. The Bradford system is justly regarded by the author as the most perfected system of medical inspection found anywhere. Initiated by Dr. Kerr and maintained by a zealous school board, this system, with its school clinics, notifications of parents, disinfection of homes, open air schools, etc., is one that may well be imitated in other parts of the world. Glasgow has a special school for semi-deaf cases. In describing medical inspection in New York the author begins with the humorously inaccurate statement that "the City of New York, which is divided into five boroughs, is under the control of a lady, Dr. Josephine Baker, who holds the position of chief medical officer for the Education Department." The valid criticism is made, and it would be well if the Health Department of New York would take notice, "that treatment of children by nurses, if universally adopted, cannot be too strongly deprecated." Possibly the author is somewhat too "personal" when he states that "one glaring anomaly noticeable to a Britisher is the lack of care exercised by the average American general practitioner in regard to his personal appearance." One of the striking features of medical supervision in Germany is the general introduction of school baths. The discipline in the schools is regarded as almost perfect. There can be no doubt that in this book the author has gathered a mass of information of value to all those who are interested in the welfare of children, and particularly to educational and public health authorities.

Epidemic Cerebrospinal Meningitis. By Abraham Sophian, M.D., formerly with New York Research Laboratory. Twenty-three Illustrations. Price $3.00. St. Louis: C. V. Mosley Company, 1913.

New York and the country in general need no introduction to the author of this book whose work during the extensive epidemic of meningitis that ravaged the Southwest during 1912 received such grateful recognition. The present volume which represents the first monograph on meningitis in the English language is the fruit of the author's extensive laboratory and clinical experience. It deals with every phase of meningitis, from a historical review to the technique of the administering the specific curative serum. In addition the author describes his own contributions to the various theoretical and practical phases of the subject. One of the most important of these deals with the method of introducing the antitoxic serum as guided by blood pressure observations. Thus while there is usually a fall of blood pressure following lumbar puncture, there is a further drop on injecting the serum. If a small quantity of serum is injected slowly there is apt to be a smaller drop in the blood pressure than when a large quantity is allowed to flow in rapidly. Using the gravity method of introducing the serum one can accurately control the speed with which the latter is allowed to enter the subarachnoid space. The application of this method during the Texas epidemic caused a considerable reduction in mortality. The author also describes his studies on protective inoculation with vaccines made from killed meningococci, a subject that offers considerable promise. A collective study of the Texas epidemic of 2,280 cases showed a mortality under serum treatment of 37 per cent. as against a mortality of 77 per cent. in cases that were not treated with serum. The author is to be congratulated on his excellent summary of the present knowledge of meningitis and on his own important pioneer studies.

Surgery. Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume VI. With 519 illustrations, 22 of them in colors. Price $7.00. Philadelphia and London: W. B. Saunders Company, 1913.

In dealing with the present volume the reviewer finds himself in something of a quandary; for it is quite hopeless to attempt to do justice to it in the space available. Even a simple enumeration of the titles of the articles contributed by the more than sixty authors is out of the question, while to single out a few for special mention is to be by implication unjust to most of the others. The five volumes of the system originally planned were completed in 1909, but even in the short time that has elapsed since the appearance of the first one sufficient new material of importance has accumulated to make it desirable to summarize the advances made in surgery by the preparation of this supplementary volume. Accordingly, most of the original authors have contributed articles in which the discussions of the subjects dealt with are brought fully to date, while a number of new sections, such as those on the use of salvarsan in syphilis, the treatment of cancer by desiccation and fulguration, the experimental work on cancer with eosin and selenium, etc., have been added. A chapter of particular interest is the one in which Crile deals with surgical shock, and another is his discussion of the allied subject of anociassociation. New material of much importance has been contributed on methods of operating on the thorax under increased or diminished pressure, on anesthesia by improved methods, on the use of iodine for sterilizing the skin, on the surgery of the hypophysis, etc. A feature that will add greatly to the convenience of readers is the general index covering all six volumes.

Textbook of General Pathology. By the following contributors: A. P. Beddard, London; A. E. Boycott, Manchester; C. H. Browning, Glasgow; A. E. Garrod, London; J. S. Haldane, Oxford; I. Walker Hall, Bristol; A. F. Hertz, London; F. W. Mott, London; M. S. Pembrey, London; J. Ritchie, Edinburgh; J. H. Ryffel, London; S. V. Sewell, Melbourne; J. Lorrain Smith, Edinburgh; E. Ainley Walker, Oxford. Edited by M. S. Pembrey and J. Ritchie. Price $5.00 net. New York: Longmans, Green & Company, 1913.

There have been many excellent textbooks on general pathology, but in almost all the author has devoted most of his space to a discussion of the particular subject to which he has made contributions, and has somewhat slighted other phases in which he was less interested. In order to meet the difficult problem of the production of a book in which each phase of general pathology is adequately treated, it is necessary to give each section to some one who has made a specialty of the subject. Because this plan has been followed the text under consideration is excellent; the various chapters have been assigned to men who have interested themselves in the special subject upon which they have written. Thus, the pathology of the blood is covered by Boycott, immunity by Browning, tumors by Ritchie, the circulation by Boycott, the nervous system by Mott, respiration by Haldane, anomalies of metabolism by Garrod, gout by Walker Hall, etc. Each section is thoroughly modern and shows the result of original work by the writer. The editing has been careful, and there is little overlapping of subjects. The chapter on the nervous system is the only one which contains any number of illustrations, the nature of the other chapters requiring only a few charts and diagrams to explain the text satisfactorily. In the chapter on digestion some of the diagrams drawn from *x*-ray plates furnish interesting illustrations of the muscular activity of the stomach and intestine in various pathological conditions. The bibliography has been kept within reasonable limits, only important articles and textbooks being mentioned. The work is an excellent compilation for the student, and the practitioner will find much to interest and instruct him, for throughout the practical viewpoint has been maintained, and the application of recent experimental work to medicine kept fully in mind.

Technique microscopique, d'après Böhm et Oppel par Etienne de Rouville, Doctor des sciences, charge d'un cours complémentaire à l'université de Montpellier. Cinquième édition, revue et considérablement augmentée. Avec 17 figures dans le texte. Price 8 francs. Paris: Vigot Frères, 1913.

This fifth edition of Microscopic Technique which has been adapted from the well known text of Böhm and Oppel by the French editor, is an extremely useful volume for the practical laboratory worker. It combines many of the advantages of the German original with a fairly complete presentation of those technical methods which have been more particularly developed by the French themselves. Among the new features which have been introduced into this edition are a description of the methods of dark field illumination, the more recent methods for staining special elements of the blood, and the new procedures for the demonstration of mitochondria. An excellent bibliography is appended.

Technique Clinique Médicale et Semeiologie. By Dr. Sergent, Doctor of Hospitals. Paris: A. Maloine, 1913.

So many internes follow their chiefs about the wards hearing remarks here and there about methods of infection in typhoid, the theories of diabetes, hemolysis in jaundice, etc., etc., but go out without learning the practical clinical work. They do not know how to apply their book knowledge. The first requirement is technique of examination; the second is teaching of the significance of symptoms. The book of 700 pages is intended to join the practical and theoretical principles to enable clinical study. It covers the examination of respiratory and circulating systems, abdominal organs, urinary organs and nervous system, including also laboratory examinations. It is an excellent clinical guide and is filled with numerous illustrations, charts, *x*-ray plates, etc. It is clear and concise and will be of use to practitioners as well as students.

The Modern Treatment of Nervous and Mental Diseases. By American and British Authors. Edited by William A. White, M.D., Superintendent of the Government Hospital for the Insane, Washington, D. C.; Professor of Nervous and Mental Diseases in the Georgetown University; Professor of Nervous and Mental Diseases in the George Washington University; Lecturer on Mental Diseases in the U. S. Army and U. S. Navy Medical School, Washington, D. C.; and Smith Ely Jelliffe, A.M., M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System in the Post-Graduate Medical School and Hospital; Visiting Neurologist to the City Hospital; Consulting Neurologist to the Manhattan State Hospital, New York, N. Y. Volume I. Illustrated. Price $6.00 net. Philadelphia and New York: Lea & Febiger, 1913.

The editors' statement in the preface of this work outlines the scope of the undertaking which "lays emphasis upon the psychical side of life as being worth quite as much consideration as the physical. It sets forth doctrines of nervous and mental hygiene, reconstructive factors in social organization as applied to human ills, and endeavors to present a broad front to the pessimistic nihilism in therapeutics that has been too long current in these fields, because the doctor's eyes have been too closely focused on the individual examples and results of human accidents." One perceives throughout the work a recognition of its newer teachings of biology and of the psychological basis of insanity. A brief summary of the contents of the first volume may suffice to indicate the scope of its subject matter. William A. White writes on eugenics and heredity in nervous and mental diseases. The fact is emphasized that eugenics is not concerned solely with developing a race of physically perfect people, but aims to develop a race in which character figures as a desirable quality. S. S. Colvin discusses education as a modification of behavior for social adaptation. Education is conceived as a means of developing personality, which consists of a stock of useful habits and of vital ideals that constitute the ends of rational volition. Sexual problems in their nervous and mental relations are described with the unusual combination of clearness and delicacy so characteristic of the pen of Havelock Ellis. The educational treatment of the feeble-minded, a subject that has attracted so much attention within recent years, is discussed by Henry H. Goddard. William Healy, Director of the Juvenile Psychopathic Institute of Chicago, has written the chapter on delinquency and crime in relation to mental defect or disorder. The subject of immigration and the mixture of the races in relation to the mental health of the nation is dealt with in a comprehensive and sympathetic manner by Thomas W. Salmon. The plea is made that efficiency and humanity should have equal place in the enforcement of our immigration laws; there should be greater care for the safety of helpless insane immigrants. H. W. Mitchell details the treatment of alcoholism and the alcoholic psychoses. The treatment of the nervous and psychoneuroses is discussed by Ernest Jones, with a full appreciation of the methods of the Freudian psychoanalytical school. John Jenks Thomas writes on the traumatic neuroses and psychoses and the occupation neuroses, and Henry A. Cotton presents a most illuminating chapter on the disturbances of the internal secretions and of the sympathetic system. E. E. Southard discusses mental diseases of somatic but extranervous origin, the so-called symptomatic psychoses. The manic-depressive psychoses and their treatment are dealt with by Clarence B. Farrar, and the treatment of dementia præcox and allied conditions is discussed by C. Macfie Campbell. A most interesting chapter is that by Adolf Meyer on the treatment of paranoic and paranoid states. The possibility of cure in these conditions is fully discussed and illustrated with case reports. Bernard Glueck writes on the prison psychoses; and Albert Moore Barrett, on presenile, arteriosclerotic and senile disorders of the brain and cord. The application of legal measures in their remedial bearings constitutes a most useful chapter under the authorship of Frederick A. Fleming. The military relations of nervous and mental disorders are discussed by R. L. Richards, and the functions of the hospital in nervous and mental disorders are clearly described by James V. May. Full and up-to-date bibliographies are appended to each of the chapters.

Die Behandlung der Krankheiten der Behaarten Kopfhaut. By K. Herxheimer and K. Altmann, Frankfurt a. M. Price 1.50 marks. Halle A. S.; Carl Marhold, 1912.

From eczema to tumors the diseases are cursorily taken up in this little book and some good ideas on treatment are given.

The Posture of School Children. With Its Home Hygiene and New Efficiency Methods for School Training. By Jessie H. Bancroft, Assistant Director Physical Training, Public Schools, New York City; ex-Secretary American Physical Education Association; Member American Association for the Advancement of Science; Author of "School Gymnastics," "Games for the Playground, Home, School, and Gymnasium," etc. Price $1.50 net. New York: The Macmillan Company, 1913.

The growing interest in the physical welfare of school children is mirrored in the many valuable studies that have been made within recent years, dealing with various aspects of school life as related to the physical defects of the child. That the posture of school children should be made the subject of exhaustive discussion in a single volume, is quite natural, in view of the many points at which posture touches the physical, mental, esthetic, and economic needs of the individual of today. Correct posture is indeed one of the criteria upon which is based the judgment of a child's fitness for graduation from public school in New York City. The author brings to bear upon her handling of this topic the fruits of wide experience and the inspiration of rare enthusiasm. She discusses the general significance of erect carriage in the individual and the race; the methods of judging correct and incorrect posture, particularly with the aid of the now well known vertical line or "window pole" test; the mechanical difficulties of the erect position; the various deformities of the spine; the head, chest, shoulders, pelvis, abdomen, and feet; posture in adults; erect posture in sitting, standing, walking, and stair climbing; the methods of correcting poor posture; home exercises; dress; training the muscular sense; and erect posture as an educational aim and as an expression of intelligence and character. One of the most important contributions which the author has made to this subject has been the introduction of efficiency methods in judging and maintaining correct posture—in other words, the standardization of correct posture. A triple test has been devised whereby the teacher can grade a pupil with respect to this quality. This test consists in observing the pupil while he is standing, while he is walking, and while he is at exercise. The illustrations in this book are particularly numerous and helpful, and the full page photographs of portraits and statues from art galleries add an attractive and esthetic tone to the book. The author is to be commended for having written a volume of immeasurable value from scientific, educational and medical viewpoints.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirty-fifth Annual Meting, Held in Washington, May 5, 6 and 7, 1913.

THE PRESIDENT, DR. GEORGE A. LELAND OF BOSTON, IN THE CHAIR.

(*Concluded from page 506.*)

Second Day—Tuesday, May 6.

Election of Officers.— *President*, DR. THOMAS HUBBARD of Toledo, Ohio; *First Vice-President*, DR. FREDERICK E. HOPKINS of Springfield, Mass.; *Second Vice-President*, DR. GEORGE E. SHAMBAUGH of Chicago, Ill.; *Secretary*, DR. HARMON SMITH of New York City; *Treasurer*, DR. J. PAYSON CLARK of Boston, Mass.; *Librarian*, DR. JOSEPH H. BRYAN of Washington, D. C.; *Member of Council*, DR. GEORGE A. LELAND of Boston, Mass.

Phlegmons of the Upper Respiratory Tract: Report of a Case.—DR. F. E. HOPKINS of Springfield, Mass., read this paper. He said that the principal point which the report of his case illustrated was the possibility of erosion of large blood vessels. He saw the patient on May 23, 1910. He was a male, twenty-six years of age, of poor resistance because of having led an irregular life and having had a recent acute illness. He had suffered from measles early in the month and while convalescing had taken cold, the particular manifestation being a sore throat. There was a marked swelling on the left side, with severe pain, but he was not prostrated, being at this time dressed and about the house. His pulse was 80 and temperature 100° F. During most of his illness the pulse rose only to 80 or 90 and the temperature at no time exceeded 101° F. No fluctuation could be made out. The following day there was no evidence of pointing, and fluctuation could not be felt. Deep incisions were made, but these yielded no pus and little bleeding took place. Two days later a hemorrhage occurred which was controlled by pressure. On the 27th a terrific hemorrhage occurred and quickly proved fatal. A post-mortem was not allowed, but such examination as could be made immediately following death showed rupture through the posterior pillar, the flood from the eroded carotid finding exit here. He believed that such a mass of cellular infiltration should be explored by a blunt instrument, even the finger, following unfruitful incision. In this case the patient objected vigorously, as did the parents; and as a peritonsillar abscess usually soon ruptured into the incision or burrowed its way to the surface, further interference was not insisted upon. As to the cause of peritonsillar infections they readily accepted the bacteriologist's dictum that the throat at all times harbored bacteria ready marshaled for invasion, and since the crypts of lymphoid tissue were portals easily assailed, infections of this region should be frequent and systemic involvement severe. The wonder was, not that phlegmons threatening life occasionally developed, but rather that such serious invasions were so rare and an active professional life might pass and not a single case come under observation. Microscopical findings were of little value in determining the treatment of these cases. The stage of progress decided that early and effective drainage was the best assurance of a favorable prognosis. Suffocation from flooding the larynx by the sudden rupture of an abscess had been reported, and tracheotomy had been required because of closure of the pharynx by infiltration and edema, but the complication he wished to emphasize was that of erosion of blood vessels by the necrotic process.

Inflammation of the Lateral Columns of the Pharynx Leading to Abscess Formation, with Report of Cases.—DR. HENRY L. SWAIN of New Haven, Conn., said that any isolated mass of lymphoid tissue could in a general way be expected to act, when inflamed, exactly after the fashion of the faucial tonsil and could have, like the latter, simple acute, follicular, rheumatic, diphtheritic, and phlegmonous inflammations. As knowledge became more widespread concerning what happened to the adenoid or pharyngeal tonsil, they learned to know, as years went by, that it might have acute as well as chronic inflammation. The same was true of the lingual tonsil. In recent years much had been written in the journals concerning inflammation of the lateral columns of the pharynx, and he had a presentiment that if they continued to remove, root and branch, from their young children all of their adenoids and faucial tonsils, there would be abundant need for them to devote increasingly more and more attention to these masses of lymphoid tissue as well as to the lingual tonsil. Hundreds of observations existed to attest to the fact that when, in years gone by, adenoids were removed in young children and the faucial tonsils were left untouched, the latter subsequently enlarged into a perfectly healthy growth as though needed by the system, and as though trying to supply something to satisfy this lack or want. If the faucials were thus also ruthlessly removed, just as surely as the sun rose and set there would be enlargement of the lingual tonsil or lateral columns of the pharynx chronicled, as there had been of the faucials following the older simple adenoid operation. And if this was logical and true, they should find not only acute inflammation of these structures, but also the phlegmonous. They had assumed more or less arbitrarily that, as the lateral column of the pharynx was no mean mass of lymphoid tissue, and as it had been known to have all of the other kinds of inflammation to which lymphoid tissue was heir, they had a logical right to expect that there might be also the phlegmonous type, and Dr. Swain proposed to submit the facts concerning certain cases to prove that such might be the case. Recently he had had six cases of edema of the larynx. In two there was no quinsy at all. There was inflammation of the lateral column of the cord in both these instances, and there was in one a marked general, what might be called a rehumatic, infection, where various joints of the body were swollen and inflamed, with rapid jumps from these to other joints, and with no persistence of the symptoms in any one place for any length of time. In these various cases of edema one had to look to some other cause than pressure.

Phlegmons of the Upper Respiratory Tract.—DR. JOHN O. ROE of Rochester, N. Y., said that phlegmon was simply another name for inflammation, although clinically it was regarded as of an extraordinarily intense inflammation and looked upon as being of a more or less malignant character. Thus they might have an inflammation of this character in any part of the body, the intensity of which was dependent upon the virulence of the infection and the resistance or the lack of resistance of the patient, or of the tissues, to such infection. Owing to the frequency with which such inflammation caused difficult breathing or choking, when involving the upper air passages, it had received the name of angina, which signified strangling, and which was commonly applied to any inflammatory affection of the throat or fauces that might interfere with normal breathing. Inflammations of a severe grade termed phlegmon might involve any or every portion of the upper respiratory tract. They almost invariably found a phlegmon attacking those whose general condition had become generally weakened and whose defenses had been broken down by some diseased condition or dyscrasia. Dr. Roe reported several cases more or less in detail. He said that the treatment of these infections and virulent inflammations required no special law unto itself, and must be dealt with according to its location and associated complications.

Report of a Case of Phlegmon Starting as a Peritonsillar Abscess and Extending Downward as Far as the Second Ring of the Trachea.—DR. GEORGE L. RICHARDS of Fall River, Mass., reported a case as an example of a severe pharyngeal phlegmon, having its origin primarily in a peritonsillar abscess, and secondarily in a diseased tonsil.

Phlegmons of the Upper Respiratory Tract.—Professor FERD. MASSEI of Naples, Italy, read this paper by title. He was unable to be present because of illness.

Dr. HENRY L. WAGNER of San Francisco, Cal., said there were so many conditions that produced these phlegmons that sooner or later they would see a change in the classification of such cases. They all knew that a streptococcus infection did not always produce conditions of this kind. It was very important that they should recognize systemic infections. They might either examine the urine or make use of reports. He thought that all cases were the result of systemic disturbances. He had met with a peculiar case of a descending inflammation produced by the pneumococcus. It began in the eye. The oculist had sent the patient to him when the infection had traveled downward. The etiology of the edema had been spoken of by Dr. Swain and was caused by some condition existing in the blood vessels. Often edema of the nasal cavities followed in cases of anaphylaxis.

Dr. WILLIAM E. CASSELBERRY of Chicago said that the impression abroad was that these phlegmons were synonymous with erysipelas, especially of the skin, which later affected the mucous membrane and produced an extra severe inflammation. Inflammation of the skin caused by erysipelas subsequently caused phlegmonous inflammation of the throat which made it plain that the two were one

and the same thing. He related the case of a patient who had a condition that was suggestive of peritonsillar abscess. After a time the condition subsided and she complained that there was something the matter with her ear. An examination showed a weeping edematous condition. The following day she developed erysipelas of the auricle which later extended over the entire face and part of the body. She made a complete recovery. He had met with four cases of phlegmon in the throat, two with Ludwig's angina and two with peritonsillar abscesses. They were conscious for a period of from four to six hours; then developed edema of the lungs and died.

Dr. D. Crosby Greene of Boston believed that in many cases where the inflammation was limited to one side of the throat, the edema of one side of the larynx being definitely marked with external swelling of that side, median incision was the method of choice for obtaining drainage. He related a case in which he had followed this procedure, the operation being done under local anesthesia and being followed by almost immediate relief from pain and dyspnea. One advantage of this incision was that the exposure of the trachea at the lower end of the wound made instant tracheotomy, if necessary, a very simple procedure. This patient recovered rapidly from his local infection, but developed a streptococcic pneumonia from which he also recovered. He had known of several other cases which had been incised and drained successfully by this median incision. This was a resource which should be borne in mind.

Dr. Cornelius G. Coakley of New York said that the cases related represented two classes clinically. In one, if they could get a good light, they would see a definite area of fluctuation which could be opened through the mouth, but this was not the class of cases that required their serious consideration. The cases which he had found to terminate fatally so frequently were those with a moderate or slight tonsillitis. They complained of sore throat and nothing could be seen alongside the throat. Sometimes they found nothing and then at the end of twenty-four hours a hard swelling would be noted, with beginning edema on the side of the wall of the pharynx, and within another twenty-four hours the patient would die of suffocation. If tracheotomy had been performed the patient might have died of septic pneumonia. If an internal cut was made they often failed to find pus. Dr. Coakley said he had tried the internal operation, but felt that the only way to relieve these patients was by an external operation. The incision was made along the sternocleidomastoid muscle. In two cases that had ended fatally he had found little blood and serum. This was a serious type of cases and an external incision made early was the correct procedure.

Dr. James E. Logan of Kansas City, Mo., said he believed the classification made by Dr. Coakley was a very important one. In many of these cases it was very difficult to find a distinct fluctuation or any evidence of pus. He had seen a very interesting case in February. The patient had had a slight tonsillitis, from which he recovered. Three or four days later he was taken suddenly ill with edema; there was an edematous swelling on the left arytenoid cartilage. He first gave these patients a purgative and then made cold applications for sixty hours. At the end of this time the edematous condition would entirely disappear. In this patient to whom he had referred he believed that the condition was due to the alimentary canal, as the patient acknowledged having partaken of a hearty dinner the night before. There was also a close relationship with angioneurotic edema. He was opposed to scarification in these instances and thought the application of ice resulted in great benefit.

Dr. Robert C. Myles of New York said that this subject had had his serious consideration during the past few years for he had had some very desperate cases with which to deal in his practice. He had seen only one death from a phlegmon of the upper respiratory tract. He believed that recovery in such cases had been due to surgical interference probably aided by injections of antitoxins. They used icebags over the part. He had often wished that some one would report on the autopsies in these cases. He was often puzzled as to where to cut, as in certain phlegmons there would be but a small foci of pus and yet the condition would be most serious. So far as the edema was concerned Dr. Myles said he believed that it was due to the physical laws of osmosis. In one case the swelling was so great that it went above the hyoid. He entered the tube-like fossa, two inches long, and in five minutes the patient obtained complete relief. The condition was due to pressure upon the superior thyroid vein, either direct or indirect. Another incision was made low down and a string placed in. The wound healed and the patient had been well since. He would advocate the external operation when other means failed to give relief.

Dr. John R. Winslow of Baltimore, Md., said that a year ago he had seen a case similar to the one that Dr. Richards had reported. This case occurred in a colored man, who had been suffering from an attack of tonsillitis, and this was probably followed by peritonsillar abscess. When he appeared at the clinic six weeks later he complained of soreness of the side of the neck and difficulty in swallowing, but there was no dyspnea. There was a marked edema of the perilaryngeal tissues on the left side of the epiglottis, but no swelling or obstruction inside of the larynx. A fine thread of pus trickled over the left side of the epiglottis, the source of which could not be determined. During the night under the hot applications which were ordered the abscess burst and the patient disappeared from observation for six weeks. He then returned and gave a history of five or six successive abscesses which had broken. He was in such a bad condition that it was decided to do a tracheotomy. An hour and a half before the time appointed for the operation a telephone message was received that the patient was dying. He hurried to the hospital and did an emergency operation under local anesthesia. The minute he incised the soft tissue a large volume of pus rushed forth. The tracheal walls were enormously thickened. After opening the trachea the patient collapsed and was apparently dead. He revived under the use of oxygen and amyl nitrite, and eventually recovered from this, but he had never been able to do without his tracheal tube. The larynx seemed to be in a condition of extreme collapse and there was paralysis of all the laryngeal muscles. He believed that this was a neglected case of quinsy, with gravitation downward in the tissues of the neck, and the development of perilaryngeal and peritracheal phlegmon.

Dr. Grenfield Sluder of St. Louis, Mo., said that it seemed to him that there was one feature that had not been clearly brought out in the papers, and that was the seriousness of peritonsillar or phlegmonous sore throat. The cases reported by Dr. Casselberry proved the identity of these sore throats with erysipelas, and he would like to add his testimony to this effect. He cited a case in which a violent sore throat with a high grade edema of the soft palate developed into erysipelas and extended over the body and resulted fatally on the second day. There was a streptococcus infection behind without admixture apparently.

Dr. Emil Mayer of New York said he would like to know about the patients who recovered with the tracheal tube in position. He had had cases where tracheotomy had to be performed in a hurry; one patient was found to be choked up when the tube was removed, and it had to be replaced in a hurry; this was necessitated because of an infolding of the epiglottis. He removed the epiglottis in a case where this occurred and the patient had been perfectly well since.

Dr. Henry L. Swain of New Haven, Conn., referred to a case occurring in his own town which was similar to the one Dr. Richards had reported. The patient was a physician. The abscess pointed toward the middle of the neck at the sternal end of the clavicle on one side, and subsequently on the other. There was such a marked stiffness of the neck that it was nearly a year before the patient could raise his chin into proper position. With regard to the external incision in Ludwig's angina he had mentioned in his paper a case in which it became necessary to do a tracheotomy where there was employed an instrument, similar to that of Dr. J. Solis Cohen for bloodless tracheotomy, which was a very convenient thing. The patient died a few days later from sudden and profuse hemorrhage, and practically drowned in his own blood. They did not pay enough attention to such a thing as the possibility of abscess of the lingual tonsil when dealing with these cases of phlegmon extending down the neck.

Dr. John O. Roe of Rochester, N. Y., said that as to the term phlegmon, any inflammation of the upper air passages, whether due to erysipelas, scarlet fever, measles, or what not, was a phlegmon. This was a term that was used loosely. With regard to the constitutional conditions that had been touched upon by Dr. Logan and Dr. Myles, and the use of ice in local treatment, this was all of great importance. One seemed to lose something in adopting surgical measures and losing sight of the constitution of the patient. In many of the cases reported the local condition was no doubt preceded by some septic condition. One should begin to treat the constitutional condition at the same time that one treated the local condition.

Dr. George L. Richards of Fall River, Mass., said that he had had one death occurring from edema of the larynx. In this case he made an incision and the difficult breathing was relieved. The patient was then left in charge of the family physician, and he was told that she had simply stopped breathing. He thought that probably he should have done a tracheotomy in this instance. In many cases he placed the head lower than the feet.

The Seat of Latent Diphtheria in the Upper Air Passages.—Dr. Henry L. Wagner of San Francisco, Cal., read this paper.

Third Day—Wednesday, May 7.

Primary Carcinoma of the Epiglottis, with Report of a Case.—Dr. Emil Mayer of New York read this paper. He said that primary cancer of the epiglottis was a rare disease, and up to the present time the treatment had consisted of surgical intervention or the use of radium and the *x*-ray. Dr. Mayer had seen two cases of cancer of the epiglottis. The first case was diagnosed of probable malignant disease of the epiglottis, and the subsequent history was that of primary epithelioma of the larynx with subsequent metastasis, laryngectomy, and death. The second case was reported as follows: The patient was a male, sixty-four years old, who consulted him on June 9, 1912. He complained of some slight pain in swallowing for the past six weeks, especially after the swallowing of cold liquids. His general condition was good. He said he would not have paid any attention to his symptoms had it not been for the fact that both his father and mother died at the same age as the patient was at present. A sister and a brother had died of phthisis and two brothers of diabetes. An examination showed some edema of the uvula and numerous small white spots upon the tongue and inner surface of the cheek. His condition was diagnosed as leukoplagia buccalis. He gave no antecedent history of lues. His condition improved under treatment and in the following month he went abroad. On January 10, 1913, he again saw him, and he reported that the improvement after the previous treatment had not lasted very long and that he had some discomfort after swallowing cold liquids. Dr. Mayer found that the uvula was normal in appearance and there was present a nasopharyngeal catarrh and the white patches were still present. There were no other evidences of any diseased condition of the throat. About three weeks later he found a new condition on the laryngeal surface of the epiglottis. In its center there was a deep ulceration surrounded by a thickened mass. He promptly removed a portion of this, and Dr. Mandlebaum sent back the diagnosis—cylindrical cell carcinoma. They had before them a case of carcinoma of the epiglottis in its very earliest stages, as the breaking down and induration had all appeared within a fortnight's time. In order to be quite sure that this was the original site of the cancerous disease, the patient was admitted to Mt. Sinai Hospial and subjected to a very thorough examination. As a matter of routine blood tests were made, and here they received the first notification that the Wassermann reaction was strongly positive, although the patient gave no history of lues. On February 20th the patient was anesthetized and the suspension laryngoscope was placed in position without, however, including the epiglottis. The epiglottis was then seized and with a long-handled knife amputated, cutting from right to left and then from left to right. There was very little bleeding at the time of operation. Twenty-six hours after the operation the patient began to expectorate large quantities of blood; this was checked by sprays of peroxide of hydrogen, ice internally and externally. Within a short time the patient was able to swallow soft foods at once, liquids later, and in ten days from the time of operation he left the hospital. From the foregoing it would be noted that the writer was enabled to see the very beginning and note the development of carcinoma of the epiglottis. An early operation was permitted and the organ removed entire through normal tissues. This was the first operation of its kind ever performed under the ingenious suspension laryngoscope of Killian, and it was earnestly hoped that there would be neither recurrence nor metastases.

Dr. J. Gordon Wilson of Chicago, Ill., said that Dr. Mayer was to be congratulated on getting the case so early and so preventing metastases. He was interested in the epiglottis. Was this a useless organ? He had found that removal of the epiglottis did not interfere with swallowing. When the epiglottis was examined in an adult they found the posterior part covered with taste bulbs. Another function given the epiglottis was that of closing the opening to protect the larynx from the food during the process of swallowing. This function was not so important in the adult as in the child.

Dr. Lorenzo B. Lockard of Denver, Col., said that he was interested in the method used by Dr. Mayer. He had operated upon several cases, using the electric snare, the cold snare and other methods, but he had not been able to remove half as much as Dr. Mayer in the mouth. In ordinary conditions the complete removal of the epiglottis was not necessary. He had never been able to see that the removal of the epiglottis affected deglutition. He had removed it about one hundred and fifty times and found no difficulty except where there was a destruction of the larynx. When the disease involved other parts as the arytenoids and bands the removal of the epiglottis would be followed by regurgitation of food which as time went on became better.

Dr. Arthur Watson of Philadelphia, Pa., believed that the epiglottis acted as a gutter to divert the mucus that dropped from the palate onto the base of the tongue, and the saliva that flowed over the base of the tongue, to the sides of the pharynx, thus guiding it around the entrance of the larynx. He thought he had observed the result of the absence of this function in cases of extensive destruction of the epiglottis, manifested by sudden attacks of choking.

Dr. William L. Ballenger of Chicago said that some time ago he removed the epiglottis and the patient had difficulty in swallowing for two or three weeks, but this was not due to the absence of the epiglottis. The wound did not close by primary intention as expected. This epiglottis was removed deeply at the base. The difficulty in swallowing was probably due to the external wound.

Dr. Emil Mayer of New York, inclosing the discussion, said the recurrences of cancer after the removal of the epiglottis was usually slow. In one case there was no recurrence until after nine years. This was an epithelioma of the epiglottis removed with the suspension apparatus. The operation could be done more surgically and one need not cut into the malignant growth at all. The incision was made through normal tissues. Whatever function the epiglottis might have it seemed that the patient could get along without it. Dr. Mayer considered the suspension instrument of Killian as a great advance in their work.

The Significance of Plasma Cells in the Tonsil.—Dr. J. Gordon Wilson of Chicago made this preliminary report and demonstrated the plasma cells in tonsillar and adenoid tissues.

Dr. Algernon Coolidge of Boston said that he had recently studied the question of the normal size of tonsils in children and found that while the tonsils varied very much in size in adults, in children they varied surprisingly little. In a series of 200 tonsillectomies in children those tonsils which had previously been diagnosed as enlarged or hypertrophied by different physicians weighed on the average less than those which had been called small, but were removed for constitutional reasons. The apparent difference in size was often due to the varying relation of the tonsil with the soft palate. In a child of seven it was very unusual to find a tonsil of less than thirty or more than fifty grains.

Dr. Henry L. Swain of New Haven, Conn., said that the Association was to be congratulated in having presented to it such an excellent paper. Work of this kind should stimulate them to further inquiry into the physiology of the tonsil and to estimate what its actual function was. He was not clear in his mind as to the nature and function of these plasma cells and welcomed any further elucidation.

Dr. Henry L. Wagner of San Francisco, Cal., said that if one considered the cells of the nose and the mechanical conditions he would find that the germs in the nose were attacked by the cilia on the mucous membrane. During normal activities the cells would put up a defense against the organism; if the cells were impaired then their activity was lessened and the mucous membrane became a source of infection. Gland activity after eating or secreting should be considered. After certain activities the plasma cells would be found reacting both physiologically and otherwise.

Dr. George B. Wood of Philadelphia, Pa., said he had noticed an almost constant occurrence of plasma cells in the tonsils. It was generally accepted to-day that the presence of plasma cells indicated a condition of sub-acute inflammation. He had noticed especially in connection with his studies of tuberculosis that though the tonsil was quite readily invaded by the bacteria there was a distinct resistance of the tonsil parenchyma to the action of the bacterial toxines, for instance, an infection of the tonsillar tissues with tubercle bacilli rarely produced progressive lesions; more frequently it was found in a latent type with a tendency toward fibrosis of the tubercles. Should these bacilli infecting the tonsil gain access to the efferent

lymphatics and invade the regionary lymph nodes, there followed a rapid destruction of the lymph nodes out of proportion to the progress of the disease in the tonsil. This had been demonstrated experimentally and confirmed by clinical observation. The presence of plasma cells indicating a mild degree of inflammatory reaction was evidence that the tonsil was being subjected to frequent insults from bacterial invasion, and that they had reacted with the production of a localized immunity.

Nitrous Oxide Gas, Essence of Orange, Ether, and Sequestration in General Anesthesia for Operation in the Upright Position.—Dr. Thomas R. French of Brooklyn read this paper. He also demonstrated the latest model of chair-table. He said that they were now able to state, as a result of the movements of the new operating table and also as a result of the tests made in their clinic in the Long Island Hospital, of various methods of general anesthesia, that operative work in the upright position could be done with still less loss of blood, with the need of still less of the anesthetic, and with less disagreeable conditions during recovery from the anesthetic. The most pronounced effects of the smooth, gliding movements of the chair-table, even when the older methods of anesthesia were employed, had been a noticeable diminution in the loss of blood and a more satisfactory recovery from the anesthetic. This would seem to show that sudden changes in posture or sudden disturbance of the body, while the patient was under the influence of a general anesthetic, predisposed to shock, the effects of which were manifested both during the operation and during recovery from the anesthesia. After a careful study of this phenomenon they became so much impressed with the value of an elevation of the body from the recumbent to the upright position without jarring that they had constructed a chair-table remodeled to make it possible to accommodate, from the beginning, the most diminutive children, in order to avoid the disturbance of nervous or circulatory equilibrium which was apparently caused in such cases by lifting the body by hand, to place it upon folded blankets so that the head could be raised to the level of the headrest. By the aid of a new attachment all the movements of the body were now made with as great a freedom from jarring and disturbance of balance, with infants and very small children, as had hithertofore been possible only with larger children and adults. The resulting improvement in conditions left no doubt of the accuracy of the observation. They now believed that the movement of lifting the patient from the table or bed to the chair, the jar and jolt of adjusting the body to the seat and back, and the almost unavoidable jarring in bringing the chair to the upright position, gave rise to nervous disturbances, for in no other way could they explain the improvement in the condition of the patient during and after operation since the advent of the chair-table. One full year's experience with this instrument of precision had provided a sufficient basis for the statement that a smooth, jarless elevation of the body, without any disturbances than were absolutely necessary to bend the body from the supine to the sitting posture, must be accepted as of fundamental importance in obtaining ideal results from operation in the upright position. One of the most important and valuable recent contributions to anesthesia methods was the ability to omit or shorten the second stage, or stage of excitement, and they were impressed with the desirability of attaining narcosis without struggle. This could be accomplished with nitrous oxide gas, but with greater ease and certainty with the essence of orange. The discoverer of the remarkable effects of the essence of orange as a preliminary to ether, Gwathmey of New York, had demonstrated the possibilities and had proven to their satisfaction that it greatly assisted in the reduction of shock by shortening the stage of excitement. Anesthesia conducted in this way up to the time of raising the body to the upright position was a contributive factor in reducing hemorrhage, also in reducing the quantity of the anesthetic and in shortening and modifying the after-effects. They were now convinced that shock from the loss of blood and from the anesthetic could be materially reduced by the manner of administering the anasthetic. Irrespective of all other conditions there was a well-defined and never-failing relationship between the degree of skill in which a patient was anesthetized in the upright position and the amount of hemorrhage which occurred during the anesthesia; there seemed to be no question but that hemorrhage was reduced if the anesthetic was smoothly administered, the second stage omitted and the patient brought into surgical anesthesia without jarring or body disturbance of any kind. The preliminary use of nitrous oxide gas or the essence of orange and the drop method of anesthol, followed by the drop method of ether with the open inhaler and later with the Allis inhaler, would insure a prolongation of the anesthesia after the body reached the upright position, a reduction in hemorrhage and also a reduction in the disagreeable sequelæ. Sequestration of the limbs produced a congestive hyperemia and was produced by means of inflated blood pressure cuffs about the thighs and arms; this reduced the amount of blood in the head. Sequestration was first suggested by Dr. R. H. M. Dawbarn of New York in 1907 to reduce hemorrhage in operations upon the head. This sequestration method, in association with the upright position which had been carried out in 58 cases during the past season, reduced still further the amount of the anesthetic required and still further the loss of blood. The average blood loss with the sequestration method, whether applied to arms and legs or legs alone, was far below that which occurred without sequestration, and that certain operations might be rendered practically bloodless by the use of sequestration in the upright position. There did not seem to be any apprehension of secondary hemorrhage when the patient was returned to the horizontal position; after the operations were finished and the bleeding arrested there was no further hemorrhage in this series of cases. To be able to administer a smaller quantity of an anesthetic and obtain a full anesthesia, to see the patient enter the anesthetized state without the stage of excitement, to be able to stop the administration of the anesthetic when the body was brought to the upright position and yet have the anesthesia prolonged enough to permit long operations to be performed, to secure a greatly lessened loss of blood and to insure a reduction in, and in many cases an almost complete abolition of, the disagreeable after-effects, was something of a gain and in a large proportion of cases all these results were obtainable.

Dr. Harmon Smith of New York said that he had seen Dr. Dawbarn operate upon a case in which considerable bleeding was to be expected, but by the employment of sequestration of the lower extremities little or no hemorrhage had resulted. He believed that in the suction employed for the removal of blood in the nasopharynx during the time of removal of tonsils and adenoids, considerably more blood was drawn away than would otherwise happen and that in some anemic children this loss of blood was of serious consequence. If one could lessen the amount of hemorrhage by sequestration it would lessen the obstruction to the operative field and also be of material benefit toward the rapid recovery of the patient after the operation.

Dr. Joseph H. Bryan of Washington, D. C., believed that these adjuncts to anesthesia, especially when they were looking for a serious hemorrhage in the upper air passages and particularly from the upper and posterior sinus, should be employed. He believed that many cases passed away on the table that could be carried along and saved from death and from alarming hemorrhages by these adjuncts.

Dr. James A. Logan of Kansas City, Mo., asked if in all cases secondary hemorrhages occurred, that was, hemorrhages three, four, or five hours after the operation.

Dr. Charles R. Holmes of Cincinnati asked Dr. French what his opinion was as regarded the upright as compared with the horizontal position.

Dr. Thomas H. Halstead of Syracuse, N. Y., said that he had used the table presented by Dr. French and with much satisfaction. In the upright position there was less hemorrhage, but he had not used the sequestration method.

Dr. George L. Richards of Fall River, Mass., said that he had operated on patients in the upright position for a number of years.

Dr. Arthur W. Watson of Philadelphia said he wished to recall the fact that the late Dr. Harrison Allen was an advocate of the upright position in operating on the nose and throat, and during the latter part of his life used that position in all of his operations. The late Dr. Bliss also used the upright position in all his tonsillectomies.

Dr. French, in closing the discussion, said that he thought the patient did as well in the upright as in the horizontal position. Of course this did not apply to all cases. He had in mind the saving of blood, and he wished all present would use this method for the prevention of hemorrhage. Careful as they might be, secondary hemorrhage did occur sometimes after operation. Sequestration of the extremities after the method of Dawbarn had been done without the slightest disturbance, one extremity being sequestrated after the other. It seemed to him to make no difference whether sequestration was followed or whether the patient was placed in the horizontal position. There seemed to be no danger

from secondary hemorrhage in these cases. He found no difference in the hemorrhage so far as the upright position was concerned. The most important thing to consider was the diminution of shock and he was glad to note Crile's brilliant work in this respect.

The Training of the Specialist.—Dr. THOMAS J. HARRIS of New York believed that a concerted advance movement to properly standardize their specialty was essential. The time was now ripe. This had been discussed before the American Laryngological, Rhinological, and Otological Society two years ago and a committee was appointed to consider this matter. A report had been prepared by its chairman, Dr. D. J. Gibb Wishart, and the views therein expressed agreed in the main with those of Dr. Harris. As an outline for a more definite working basis some such plan or scheme of instruction for special work might consist of the following divisions: First, a thorough preparation in the undergraduate medical school; second, a general preliminary training through several years of practice or hospital internship; third, at least six months of special instruction covering not merely the clinical side but the anatomical, pathological, surgical, etc., fourth, eighteen months of internship in a special hospital or in the ear, nose, and throat department of a general hospital; fifth, at the conclusion an examination by a university which should confer upon the successful candidate a postgraduate degree. The committee was strongly of the opinion that the postgraduate instruction should be given in some established university and further that to make the departure a complete success legislation would be necessary. This, when public sentiment had been aroused, there would be no difficulty in securing. Finally, the committee was of the opinion that any success in this advance movement must be the result of concerted action on the part of the several societies representing America and Canada.

Dr. GEORGE L. RICHARDS of Fall River, Mass., said that at the Triological Society he had brought up facts that bore on this line of work. He thought that Dr. Harris's paper was a very timely one and helped to impress upon them that such an outline as had been suggested was very essential. They were aware that such instruction was asked for by the undergraduate student. Many of the students came to the teacher and asked what specialty they should follow, and when they were carefully questioned it would be found that they wished to take up this or that specialty because such and such a practitioner had made a success of it. They looked at it from the commercial point of view. The student was often not willing to take a course in a hospital and to acquaint himself with general medicine. He was not willing to devote one or two years to general practice in order to equip himself as the result of personal contact with patients. The work proposed by Dr. Harris should be insisted upon. They overlooked the fact that some universities required the presentation of a degree such as Ph.D., as being essential before the student was allowed to enter upon a course. In Washington they had found it very difficult to go before Congress and have the ordinary but necessary legislation required even for their own city. They would have to fight to the utmost for medical legislation. Universities could gain considerable assistance by the proper alignment of the different schools in this line of work. Standardization was a very important point.

Dr. H. W. LOEB of St. Louis, Mo., said that in this country there were 150,000 physicians and he hesitated to say how many were qualified to practise medicine in any branch. The requirements to-day were different from those of twenty-five years ago. A few years ago the men with a grammar school education found it easy to undertake the study of medicine. Many of these men, after practising for from five to fifteen years, desired to share in the supposed prosperity of those who specialized; one could not stop that class of men from becoming specialists in this country. In the next twenty-five years the properly prepared physicians would be in the majority. Dr. Loeb said he was heartily in favor of any movement which would improve the situation, but this would be easy when the standard of physicians in this country was equal or superior to that of other countries and where the six weeks specialist was practically unknown.

Dr. BURT E. SHURLY of Detroit, Mich., referred to one meeting which occurred out in the Middle West, where it was stated that out of 1,600 practitioners one-fifth had registered as specialists in the eye, ear, nose, or throat. This did not tend to show any high standardization of their specialty. In order to accomplish what was needed it seemed to him that the formation of the American College of Surgeons was a step in the right direction.

History of a Broncholith, Bronchial Calculus, or Lung Stone.—Dr. WALTER F. CHAPPELL of New York said that laryngologists and rhinologists were frequently consulted for throat cough and some forms of asthma and, for this reason, he wandered into the bronchial region for an opportunity of presenting an unusual case and to show that all causes of asthma were not centered in the nose, nor all throat coughs in the larynx. The patient was fifty-two years old and was attacked first by a severe wheezing which became more severe, and was accompanied by spasmodic attacks of coughing lasting an hour at a time and by intense tickling in the throat; there was little expectoration. There was considerable exhaustion following these attacks. The tickling was below the larynx, and the wheezing in the upper part of the chest in front and behind. She soon raised a small calcareous mass and the tickling was relieved, but the wheezing continued. Soon after she was seized with a great coughing spell and expectorated a large calcareous mass which Dr. Chappell presented. Immediately all wheezing stopped and her breathing became absolutely free. Later another calcareous mass was coughed up. Chemically these masses consisted of phosphate of lime. The history of the patient did not in his mind give any definite clue of her having suffered from the disease which one would naturally believe must have preceded the formation of the numerous calcareous deposits which the patient had in her chest and some of which she expectorated. A careful review of the literature revealed few reports of such cases in the English language, but French and German books reported more cases. Dr. Walter B. James of New York gave him an unreported case which occurred in his practice; Dr. Chappell gave a résumé of the history of this case, which was taken ten years ago. A recent letter to Dr. James stated that the cough and bronchial condition, for which he was consulted, ceased with the expulsion of the stone.

The Removal from the Esophagus of a Plate of False Teeth Embedded for Eighteen Years by Means of an Esophagoscope.—Dr. D. BRADEN KYLE of Philadelphia reported this case, and showed the foreign body. In spite of its size and shape it was very difficult to locate it because of the granulation tissue which had organized into fibrous tissue together with the curvature of the spine as shown in the *x*-ray plate. The patient swallowed the upper suction plate with four attached front teeth while sleeping; inserting his fingers into his throat he was able to touch the plate, but in his efforts to grasp it only succeeded in pushing it down further. The physician who was called in wished to push it down into the stomach, but to this the patient objected. He then went to a hospital where the doctor passed bougies and probangs and assured him that he had never swallowed the plate, or if he had that it was no longer in the esophagus. During the first three weeks following the disappearance of the plate the patient experienced slight pain in the lower part of the neck, at a point where he always felt the object had lodged. After that time there were practically no painful sensations, but swallowing had always been difficult. When solid food was taken it had to be finely ground. For months at a time he only took liquids. The patient was placed on a table with his head well extended over the end, a position very difficult to bring about because of the rigidity of his spinal column. An attempt was made to secure a view of the plate by means of the Kirstein autoscope, but this was found to be too short and the Kahler esophagoscope was used instead. Many attempts were made, but the successful removal of this foreign body was due largely to the fact that the speaker proceeded slowly and made as little trauma as possible in the esophageal structures, and by loosening the foreign body from its fibrous bed, by setting up slight inflammatory action, and then waiting a few days, he was able to remove the plate without much laceration of the structure.

Dr. HENRY L. SWAIN of New Haven, Conn., congratulated Dr. Kyle on being able to recover the teeth after so long a period and also because the patient had not developed any malignant disease or other bad results because of the long stay of the teeth in the esophagus.

Dr. ALGERNON COOLIDGE of Boston congratulated Dr. Kyle on being able to remove the tooth plate without anesthesia. The principal difficulty in the removal of foreign bodies from the esophagus was often a deficiency in armamentarium. To cut tooth plates and similar work required very special equipment. Large esophagoscopes were often of great service. It must always be remembered that the trachea might be compressed from behind by a shifting of the position of a large foreign body, and it was well to have a bronchoscope at hand in case breathing became obstructed.

Dr. D. Braden Kyle of Philadelphia, Pa., said that the curvature of the spine, as shown in the *x*-ray plates in this particular case, rendered it very difficult to pass the esophagoscope. It was only by careful manipulation and continued patience that the operation was successful. The continuous looking through the tube was tiresome to the eye and he had been fortunate in having trained assistants on whose services he could rely.

Preliminary Report Concerning the Passage of Bacteria through the Tonsillar Tissues as Determined by Experimental Research.—Dr. George B. Wood of Philadelphia, Pa., read this paper and presented the following conclusions: From a study of the experiments outlined they found important facts which warranted them at this time to draw the following conclusions:

(1) They found that the tonsils, in the case of the hog were more readily infected by the anthrax bacillus than any other portion of the buccal or pharyngeal mucosa. The clinical history of this disease in the hog showed that in the great majority of idiopathic cases the pharynx was the site of the invasion, and in all of those cases of pharyngeal disease, the tonsils were the portal of entry. In none of his experiments was there any involvement of the pharyngeal or buccal mucosa other than the tonsils. While the culture of anthrax was generally brought into more intimate contact with one of the tonsils, it was impossible to limit the bacilli to the tonsillar surface, and they must have come in contact with a large part of the pharynx. In the inoculation an effort was made to rub the emulsion into one tonsil only, and in one case the lesions were limited to one tonsil; in this case the tonsil affected was not the one on which the culture had been rubbed. (2) The anthrax bacillus penetrated through the crypts and not the surface of the epithelium. (3) The anthrax bacillus probably gained access to the parenchyma of the tonsil by passing through the living, unaltered epithelium, and having gained access through the superficial layers of the epithelium they tended to multiply in the deeper layers and then pass into the interfollicular tissue. (4) The anthrax bacillus penetrating through the living normal epithelium caused devitalization of the tissue, which paved the way for a secondary infection from the staphylococci or other pathogenic organisms. (5) The rapidity of the invasion was influenced both by the virulence of the organism used and by the susceptibility of the individual animal.

After the invasion had actually occurred, the subsequent course of the disease was similar to that found in other tissues. The toxin elaborated by the bacilli caused at first an accumulation of polymorphonuclear cells, and later necrosis of the tissue cells with disintegration of the nuclei. The germinating follicles showed more resistance to the disease than the interfollicular tissue. Associated with the necrotic process was an increase in the number and engorgement of the capillaries, and sometimes there was marked extravasation of the red-blood cells. The anthrax bacilli accumulated in the lymph spaces and also around the blood-vessel walls. In some of the sections examined the bacilli were found penetrating the blood-vessel walls and a few were found actually in the blood current.

Dr. George B. Wood of Philadelphia, in closing the discussion, said that so far as not finding the anthrax bacilli in the main blood-current when they were present in the capillaries was concerned, it must be remembered that in anthrax the bacilli accumulated in the capillaries in dense networks and did not become free in the blood current until the last stages of the disease, when the resistance of the host had been entirely overcome. The danger of infection when experimenting with the anthrax bacilli was not especially great, as they were always wet and could not become disseminated in the air. The cases of anthrax among those who handled skins were due to pulmonary infection by breathing the dry anthrax bacilli, especially the spores. An important extension of this study would be the determining of the resistance of the tonsillar tissues in the various breeds of hogs by the search for antibodies, bacteriolysin, agglutinins, etc., in a large number of tonsils taken from slaughtered animals. This had been suggested by the very different degrees of infection caused in different animals by altogether similar methods of inoculation.

Practically the only fact demonstrated by the present research was that anthrax bacilli would penetrate through the epithelium of the tonsillar crypt more readily than through the surface epithelium of the tonsil or other portions of the pharyngeal mucosa. That the disease having gained access to the tonsil did not advance more readily was a fact which opened up a large field for thought and experimentation

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held May 19, 1913.

The President, Dr. Reynold Webb Wilcox, in the Chair.

A New Water Purifier.—Dr. Thomas Darlington gave a demonstration of a new water filter, one of the important features of which was a special arrangement of two layers of asbestos. Most of the filters on the market, he said, did not strain out bacteria, but, from actual tests made, it had been found that this apparatus would stop the passage of no less than 99.5 per cent. of the bacteria in water. It also completely removed all coloring matter from the water, even aniline dyes, which were exceptionally difficult to get rid of. In addition, it gave a very large flow, a single filter purifying as much as 1,200 gallons an hour. On this account, as well as its other advantages, Dr. Darlington thought it would be particularly useful for troops on the march.

The Sanitary Problems of the Philippines on American Occupancy.—Colonel L. Mervin Maus, Medical Corps, United States Army, read this paper. He said that when the American troops entered Manila they found the sanitary condition of that city similar to that of European cities during the middle ages. After discussing the criticism that had been launched against the government in regard to the great financial cost and loss of life entailed by the war with Spain in the acquisition of Porto Rico and the Philippine Islands, he gave a brief detail of the sociological condition of the natives of those islands, and called attention to the great blessings which the war had conferred upon those peoples; referring particularly to the splendid work of the Army Medical Board in the suppression of yellow fever in Cuba and the special work accomplished in the Philippine Islands by the civil government. He stated that before the Spanish American War few of the natives in the Philippines could read or write, and that their general condition might aptly be compared to that of the semicivilized Indians of Arizona and New Mexico at the present day. Certainly, only a very small number of the people had a liberal education. At the time of the American occupancy there was practically no board of health for the Philippine Islands and but few hospitals, and it was believed that 80 per cent. of the children died during infancy as the result of defective nutrition, cholera infantum, and infantile convulsions. The Insular Board of Health was organized in 1901, and it had revolutionized the sanitary conditions in the city of Manila and throughout the Archipelago. At the end of the first year of the existence of the board the death rate in Manila was reduced 50 per cent. Among the matters included in the work of the board was the creation of laws for the practice of medicine, dentistry, pharmacy, veterinary surgery, undertaking and embalming, compulsory vaccination against smallpox, segregation of lepers, and the organization of provincial boards of health. In 1901 the city of Manila was stricken with a serious epidemic of bubonic plague, and this was combated by the extermination of the rodents of the city. During the campaign 15,000 rat traps were set and 75,000 plates of ratbane exposed every night; which practically exterminated the rats within six months, by which time the bubonic plague had disappeared from the city. During this remarkable campaign it was believed that over eight hundred thousand rats were destroyed, while twenty thousand of the animals were examined microscopically to see whether they were infected or not. Smallpox was one of the greatest menaces to health in the Philippine Islands on American occupancy, and it was commonly found throughout the Archipelago in a virulent form. As a result of a law prescribing compulsory vaccination for the natives the disease had been eliminated from the islands. The vaccination was carried on upon a very extensive scale, and over three millions of the people were vaccinated. The virus employed was made from the heifer of the carabao. Among the most important actions of the board of health was the colonization of the lepers, who amounted to four thousand in number. The Island of Culion was selected for the purpose; it was provided with quarters, hospital, schools, churches, etc., and all the lepers in the islands were sent there. The colony had now been in operation for five or six years and it was believed that within the next generation leprosy would disappear from the Archipelago. In 1903 Asiatic cholera made its appearance in Manila, and very soon it had permeated all the other islands. It was a very difficult proposition to combat this epidemic, on account of the ignorance and superstition of the natives; but it was held in check, and finally, a few years later, completely over-

come. Many radical changes had been made among the Filipinos since 1898 along sanitary, educational, and sociological lines. Boards of health had been established throughout the island, and a campaign of sanitary education introduced which had revolutionized the habits and customs of the people. Artesian wells had taken the place of the infected surface wells in many of the communities, and the health of the natives had been correspondingly increased. Through the beneficence of public school education the vast majority of the coming generation had received a liberal education, and were able to speak English. Athletic sports had been encouraged by the Americans, with resulting marked improvement in the physical condition of both sexes. Tennis and baseball had been accepted as national games, not only in the Philippines, but also in Japan and China. The city of Manila had been immensely improved and now possessed a modern sewer system, new hospitals, magnificent hotels, beautiful parks, and clean streets. Hence it had become the pride of oriental cities, with the lowest death rate of them all. Besides a great university had been established in Manila, with colleges of medicine, pharmacy, veterinary medicine, law, engineering, agriculture, forestry and the liberal arts. A bureau of science had been established, with well equipped chemical and biological laboratories for the study of diseases afflicting man and animals. In addition, the government had constructed a large ice and refrigerating plant in Manila and established a hospital of 300 beds, which afforded ample accommodation for the families of civil employees and the public at large. While the sanitary work in the Philippines had attracted very little attention in the United States, it was believed that in the last analysis it would be found equal, if not superior, to that performed in the Canal Zone; especially when it was appreciated that the great work done there among a population of eight millions of people and an area of one hundred and twenty-five thousand square miles had cost the United States nothing (all the expenditure having been met by the revenues of the colony), while the work in the Canal Zone, with a population of seventy thousand people and an area of three hundred and eighty square miles, had cost the United States Government nearly fifteen millions of dollars. The sanitary and constructive work in the Philippine Islands performed by the Board of Health and the Civil Commission would ever remain as one of the greatest monuments to American intellect and progression that the world had seen.

Observations on Beriberi in Japan and the Philippines.—Major Lewis Hess, Medical Corps, United States Army, in this paper, brought out the following points: (1) Recent investigation into the etiology of beriberi, and observation of the disease among the native troops and other natives of the Philippine Islands and the numerous cases occurring in the Japanese army during the Russo-Japanese war, would indicate that beriberi was due more to lack of nitrogenous food, and a diet largely composed of carbohydrates, than to a specific organism. At least, diet was an important predisposing factor in its causation. (2) While beriberi was apt to occur endemically and epidemically, it was extremely doubtful whether it was contagious, or could be transmitted from man to man. Hence, it should not be classified in the category of infectious or contagious diseases. If beriberi were caused by a specific organism, this certainly could not have any pathogenic action upon healthy and well nourished individuals. It was possible that individuals who subsisted on a diet largely nitrogenous had a natural immunity against the specific organism of beriberi, and that this organism could act only on individuals who had a lowered resistance from the use of food consisting largely of carbohydrates, and in the presence of certain meteorological and other conditions. (3) The results and findings of the United States Army Board of Medical Officers for the study of tropical diseases as they existed in the Philippine Islands, in regard to the influence of rice diet and inanition in the production of multiple neuritis in fowls, and the bearing thereof on the etiology of beriberi, afforded a further proof that the lack of nitrogenous food and the excess of carbohydrates constituted an important factor in its etiology, if not the specific cause, of beriberi. As the result of a series of experiments on chickens, they were able to produce in the birds a multiple neuritis similar to that occurring in human beings suffering from beriberi by feeding them on polished rice; and, on the other hand, were able to cure them by feeding them on the polishings of rice, or the pericarp of the rice. Moreover, fowls fed on undermilled rice (that with some of the pericarp left on) did not become affected with aneuritis. While chickens and other fowls were very prone to be attacked with a general neuritis under certain conditions, it was believed that these experiments pointed strongly toward rice as constituting an important factor in the causation of beriberi. By way of confirmation of the experiments the rice in the ration of the native scouts in the Philippine Islands (of which it largely consisted) was changed to the native rice, which was undermilled, and the result was the complete disappearance of beriberi among them. (4) Beriberi had always been classed as an unpreventable disease, and was so considered by the Japanese, who reported over 97,000 cases in their army during the Russo-Japanese war. It should now be classed as a preventable disease, and there was no excuse for its occurrence to any extent among troops, any more than there was for that of smallpox, typhoid fever, dysentery, cholera, and similar diseases which in the past had at times rendered armies almost ineffective and had often been a potent factor in deciding results between contending armies. As a matter of fact, Major Hess said, there was reason to believe that the wide prevalence of beriberi in the Japanese army had had a very considerable influence in bringing about the termination of the late war. In regard to the very considerable immunity from typhoid fever among the Japanese troops, about which so much had been said, this was practically due to the simple facts that the Japanese were extremely fond of tea (the water used thus being boiled) and of cooked foods; and the same thing was true of the Russians. On the other hand, our soldiers in the Spanish-American War did not like tea and drank much water, while they preferred raw to cooked foods. There was, however, some typhoid fever among the Japanese in the war with Russia; the number of cases, according to their own reports, amounting to more than 9,000, while there were over 4,000 deaths, a mortality of nearly fifty per cent. Among the Russians there were a little over 10,000 cases, but only about 1,000 deaths, a mortality of one-fourth that among the Japanese.

Dysentery in the Tropics.—Major Eugene R. Whitmore, Medical Corps, U. S. Army, in this paper, said that this disease was one of the leading causes of death in the tropics. It had been stated, with truth, that it was a more potent factor in the death rate than malaria, though the latter caused more illness. Two types of dysentery were recognized, amebic and bacillary, and these two types differed in cause and morbid anatomy, and required different treatment. Amebic dysentery was endemic and did not ordinarily give rise to epidemics; bacillary dysentery gave rise to extensive epidemics. Amebic dysentery was due to a protozoon; bacillary dysentery was due to a bacillus. In amebic dysentery the process began in the submucosa, from the specific tissue-destroying properties of the amebæ which had traveled in through the mucosa; bacillary dysentery was a diphtheritic or croupous process, involving the intestinal mucosa, while the submucosa was only secondarily involved. Liver abscess was a frequent complication in amebic dysentery, but very rare in bacillary dysentery. Amebic dysentery tended to become chronic, with frequent relapses; bacillar dysentery was a self-limited disease, with a tendency to complete recovery. Ipecac, in the form of emetin, was a specific in amebic dysentery, while a specific antitoxin and bacterial serum gave the best results in the treatment of bacillary dysentery. The amebæ were found only rarely in the small intestine, but sometimes might be confined to the appendix alone; which would explain the presence of amebæ without dysentery. The dysentery bacilli frequently got into the small intestine. Hepatic abscess was the most common complication of amebic dysentery, and in all the ulcerations in this affection, whether in the liver or the intestines, there was a striking absence of purulent inflammation. The amebæ might travel not only into the liver, but also into the pleural cavity and elsewhere. Still, liver abscess was the greatest danger to be apprehended, although perforation of the bowel was not uncommon. The symptoms of the two forms of dysentery, the amebic and the bacillary, were the same; so that clinically it was impossible to make a differential diagnosis between the two. From an examination of the stools it was never safe to say that amebæ were present unless one could discover amebæ actually moving. Ipecac had long been highly esteemed in the treatment of dysentery, but, on account of the difficulties met with in connection with its administration, the remedy was often almost as bad as the disease. The attempt had been made to employ de-emetized ipecac, but this was found to have no effect in dysentery. Vedder had demonstrated, however, that emetin killed cultures of amebæ, and this principle of the drug was now commonly used in the treatment of amebic dysentery. It was preferably given hypodermically in

doses of from 1/10 grain to 1 grain, once daily. Allen had administered it in doses up to four and two-tenths grains. In the bacillary type of dysentery there were two groups. The bacillus of the first was discovered by Shiga, the Japanese investigator, in 1898, and in 1900 Flexner confirmed this and announced a second group; though at first he believed that the bacillus he had discovered was identical with Shiga's. The Shiga group was now recognized as the toxic group, and the Flexner as the atoxic group. The latter, in which there were several strains, was not really atoxic—it was simply less toxic than the Shiga group. The morbid anatomy and symptoms, as well as the treatment, of the disease were the same in the two groups, but the Shiga type of dysentery was the more fatal. Amebic dysentery was usually subacute from the first and tended to progress indefinitely, and in this respect was very different from the bacillary form, which was an acute affection, and, as had been mentioned, was self-limited and had a tendency to complete recovery. In some instances, however, the latter became subacute or chronic, and this was probably the condition in the cases of chronic diarrhea which were noted among the soldiers of the Civil War. There were sometimes joint complications, somewhat of the nature of general arthritis, but, in contrast to amebic dysentery, peritonitis, bowel-perforation, and liver abscess were rare. From the intoxication of the system, neuritis was not uncommon. The bacilli could be isolated from the stools and also from the superficial part of the intestines. In this form of dysentery ipecac was of no practical value. While the disease was self-limited and essentially tended to recovery, in the Shiga type there was a mortality of from twenty to sixty per cent. No medicinal agent seemed to have any control over bacillary dysentery, but very good results have been obtained from the use of serum therapy. The remedies of this class employed were Shiga's bactericidal serum and Rosenthal's antitoxin and bactericidal serum. The speaker said he could not see that intestinal irrigation was of much benefit in acute cases or in the early stages of amebic dysentery, but thought it might be of value in chronic cases.

Dr. NATHAN S. JARVIS referred to the views on the tolerance of the white man in the tropics expressed by the noted sociologist Benjamin Kidd in his book entitled, "The Control of the Tropics," which was published no longer ago than 1898. It was then the practice in the British army to allow officers who had served one year on the west coast of Africa a year's leave, and this was also the rule in regard to those serving in India. This was on account of the conditions, so unfavorable to the white race, prevailing in those tropical regions. Now, however, it was possible for the white man to live indefinitely, and live comfortably, in the tropics. This was very largely owing to the splendid work accomplished by the medical officers of our army, and the praise which was their due should be unstinted. At the same time, it should not be forgotten that in recent years the army surgeons had had the warm cooperation of the line officers, and such results could not have been attained without this. Formerly the case was different, and he could well remember that twenty years ago, when he himself was in the army medical corps, it was almost impossible to get a line officer to take any interest whatever in sanitary matters. Panama might be cited as an instance of the marvelous change which had been effected. In regard to the freedom from disease of the Japanese in the late war with Russia, this had undoubtedly been exaggerated, but he would say, in justice to some of those who had extolled the sanitary triumphs of the Japanese, that they had been deceived by the latter; for the reports which were furnished to them were both very incomplete and very erroneous. We should not lose sight of the fact, however, that the discipline in the Japanese army was really wonderful. In the case of volunteers, such as our army was largely composed of in the Spanish-American War, it took a year or two before the men could be depended upon to obey orders in a reasonably satisfactory manner. The results accomplished by the Japanese were due to their discipline.

Acute Pemphigus Complicating Typhoid Fever.—A. Reuter reports the case of a fifteen-year-old girl in whom there appeared on the sixteenth day of an attack of typhoid fever a number of pemphigus-like lesions. These were round, of a size varying from that of a pea to that of a walnut, and consisted of blebs filled with a clear fluid. The base of the lesions, at first light red, later became gangrenous. The lesions appeared on the back and on the leg. Coincident with the recovery from the typhoid fever the pemphigus also got better, but left round scars.—*Arch. f. Derm. u. Syph.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

COLORADO STATE BOARD OF MEDICAL EXAMINERS.

April, 1913.

PATHOLOGY.

1. Give a description of adenocarcinoma under the microscope.
2. Describe *B. diphtheriæ*.
3. Exclusive of changes in the intestine what is the morbid anatomy of typhoid fever.
4. What conditions result from disease of the pituitary body?
5. Name some of the common fluids used for hardening tissues preparatory to section, with the strength ordinarily used.
6. Describe the phenomenon known as inflammation.
7. Give the morbid anatomy of acute endocarditis.
8. Describe the morbid anatomy of acute lobar pneumonia.
9. Discuss the cause of death from burns.
10. Discuss anaphylaxis.

OBSTETRICS.

1. Name possible sources of puerperal hemorrhage and treatment of each.
2. What would lead you to suspect extrauterine pregnancy?
3. In breech presentation describe the different methods of delivering the aftercoming head.
4. You are called upon to take care of a woman in labor; describe how you would proceed to sterilize your own person.
5. Give symptoms of rupture of the uterus.
6. How may you prevent perineal lacerations?
7. Outline treatment for the prevention of ophthalmia neonatorum.
8. Write two pages on the preventive treatment of eclampsia.
9. Give the treatment of eclampsia?
10. Give the mechanism of L. O. A.

SURGERY.

1. Describe the fractures of the elbow and the method of examination.
2. Give the symptoms and diagnosis of fracture of the surgical neck of the humerus.
3. Give the symptoms and complications of fracture of ribs.
4. Define toxemia, septicemia and pyemia.
5. Give the symptoms and causes of a subphrenic abscess.
6. Give the symptoms and diagnosis of tuberculous arthritis.
7. Give the symptoms and etiology of varicose veins.
8. What are the causes and symptoms of acute intestinal obstruction?
9. Describe the symptoms of abscess of the liver.
10. Discuss benign and malignant tumors of the breast.

ANSWERS.

PATHOLOGY.

1. *Adenocarcinoma* "is characterized by irregular or tubular cavities, paved with one or more layers of cylindric cells, and separated by a stroma which may be fibrous, embryonal, or mucous. In structure it occupies an intermediate position between the simple adenoma and true cancer. The cylindric cells are similar to those which cover certain mucous or glandular cavities, and are always implanted perpendicularly to the wall. The epithelial elements are similar to those of the mucous membrane from which they grow, but differ microscopically from the normal mucous membrane in the absence of a basement membrane (membrana propria). The slower the growth, the more typical the gland formation; in rapid growths and recurrences the cells are small and the lumina imperfect. The growths are soft, and often of a gelatinous consistence. On section they present a soft, watery appearance. The most common forms of degenerative changes are mucoid and colloid." (Coplin's *Pathology*.)

2. *The characteristics of the bacillus of diphtheria:* "The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly, or in pairs,

or in irregular groups, but do not form chains; they have no flagella, are nonmotile, and aerobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

3. In addition to the changes in the intestine, there may be: Enlargement of liver and spleen, infarction or rupture of spleen, abscess of liver, cloudy swelling or degeneration of kidneys, nephritis, ulceration of larynx or pharynx, edema of the glottis, pneumonia, congestion or gangrene of lung, endocarditis, myocarditis, pericarditis, fatty degeneration of the heart, endarteritis, thrombus, or embolus.

4. Diseases of the pituitary body may result in gigantism and acromegaly.

5. *Hardening fluids:* Alcohol, 95 per cent.; formalin, 4 per cent.; potassium bichromate, 2.5 per cent.; bichloride of mercury, 5 per cent.; osmic acid, 1 per cent.

6. "*The phenomena of inflammation* are dilatation of the arterioles, capillaries, and small veins. At first the blood current is quickened, then retardation occurs, and may progress to stasis and thrombosis. During this time exudation of plasma and white corpuscles from the small veins, and perhaps the capillaries, is going on. The fate of the white cell may be either to break up and set free prothrombin, or to act as food for connective-tissue cells, or to act as a phagocyte and be transformed into a pus corpuscle. Red corpuscles may be exuded and broken up, setting free their coloring matter. The prothrombin of the white cells unites with the calcium chloride of the plasma, and forms thrombin, or fibrin ferment, which acts upon the fibrinogen of plasma to form fibrin. The tissues are, thus invaded with numbers of leucocytes. In bacterial inflammation a varying portion of the tissues is killed by the toxins produced, and is either replaced by a mass of small round cells, or liquefied into pus. In the latter case it is surrounded by a ring of small round cells. The connective-tissue cells absorb the leucocytes, and new vessels are formed, thus constituting repair. In nonbacterial inflammation, exudation may separate layers of cells to a large extent and form blebs. In chronic inflammation the formation of new fibrous tissue is the chief part of the process." (*Aids to Surgery.*)

7. "*Acute simple endocarditis* may be prenatal as well as postnatal. In the former class of cases, the right side of the heart is usually involved, while in those instances observed after birth, the disease is most often limited to the left side. While the disease may attack the entire lining membrane of the heart it is especially marked at the valvular portions of the endocardium. The earliest change is that of hyperemia of the membrane rendering it red and swollen. As the inflammatory exudate is thrown out the surface of the valves become roughened and warty excrescences are formed. These verrucose formations are to be found on the auricular surface of the mitral valve and on the ventricular surface of the aortic valve at the line of contact of their leaflets, usually from 1 to 2 m.m. from their free margin. These vegetations are produced by a proliferation of the cells of the adventitia and of the external connective tissue; fibrin from the blood is deposited on the formations, thus serving to increase their size. The excrescences are friable and may be easily detached or broken off and carried in the blood stream as emboli, to various parts of the body, particularly the left side of the brain, the kidneys, and the spleen. If retained in position, fibrous tissue is eventually formed; the valves become thickened and contracted, producing chronic endocarditis. The leaflets may then become the seats of various infiltrations." (Hughes' *Practice of Medicine.*)

8. ACUTE LOBAR PNEUMONIA. "It is convenient to describe four stages, those, namely, of (1) hyperemia or engorgement, (2) red hepatization, (3) gray hepatization, and (4) resolution. *First stage or splenization.*—The lung is injected, dark red, and heavy, and pits under the finger; on pressure, there exudes a frothy serum tinged with blood and slightly aërated. The lung still floats in water. *Second stage or red hepatization.*—The part involved is solid and friable, presents a granular or red granite appearance, and sinks in water. The alveoli are filled with a coagulated exudation, which shows under the microscope fibrin, leucocytes, red corpuscles, proliferated alveolar epithelium, and pneumococci. *Third stage or gray hepatization.*—The lobe has now the appearance of gray granite, the lung substance is softer and more friable; on pressure, a dirty purulent fluid exudes. The gray appearance is due to four factors: (1) Decolorization of the red blood corpuscles; (2) obliteration of the alveolar blood vessels from pressure; (3) fatty degeneration of the coagulated material; (4) great infiltration of leucocytes. A more advanced stage, in which the lung tissue is bathed in purulent fluid, is known as purulent infiltration. It is probably inconsistent with life. *Fourth stage or resolution.*—Resolution of the inflammatory exudation is brought about principally by absorption (autolysis), but partly by liquefaction and expectoration. Pneumonia may affect a lobe, or the whole of a lung, or it may attack both lungs. Double pneumonia occurs in about 10 per cent. of cases. Different parts of the same lung may at the same time show different stages. There is always some degree of pleural inflammation over the affected area. Moderate enlargement of the spleen is very common." (Wheeler and Jack's *Practice of Medicine.*)

9. *Death from burns* may be due to shock, to exhaustion, to perforating ulcer of the duodenum, or to the absorption of toxic substances. Just why there is ulceration of the duodenum is not determined; possibly it is due to thrombosis of some blood vessel, followed by digestion by the gastric juice.

10. *Anaphylaxis* is a condition of supersensitization induced by the injection of a serum. It is the opposite of prophylaxis, and in place of rendering the person injected immune, the serum has made him particularly susceptible. It has been followed in some instances by alarming symptoms, such as heart failure, collapse, convulsions, and coma.

OBSTETRICS.

1. *Puerperal hemorrhages* may be due to: Retained secundines; displaced uterus; displaced thrombi; fibroid tumors. In a general way, the cause should be removed if possible. The ordinary so-called post-mortem hemorrhage is managed as follows: Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin, or ergot, can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging with gauze of uterus and vagina may be necessary. Whatever is done must be done promptly, and everything likely to be needed for this emergency should be prepared beforehand in every labor.

2. In *extrauterine pregnancy,* there will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cervix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage.

3. *Extraction of the after-coming head:* "If the arms are extended by the side of the child's head, they should be delivered first. The posterior arm is located by the position of the trunk and shoulders. To deliver the right arm, the child's ankles should be grasped with the left hand, and the body raised upward and outward over the mother's right thigh. The fingers of the right hand are passed along the posterior surface of the arm beyond the elbow. The fingers are hooked in the elbow, and traction is exerted; the forearm is then delivered by extension. The left arm is delivered in a similar manner. In the *Wiegand-Martin method* extraction of the after-coming head is effected by the insertion of the index finger of the supinated right hand into the child's mouth and making traction upon it, while pressure is exerted through the abdominal wall by the left hand. In the *Mauriceau* or *Veit-Smellie method,* in addition to the right hand index finger in the mouth, the left hand is also introduced into the vagina, along the back of the child, the middle finger presses against the occiput, while the remaining fingers exert traction over the clavicles. In the *Prague method* the child's ankles are grasped in the right hand, the fingers of the left are flexed over the clavicles, and traction is made. In these methods, when the perineum is distended, the child's body is raised toward the mother's abdomen. *Forceps* may be applied after the child's body has been raised and traction made in the direction of the axis of the parturient canal." (*Pocket Cyclopedia.*)

4. In addition to the bath, clean clothes, and other details which may be taken for granted in persons of refinement, the physician should, before making a vaginal examination, carefully cleanse his hands, as scrupulously as if he were about to undertake a major operation. The hands should be scrubbed for at least five minutes with hot water, soap, lysol, and a nail brush that has been boiled or soaked for some time in an antiseptic. Special care must be given to the nails and nail-folds. The hands should then be soaked for three minutes in an antiseptic solution;

such as bichloride of mercury 1:1000. This is followed by another washing in sterile water. Rubber gloves that have been boiled and kept sterile and a sterile gown add to the safety of the patient.

5. RUPTURE OF THE UTERUS. "When rupture actually occurs the typical symptoms are a sudden, sharp pain in the womb (caused by its tearing), sometimes accompanied by an audible noise; sudden and simultaneous cessation of labor pains; a sensation as if warm fluid (really blood) were being diffused into the abdomen; violent shock and collapse, indicated by pallor, feeble and frequent pulse, cold extremities, fainting, hurried respiration, vomiting, etc. (usually due to hemorrhage into the peritoneal cavity). On vaginal examination the presenting part of the child is found to have receded from its former situation, owing to partial or complete escape of the fetus through the rent into the abdominal cavity, where, by abdominal palpation it may be felt as an irregular-shaped, movable tumor, more or less distinct from another tumor formed by the partially contracted uterus. Blood may or may not escape from the vagina. A loop of intestine may prolapse through the rent and be found by vaginal examination." (King's *Obstetrics.*)

6. *Perineal laceration may be prevented:* By making firm backward and upward pressure against the occiput during the pains; by restraining voluntary expulsive efforts during the pains; by securing expulsion of the head between the pains; by the judicious use of an anesthetic.

7. *Prevention of ophthalmia neonatorum:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 per cent. solution of nitrate of silver, immediatey after birth.

8 and 9. ECLAMPSIA.—"*The prophylactic treatment* consists in frequent and regular examination of the urine. After the first appearance of albumin, daily quantitative examination of the urine should be made. The diet should be milk; the bowels should be kept freely open by means of calomel and salines; the skin should be kept active by hot baths, followed by vigorous rubbing. Diuretics, such as Basham's mixture, digitalis, and caffeine should be administered. During pregnancy, if the percentage of albumin increases in spite of the treatment, abortion or induction of labor is indicated.

"*The treatment of the attack* consists of the administration of chloroform by inhalation, chloral hydrate (gr. 60) by enema, and the fluidextract of veratrum viride hypodermically (gtt. 15 followed by gtt. 5, repeated frequently enough to keep the pulse at about 60 beats a minute), to control the convulsions, and free purgation by croton oil (gtt. 2, or 3, in sweet oil or glycerine), free sweating by the hot pack, and sometimes depletion by venesection to eliminate the poison. The after-treatment consists of free purgation by the salines, restriction of diet, and later the administration of tonics and stimulants. The obstetric treatment is usually noninterference." (*Pocket Cyclopedia.*) Sometimes *accouchment forcé* is indicated.

10. The mechanism of labor in L. O. A. positions consists of the stages of: Flexion, descent, internal rotation, extension, and restitution. Descent is going on all the time; the other movements are added to it. For details of each of these stages some textbook on obstetrics must be consulted.

SURGERY.

1. "In examining an injury to the elbow, the injured side should be compared with the uninjured. The two condyles and the tip of the olecranon should receive first attention. During extension they form one line; during flexion they form a triangle of which the apex or olecranon is toward the hand. The head of the radius should be felt just below the external condyle. When the arm is flexed to a right angle, a ruler placed along the back of the arm does not touch the olecranon. The forearm is naturally in a position of slight abduction relatively to the arm.

"*Supracondyloid fracture* resembles backward dislocation of the radius and ulna, but (1) the relative positions of the bony points are unaltered; (2) the arm is shortened; (3) the projecting end of the upper fragment is felt above the crease of the elbow; (4) the deformity is reduced with crepitus, but readily reappears. If there is much swelling, it is impossible, without a skiagram, to come to a proper conclusion. Sometimes the lower fragment is displaced forward.

"*T-shaped fracture* is the result of direct violence, and consists of a transverse supracondyloid wtih a vertical fracture running into the joint and separating the condyles. The condyles are widened, and can be moved on each other; great swelling comes on rapidly.

"The *condyles* may be broken by direct violence. Fracture of the external always involves the elbow joint. Abnormal mobility and crepitus distinguish fracture of the condyles. Fracture of the internal condyle may or may not involve the joint.

"The *olecranon* is usually broken by direct, sometimes by muscular, violence. If separation is complete, the upper fragment is drawn up; if the fibrous expansion of the triceps is untorn, there is no displacement. The base of the olecranon is the usual site of the fracture. There is inability to extend the forearm, and effusion of blood into and around the joint quickly follows.

"The *head of the radius* is broken by direct violence or in connection with dislocation. Separation of the epiphysis occurs in children. If the head is completely detached, it does not move with rotation of the lower fragment, and crepitus is felt." (*Aids to Surgery.*)

2. Fracture of the surgical neck of the humerus shows a depression below the shoulder, shortening of the limb, and well marked crepitus on rotation. The lower fragment is generally drawn up. The general symptoms of all fractures are, of course, present: History of injury, disability, false motion, pain, and constitutional effects.

3. Fracture of the ribs produces pain which is increased during inspiration; and crepitus may be heard with the stethoscope. If the sternum is pressed toward the spine pain is felt over the site of the fracture.

The complications that may follow fractured ribs are: "Additional injury, making the fracture externally or internally compound; laceration of the pleura, pericardium, heart, lung, diaphragm, liver, spleen, or colon; rupture of an intercostal artery; hemothorax; cellular emphysema; pulmonary emphysema; pneumothorax; pyothorax; traumatic pleurisy; pneumonia; bronchitis; congestion or edema of the lungs." (Da Costa's *Surgery.*)

4. *Toxemia* is due to absorption of toxins only, and is characterized by a persistent high temperature, relieved at once by removing the source of the poison.

Septicemia is due to organisms multiplying in the blood, and characterized by a maintained high temperature, but not relieved by getting rid of the original source.

Pyemia is due to particles of blood-clot carrying organisms to parts distant from the original source, and there setting up abscesses. It is characterized by rigors, very high temperature, sweatings, and big remissions of temperature.

5. *Subphrenic abscess:* "A subphrenic abscess is a collection of pus beneath the diaphragm. The pus, as a rule, occupies a part of the lesser peritoneal cavity; in rare instances it is extraperitoneal (when it is of renal origin); in some cases it is contained in the area between the diaphragm, cardiac end of the stomach, and liver or spleen. It is an unusual thing for such an abscess to break into the general cavity of the peritoneum, but it may break into the pleural sac.

"*Causes:* Perforation of a gastric ulcer, perforation of the gall-bladder or gall-ducts, ulceration of the duodenum, diseases of the liver, spleen, pancreas, intestine, appendix, or kidney, hydatid disease, internal injury, metastasis, external injury, caries of rib, or disease of the pleura may be responsible for a subphrenic abscess.

Symptoms: "There are the constitutional symptoms of suppuration and a swelling in the subdiaphragmatic region, these symptoms ensuing upon one of the causative conditions before mentioned. In many cases the abscess cavity contains gas as well as fluid. Empyema and subphrenic abscess resemble each other. In empyema the upper limit of the fluid is concave; in subphrenic abscess it is convex. In empyema the flow of pus through an aspirating needle will be most marked during inspiration; in abscess during expiration—the same is true of the rush of gas. In empyema the needle does not oscillate; in abscess it does. The fact that an abscess contains gas is shown by the existence of a tympanic percussion-note over a part of the cavity and an alteration in the area of tympany with an alteration in the position of the patient. An abscess of the liver does not contain gas and alters decidedly the outlines of the organ." (From Da Costa's *Modern Surgery.*)

6. *Tuberculous arthritis.* "In the early stages the signs are not at all well marked, especially in those where the primary stage is osseous, and consist of slight aching after use. Soon, however, the cardinal signs appear: (1) Increased heat over the joint; (2) the presence of some fluid in the joint; (3) impaired mobility; (4) *wasting of the muscles which move the joint.* The joint is usually maintained in the position of ease, viz., slightly flexed. In the late stages abscesses form, and the pain becomes severe, even to 'starting pains' at night. If the abscesses burst and are allowed to become septic, a hectic temperature follows, and amyloid degeneration may lead to death from exhaus-

tion. The joint itself may be disorganized, the relaxation of the ligaments allowing dislocation to occur." (*Aids to Surgery.*)

7. VARICOSE VEINS. *Etiology:* Overdistention caused by long standing; pressure from garters, tumors or pregnancy; failure of the valves in the veins; congenital over-development of the veins. *Symptoms:* The veins are prominent, tortuous, and may be painful; the skin may be discolored; aching and a tired feeling are observed in the affected part; edema, congestion, ulceration, and eczema may result.

8. *Intestinal obstruction* may be caused by: Strangulation, kinking, volvulus, foreign bodies, intussusception, stricture, fecal accumulation, and tumors either within or outside the bowel.

STRANGULATION.	INTUSSUSCEPTION.	TWISTS (VOLVULUS)
Subjective Symptoms.	*Subjective symptoms.*	*Subjective Symptoms.*
1. Generally occurs after age of 20.	1. Most frequent in childhood.	1. Most frequent after age of 30.
2. Pain localized, rapid collapse.	2. Constant tenesmus.	2. Pain diffuse.
3. Pain intense, paroxysmal in character.	3. Pain develops suddenly and is continuous.	3. Pain paroxysmal; recurs less often than in strangulation.
4. Constipation complete.	4. Frequent diarrhea, passage of bloody mucus.	4. Constipation complete.
Objective symptoms.	*Objective Symptoms.*	*Objective Symptoms.*
1. Temperature often subnormal.	1. Temperature normal or subnormal.	1. Temperature slightly elevated.
2. Location in small intestine.	2. Localization in small intestine; bowel frequently protrudes at rectum.	2. Location, small intestine; abdomen often protrudes, in certain areas giving dullness on percussion.

—(*Pocket Cyclopedia.*)

9. *Symptoms of abscess of the liver:* Bulging in the right hypochondrium; a dull, aching pain over the liver; either jaundice or a muddy color to the skin; auscultation may give crepitations or friction sounds; pain in right scapula; increased area of liver dullness; fever and digestive disturbances are generally present; the *amœba coli* may be present in the sputum; loss of flesh, strength and appetite will be noticed.

10. Benign tumors of the breast are fibroma, adenoma, cystadenoma, lipoma, myxoma, and enchondroma. It is generally believed that benign tumors may become malignant. The malignant tumors are sarcoma, and carcinoma. It is of the utmost importance that the presence of a tumor be recognized at an early date, and in case of doubt as to the character of a tumor it should be considered malignant until it is proved to be otherwise. "If the mistake is made of regarding an innocent tumor as malignant the woman loses her breast. If a malignant tumor is regarded as innocent, the woman loses her life." Benign tumors should be removed; malignant, if operable, require entire removal of the breast and neighboring lymphatics.

The Genital Glands and the Dental System.—At the Academy of Sciences M. R. Robinson of Paris recently made a communication on the perfect preservation of the teeth in seven male donkeys aged between 10 and 14 years. These animals, which had been used in the experiments of Professor Lannelongue, were insusceptible of sexual excitement. Their food was hay. On the other hand, a young cryptorchid *griffon*, a very salacious beast, upon which the author had made a necropsy, had lost all its teeth when quite young. Toothache is said to occur in young masturbators, and it appears that true eunuchs have fine teeth, and the author concludes that a physiological relation exists between the genital glands and the dental system. The old belief of the effect of gestation upon the teeth may thus be true. As a result of his clinical observations, M. Robinson is satisfied that in diabetes and tabes it is through the intermediary of the genital glands that the teeth become worn, carious, or simply fall out.—*The Lancet.*

Therapeutic Hints.

Prescriptions for Dysmenorrhea.—Fritsch recommends the following:

℞ Tinct. opii,
Tinct. belladonnæ,
Tinct. hyoscyami,
Tinct. stramonii,
Tinct. valerianæ, āā. 3 grams.

M. et Sig: Twenty drops three or four times a day.

Chrobak favors the use of the following simple formula:

℞ Tinct. castorei, 10 grams,
Tinct. nucis vomicæ, 3 grains.

M. et Sig: Ten drops t. i. d.

Fellner has reported good results from the following:

℞ Fl. extr. hydrastis canadensis,
Malaga wine, āā. 30 grams.
Syr. cinnamon, 10 grams.

M. et sig: One teaspoonful every two to four hours.

The Treatment of Freckles.—Haldin Davis states that these dermatoses of the face may be bleached with various lotions of which the active principles differ widely. A simple alkaline lotion may be employed as follows:

℞ Potass. acetat., gr. xv,
Aquæ destill., ℥ jss,
Alcoholis, ℥ ss,
Ol. rosæ, ad lib.

Or a more elaborate lotion may be used, *e.g.*

℞ Potass. carb., gr. clx,
Potass. chloridi, gr. lxxx,
Borac. venet., gr. xxx,
Aquæ rosæ,
Aq. naphth., āā. ℥ jss,
Sacch. alb., gr. dcxx,
Glycerini, ℥ vii.

This is to be painted on.

Mercury in some form is the active ingredient in many preparations, as in the following ointment:

℞ Hydrarg. ammoniat.,
Bismuth subnitrat., āā. gr. lxxx,
Glyceriti amyli, ℥ vi.

Mercury may be prescribed in a lotion as follows:

℞ Hydrarg. chlor. corrosiv., gr. vii,
Zinci sulphat., gr. xc,
Amygdalæ, gr. lx,
Aquæ rosæ, ℥ viii.

To compound this an emulsion must first be made with the almonds and the rose-water; the mercury is then dissolved therein and the zinc sulphate is added.

Peroxide of hydrogen is frequently used. It may be prescribed in either of the two following mixtures:

Aquæ hydrogenii dioxidi (10 vols.),
Liq. ammon. dilut., āā. ℥ ss.

or

Aquæ hydrogenii dioxidi (10 vols.),
Infus. hamamelidis (B. P.), āā. ℥ ss.

All of these lotions must be applied cautiously, dabbed on with a small pledget of absorbent cotton.

For very dark freckles the radical treatment is to touch them with pure carbolic acid on the end of a match. This has the disadvantage of causing the formation of a slight scab for a few days.—"Skin Diseases in General Practice."

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A CONTRIBUTION TO THE STUDY OF CHRONIC INTESTINAL STASIS.

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Introductory Remarks.—The hard-and-fast division of diseases into functional and organic, and into metabolic and microbial, no longer holds. "Idiopathic," a term formerly used with such impunity, and now generally accepted as signifying ignorance of the etiology of a given malady, is fast becoming obsolete. The trend of modern medicine is to consider so-called functional affections as way-stages to organic disease, and to trace the given conditions back, through the factors which initiated the functional derangement, to the underlying cause or causes of the actual organic disease. We hear much more, today, of toxins—poisons produced by germs—than of the germs themselves; more of bacterins—substances introduced into the organism for the purpose of producing immunity—than of a mysterious, inherent capacity to resist disease.

Happily, we are, as a profession, gradually getting back to causal factors. The fallacy of regarding one effect as the cause of another is slowly but surely disappearing. Constipation, for example, is no longer regarded as a disease, but as an indication of an underlying pathological condition. Indeed, in no department of medicine and surgery is this "back to the cause" movement more noticeable than is that which deals directly with the gastrointestinal tract.

The pioneer in this hitherto largely neglected field is unquestionably W. Arbuthnot Lane, of London. In the face of skepticism, even of ridicule, he has pressed forward in the work of discovering first causes. He has demonstrated clearly that in health-maintenance the question of prime importance is body-drainage—the non-absorption of poisons, and the elimination of whatever poisonous matter may be produced within the alimentary canal, before there has been inaugurated a vicious cycle of events which may be the forerunner of disastrous end-results. Lane and his followers have thus focused attention more directly upon the previously obscure phenomena of intestinal stasis, and have offered a plausible explanation of the underlying causes which have led to the evolution of what have been called "the protean symptoms in a large group of patients who have received much treatment and little benefit from the medical profession and who have been exploited by the dietetic faddist and the charlatan."[1]

During the past six years it has been my good fortune to come into personal touch with Mr. Lane, to examine many of his cases before operation, to see him operate upon them, and to watch the after-course of the condition. While we may not accept all his views with reference to the relationship between intestinal stasis and tuberculosis, cancer, rheumatism, and other diseases, his contentions concerning the actual mechanical conditions existing in the abdominal cavity, as indicated by clinical symptoms, demonstrated by *x*-ray findings, and established by laparotomy, are being verified over and over by those of us who are following his lead in this field of surgical diagnosis and treatment.

Intestinal Obstruction.—When Mr. Lane first set forth his views concerning intestinal stasis, and attributed this slowing of the drainage current to the abnormal fixation of certain portions of the canal, with ptosis on either side of the fixed point, many were inclined to pass over his contentions as being merely reiterations of well-known and long-established manifestations of chronic intestinal obstruction. Indeed, many distinguished surgeons in Europe and America still disavow belief in the existence of any of the types of Lane's kinks, acknowledging inability to recognize them if they have been present in any of their subjects.

The symptomatology, diagnosis, and treatment of the various types of acute intestinal obstruction may be said to have long been matters of general knowledge. The existence of chronic intestinal obstruction has also long been accepted as a possible contingency. It was left, however, to Mr. Lane to establish the fact that many of the factors concerned in the production of the various types of chronic intestinal obstruction are associated with, or perhaps are dependent upon, an already existent chronic intestinal stasis, and that they are, in reality, *end-results* of such a condition.

A notable example of what Mr. Lane has designated as the end-result, and which is catalogued by others as a causative factor in the production of chronic intestinal stasis, is cancer—cancer of the stomach, intestine, biliary ducts, or pancreas. This gives an excellent illustration of the sequence of events as Mr. Lane understands the matter. As pointed out in a previous communication,[2] the correctness of this theory of the cause of visceral cancer cannot be proved or disproved at this stage of our knowledge of malignant disease. The theory is worthy of further consideration, however, and, pending proof or disproof, it should be borne in mind in all cases of chronic constipation, autointoxication, and other obscure conditions seemingly having their origin in defective function of some portion of the gastrointestinal tract. It should be borne in mind particularly, in all cases of "visceroptosis," of "floating kidney," of "gallstones," of "duodenal ulcer," of "mucous colitis," of "pericolitis," of "chronic appendicitis," etc. It should not be forgotten in the group of conditions to which the term "protein diseases" has been applied,—a term used, as Vaughan[3] has pointed out, "to cover the

majority of bacterial and protozoal diseases, and many of those hitherto regarded as autogenous."

Mechanical Basis of Intestinal Stasis.—It is not the purpose of this paper to deal with the general subject of ptosis of the abdominal viscera, its entire symptomatology, its sequelæ, or its treatment. A large and interesting literature has been formulated with reference to visceroptosis from the viewpoint of the biologist, of the internist, of the neurologist, of the orthopedist, and of the surgeon. The workers in each of the special fields of investigation have contributed their respective shares to the sum-total of helpful knowledge concerning the subject, but it may be safely said that to Mr. Lane belongs the credit of tracing the mechanism of the various pathological changes, and of pointing out the most significant and far-reaching results of the condition.

Fig. 1.—Case I. *Inflammatory Stasis.* E. L. Post-operative adhesion of omentum to mesoappendix and stump of appendix. Band across ileum near ileocecal valve, causing constriction when in upright position—ileal stasis.

The phenomena resulting from visceroptosis, as revealed by the investigations of Lane, have been classified by Murray Leslie[4] as follows: "A. The formation of adhesions along the lines of resistance to downward displacement. B. The production of kinks along the course of the gastrointestinal tract. C. Gastrointestinal stasis with delayed digestion, constipation, and autointoxication." The crux, therefore, of the stasis question is a mechanical one, in which the chief factor is the abnormal fixation of any one point in the length of the intestine, with a dropping of the tube on either side of this fixed point, thus producing a kink. The toxic symptoms are secondary to these mechanical changes.

Fig. 2.—Case II. *Evolutionary Stasis.* M. G. Typical Lane's band, with angulation of appendix. Concurrent conditions: Femoral hernia, extrauterine pregnancy, uterine fibroids. Beginning Jackson's membrane.

Lane[5] has traced the mechanism of these changes, and has formulated a theory which is interesting, and apparently reasonable. In early life this ptosis of the abdominal viscera is the result of an abnormal distention of the intestine, consequent upon too frequent feeding, or upon the continued use of an unsuitable diet. In later years, according to Lane's theory, it is brought about or accentuated by the erect posture which man assumes during the waking hours. The point is emphasized that the resulting pressure and strain may produce distinct changes, and that these alterations may take the form of evolutionary bands, which are practically without blood supply, and not to be confounded with inflammatory adhesions, which are apt to have a generous blood supply. These evolutionary bands exist primarily for the advantage of the individual.

Fig. 3.—Case III. *Inflammatory Stasis.* C. H. O. Omental adhesions to cecum, at site of old abscess of appendix, and abdominal wall; intestinal stasis. Traction upon greater curvature of stomach, resulting in fish-hook stomach.

Lane describes the changes which take place as follows:

"1. An abnormal fixation of the pylorus, by the development of a new band, which attaches it to the under surface of the liver, in front of the transverse fissure. The band serves the purpose of affording an additional ligament to the stomach. It may extend forward for a considerable distance in front of the transverse fissure, and may involve the cystic duct and gall-bladder, and interfere with their normal functioning. Again, this band may extend over the pylorus and may attach and help to support the transverse colon.

Fig. 4.—Case IV. *Inflammatory Stasis.* E. V. P. Lipoma of omentum; adhesion of omentum to loop of sigmoid; traction upon sigmoid by omental lipoma, causing distinct kinking; chronic intestinal stasis.

"2. This fixation of the pylorus may result in the production of a kink, which may be sufficient to interfere with the normal functioning of the stomach and duodenum. In consequence of this areas of engorgement of the mucous membrane arise in the front part of the duodenum or in the lesser curvature of the stomach. While the stress sustained at the point of engorgement is a primary factor the lower resistance power to the entry of microorganisms due to autointoxication, takes a large share in the production of the inflammatory changes in the mucous membrane. These areas of abrasion later form ulcers which may after a time become affected by tuberculous, cancerous, or other infections. The ulcer of the duodenum rarely becomes malignant, probably because it so readily yields to treatment. For instance, the performance of a gastroenterostomy will almost certainly result in the healing of a duodenal ulcer, while its curative effect upon a gastric ulcer is often very doubtful. The variation in the locality of the ulcer in the two sexes would appear to be dependent on the difference in the nature of the strain consequent on the varying forms of the abdomen.

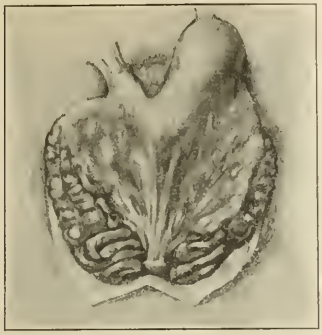

FIG. 5.—CASE V. *Inflammatory Stasis.* J. S. Adhesion of omentum to fundus uteri, making traction upon stomach, causing angulation at pylorus, resulting in marked gastric delay—relative partial pyloric stenosis.

FIG. 6.—CASE VI. *Evolutionary Stasis.* E. O'R. Typical Lane's band, with kinking of terminal ileum; appendix adherent to band. Marked ileal stasis.

"3. There develops on the under surface of the mesentery of the last few inches of the small intestine a new band, which at first forms part of the under surface of the mesentery. Later it forms a ligament distinct from the mesentery. The ligament contracts and deforms the ileum, producing a kink or obstruction of this portion of the intestines, especially in the erect posture of the trunk.

FIG. 7.—CASE VII. *Inflammatory Stasis.* T. M. Band of omentum, two inches wide, firmly adherent to mesoappendix, drawing stomach downward and to right; appendix, throughout its entire length, firmly adherent to cecum.

In consequence of this kink the small intestine becomes very much dilated and this dilatation may extend up as far as the pylorus. The symptoms produced by this obstruction are superficially very much like those of appendicitis and in consequence a large number of normal appendices have been removed to bring about the cure of symptoms resulting from this obstruction, needless to say, without any particular benefit or advantage to the patient. The symptoms produced by this type of obstruction are very definite and need not be mistaken for those which result from a kink in the appendix. This kinking of the appendix is frequently associated with the kinking of the ileum, since they are the result of the same cause, namely, the effort of nature to keep the cecum as much in its place and out of the pelvis as it can.

"4. Strong bands of peritoneal adhesions develop between the outer aspect of the cecum and ascending colon and adjacent abdominal wall with the object of holding up the cecum, which in the erect posture becomes overloaded with fluid contents. These bands may occasionally interfere with the evacuation of the cecum, by producing a kink. One of them not infrequently secures the appendix, which is made to form one of the ties or resistances opposing the downward displacement of the cecum. Unfortunately, the anchoring of the appendix spreads from its base and being hollow the strain upon a portion of the appendix may result in the occlusion of this tube, distal to the point of fixation,

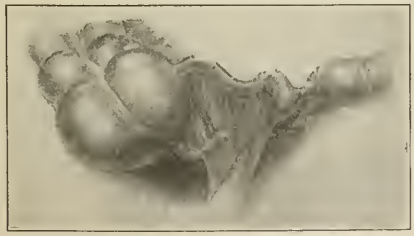

FIG. 8.—CASE VIII. *Evolutionary Stasis.* M. D. Typical broad Lane's band, with adherent appendix, mobile caput coli, and ileal stasis.

and in the formation of an obstruction. I believe that the development of so-called appendicitis is almost always produced in this way. When the appendix is quite free, it is probable that the ileal kink is the cause of the symptoms.

Fig. 9.—Case IX. *Evolutionary Stasis.* V. B. Lane's band; potential kink; Jackson's membrane; ileal stasis.

"5. Both the hepatic and splenic flexures are drawn upwards, reducing the lumen of the bowel at these points and rendering the passage of feces difficult. In consequence, abrasion, ulceration, and cancerous and other infections are common in these situations.

"6. The kinking at these points is much exaggerated by the fall of the transverse colon. The weight of the loaded transverse colon is distributed partly through the ligaments of these kinks and partly through the convexity of the stomach and through the newly developed ligament of the pylorus. When this last ligament extends to and secures the transverse colon, it may occlude its lumen materially at this point, rendering it a favorite locality for cancer. The under surface of the transverse mesocolon shows acquired bands similar to those which kink the end of the ileum.

"7. Nature attempts to keep the sigmoid loop filled with solid feces out of the true pelvis by the formation of bands on the outer surface of the mesosigmoid. These by their contraction convert the mobile loop into a straight fixed tube. The lumen of this tube is subnormal, and its muscular coat is wasted because of its fixation. This fixation of the sigmoid renders the passage of solid feces through it difficult, and this difficulty is manifested as engorgement, abrasion, ulceration, or cancerous or other infection of the mucous membrane. Diverticula or foci of inflammation may develop. These again may become affected by cancer, tubercle, etc. Should the center of this loop escape from the grip of the newly formed bands, the extremities of this loop are approximated by their contraction when the loop itself becomes progressively dilated by the difficulty which arises in its evacuation so that a socalled volvulus results.

"8. The left ovary is frequently involved in the adhesions which bind down the lower portion of the sigmoid and the upper part of the rectum. The ovary becomes cystic in consequence of its fixation in the newly developed bands, later forming a tumor which for a time performs some of the functions so usefully performed by the pregnant uterus of raising the fallen viscera and overcoming obstruction.

"9. The condition of the rectum varies greatly. While in some cases the rectum is short and dilated, in others it is enormously elongated, so that it puddles as a long, loose tube in the true pelvis. This last condition renders the passage of solid feces through it very difficult, since any downward pressure, however great, is exerted at a marked mechanical disadvantage on the fecal contents. . . .

"10. Associated with intestinal stasis, there is a considerable ascent in the level of deleterious organisms in the small intestines with occasional infections of the biliary and pancreatic duct, producing gallstones, pancreatitis, and later cancer of these several structures."

Adhesions or "Evolutionary Bands."—Lane has repeatedly emphasized, and recently reiterated,[6] his contention that the apparent adhesions which result from the strain upon the mesentery and its attachments as a result of the dropping of the viscera are in no sense inflammatory adhesions, but are, on the contrary, merely thickened fibrous bands along the line of stress,—"evolutionary bands," as he chooses to call them. Many of those who accept Lane's theory in general see nothing unreasonable in this idea in particular. Others, however, while agreeing in some features, hold that his views in this regard are not tenable, according to anatomical, physiological, and clinical observation. It is not my purpose here to enter upon a discussion of the various theories concerning the etiology of the adhesive "veils," "webs," and "bands," noted by Lane and others. For those who are especially interested in this particular phase of the subject I append some of the more recent contributions to the literature of intestinal stasis. In a previous communication I gave a brief summary[7] of the literature of Lane's kinks and collateral matter up to May, 1912.

Classification of "Lane's Kinks" with Regard to Point of Occurrence.—Granting, then, the existence of what Lane designates as "evolutionary bands," and accepting the long-established fact that adhesions play a part in the production of varying degress of obstruction to the passage of gastrointestinal contents, we may review, categorically, the points of predilection, as demonstrated by Lane, for the formation of these bands, with the resulting kinks in the gastrointestinal tract:

Fig. 10.—Case X. *Inflammatory, superimposed upon Evolutionary Stasis.* W. S. L. Lane's band, with potential kink; prolapsed transverse colon, ascending colon, and sigmoid; Jonnesco's fold; Jackson's membrane. Three sets of firm fibrous bands, just below ileocecal valve, extend from ileum to right iliac fossa, one to right ovary.

1. Pyloric kinks, due to a band extending from the pyloric end of the stomach to the under surface of the liver, with angulation in the first portion of the duodenum.

2. Duodenal or duonedojejunal kinks, in the third part of the duodenum, at the commencement of the jejunum, due to the pull of an overloaded ileum, obstructed by an "ileal kink" at its termination.

Fig. 11.—See legend under Fig. 13.

3. Ileal kinks, at different points along the terminal coil of the ileum, usually with downward displacement and rotation inwards of the cecum, the result of nature's efforts to overcome the effects of the strain caused by the ptosis of the organs.

4. Kink of the appendix, due to bands in the ileocecal region; or the appendix may be thickened and so attached as to form a suspensory ligament, when the patient is in the erect position, causing stasis of the ileum.

5. Kink of the hepatic flexure and first part of the transverse colon, usually due to the attachments of the gut to the kidney, to abdominal wall, or to the attachment, one to the other, of the two kinks of the flexure.

6. Kink of the splenic flexure, due to the strong costocolic ligament which holds this portion of the gut in place, despite the dropping of other parts,

Fig. 12.—See legend under Fig. 13.

thus causing angulation when the transverse colon is ptotic.

7. Sigmoid kink, due to evolutionary adhesions fixing the sigmoid as it crosses the brim of the pelvis on the left side.

8. Kink of the rectum, not really a kink, but acting as one, in consequence of elongation of this part of the tube through fixation of the upper portion of the sigmoid loop, while the remainder becomes free, joins the rectum, and thus forms a long, loose pipe, which occupies the true pelvis, affording a marked obstacle to the passage of feces.*

Stasis.—The natural outcome of this kinking of any portion of the drainage tube is obstruction to the lumen of the intestine at the point of the kink, with "puddling" in the dependent portions, damming back and infection of the contents, and general slowing of the drainage of the canal. To this state of affairs Lane[8] has applied the term "chronic intestinal stasis," which he defines as follows: "Such an abnormal delay in the passage of the intestinal contents through a portion or portions of the gastrointestinal tract as results in the absorption into the circulation of a greater quantity of toxic or poisonous materials than can be treated effectually by the organs whose function it is to convert them into products as innocuous as possible to the tissues of the body." This reabsorption and autointoxication, in Lane's opinion, lead to a general lowering of the resistance of the body and to the concomitant increase in susceptibility to various diseases.

Symptomatology.—The symptomatology of advanced stasis due to kinks of the intestine has been so admirably stated by Chapple[9] that I give it here as formulated by him. He reviewed fifty cases, in which he found the following constant set of symptoms: "(1) Headaches, which were severe and frequent. (2) Attacks of nausea, often followed by retching or actual vomiting. In some cases the vomiting was very frequent indeed and of a severe nature. It was very interesting to note that in several of the cases blood was frequently present in the vomit, and had led very able men to the diagnosis of gastric ulcer, although none such was found at the operation. (3) Loss of appetite was almost constantly present. (4) Loss of weight was present in all cases. (5) Markedly cold hands and feet, which gave an indication of a defective

Fig. 13.—Case XI. *Evolutionary Stasis.* H. B. Ulcer of stomarch; dilatation of duodenum; mobile cecum; Lane's band and kink; Jackson's membrane; duodenojejunal kink; adhesions between ovary, tube, and sigmoid

*It may be noted that when the patient is in the erect position these fixed points in the intestine are above, or toward the upper part of the abdomen, while the sagging portions of the gut on either side are below. When the subject is lying down the exact reverse of this is true. When the patient is in the prone position there is a "potential kink"; when in the erect position, there is an "actual kink." This doubtless explains why, at operation, some surgeons are unable "to see the kinks."

circulation. (6) Mental apathy. This was very definite in most cases. It was most marked in case XXX, who was in a state that was well described by her medical attendants as one of torpor. Many felt that death would be a welcome relief from

Fig. 14.—Case XII. *Inflammatory and Evolutionary Stasis.* N. R. Mobile caput coli, with twist of ascending colon just below ileocecal valve. Typical Lane's band; ileal stasis.

their physical and mental misery, and two had actually attempted to bring about that end. (7) Constipation, which in all was persistent and its previous treatment had failed. One case had gone on several occasions for twenty-eight days without an action of her bowels in spite of treatment. (8) A constant foul taste in the mouth, which was often accompanied by foul breath and carious teeth. The tongue was constantly furred. (9) Attacks of abdominal distention, which were accompanied by discomfort and relieved by eructation or the passage of flatus or an action of the bowels. (10) General muscular pain and a loss of freedom in the movement of the joints."

Physical examination, in Chapple's experience,

Fig. 15.—Case XIII. *Evolutionary Stasis.* H. M. Mobile cecum; adhesion between Lane's band and cecum; adhesion between band and broad and infundibulopelvic ligaments. Ileal stasis.

which is corroborative of that of Lane and others who have studied stasis cases, revealed: (1) Skin staining, as a rule of a sallow brownish nature, associated with more definite localized patches, especially under the eyes, in the axillæ, and in the groins. (2) Breast changes, simulating, in the early stages, chronic mastitis, and in the later stages cystic degeneration. (3) Abdominal tenderness over the areas of fixation.

Classification of Cases of Intestinal Stasis into

Fig. 16.—Case XIV. *Inflammatory Stasis.* W. C. B. Adhesion between ascending mesocolon and abdominal wall. Marked ileal stasis, amounting almost to obstruction. Patulous ileocecal valve.

Clinical Groups, According to Predominant Symptoms.—As the study of chronic intestinal stasis has proceeded, the cases have been classified according to the predominant symptoms. In a recent contribution Schlesinger,[10] who, as Mr. Lane's house-surgeon, Guy's Hospital, London, has had an ample opportunity of studying the cases before, during, and after operation, has classified them under the following types:

(1) Obstructive, usually regarded as having duodenal ulcer, a gastric growth, or what is known as "nervous dyspepsia." Patients of this class, usually males, complain of pain after taking food, immediately or after an interval, with relief after vomiting. Headache, cold hands and feet, pigmentation, and the usual "toxic" symptoms are present in varying degress. Such patients, according to Schlesinger, usually have thickened or spasmodic arteries, with consequent increase of blood pressure. The abdominal muscles are well developed. The point of pain, upon examination, to

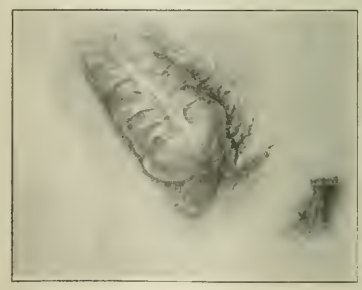

Fig. 17.—Case XV. *Evolutionary Stasis.* J. F. Typical Lane's band and kink; ileal stasis.

which such patients direct attention is over the duodenum. Tenderness to pressure in the iliac fossa. *x*-ray examination reveals a firmly fixed point in the ileum, and a dilated and hyperthrophied duodenum. He claims the patients are invariably completely cured by ileocolostomy.

(2) Toxic or suprarenal type, more generally found in women, is the type most commonly recognized. Constipation is generally present and often extreme. The group of symptoms diagnosticated as "toxic" overshadow the direct abdominal symptoms. These toxic symptoms are both subjective and objective. Mental depression, sometimes of a very marked degree, is the chief symptom. The pigmentation is marked in these cases, there are low blood pressure, cold and clammy hands and feet, and general asthenia, suggestive of Addison's disease. Vomiting or severe retching is a fairly constant symptom. Profuse perspiration, of a disagreeable odor, headache, harsh and inelastic skin, cystic degeneration of the breast, and extensive pyorrhea alveolaris, are other symptoms noted by Schlesinger in this type of patients. Abdominal pain may not be complained of, but tenderness over the ileum and the sigmoid is elicited upon examination. The ovaries are often considered the source of trouble in these cases, and single or double oöphorectomy is not infrequently performed. "This is the extreme picture of this type of case," according to Schlesinger, "but all stages of the condition, from the patient who has occasional 'bilious attacks,' through the various types of so-called indigestion, atonic constipation, neurosis, etc., can be recognized."

FIG. 18.—CASE XVI. *Evolutionary Stasis.* M. D. Angulation of appendix by ileal band; ileal kink; ileal stasis.

FIG. 19.—CASE XVII. *Inflammatory Superimposed upon Evolutionary Stasis.* S. F. Lane's band; ileal kink. Adhesion between ascending and transverse colon.

(3) Mixed type, including those patients who present a mixture of the symptoms of the "obstructive" type with those of the "toxic" type.

(4) End-result type, comprising a large group of cases (*e.g.*, intestinal cancer, gallstones, tuberculosis, rheumatoid arthritis, Still's disease, etc.), in which the end-result overshadows the underlying cause. This last group of cases, comprising, as it does, many of the conditions which have formerly been generally considered, and which are still considered by some, as the causative factor in the production of intestinal obstruction, brings us back to the "first horn of the dilemma" of interference with the flow of the contents of the drainage canal.

Diagnosis.—The diagnosis of "static" cases seems to have become, with Mr. Lane and his associates, almost a matter of that "imponderabilia" which amounts, practically, to what we call intuition. The symptom-complex is so well defined, once it is fully recognized and verified by repeated laparotomy, that the cases can be recognized almost at a glance. It is not to be inferred from this, however, that Mr. Lane or anyone else, no matter how skilful in diagnosis and expert in surgical technique, attempts to justify operating solely upon this snapshot picture. No patient should be subjected to laparotomy for the correction of presumptive kinks and chronic stasis until a careful physical examination has been reinforced by an equally careful radiographic study of the case. The *x*-ray readings must be checked up with the clinical findings, for it must be borne in mind that many twists and turns of intestine may be found which produce very little stasis.

The degree of obstruction, as well as the location of the obstructing kink, has been carefully studied by Mr. Lane, with the aid of the excellent radiographic work of Dr. Alfred C. Jordan, Medical Radiographer to Guy's Hospital.[11] The radiographic study of my cases has been made by means of a bismuth meal, from 4 to 6 ounces, of the subcarbonate of bismuth being given in milk, or with bread and milk, six hours before the first picture is taken. Pictures are then taken every hour for from six to twelve hours after the bismuth meal, one 24 hours thereafter, and then, according to the circumstances of the individual case. If, at the twenty-four-hour exposure, the results are not satisfactory, an injection of bismuth by rectum, with an immediate exposure, will sometimes demonstrate a kink which has not been shown by the other method. By using the screen and palpating the abdomen over the area being studied, the fixed point or points can sometimes be demonstrated more clearly than by any other procedure. The rapidity of the passage of the bismuth through the canal has been found to vary widely. Jordan has called attention to the fact that the contents of the ileum pass along at a rate approaching two inches a minute, and that the bismuth meal begins to pass through the ileocecal valve within four hours. With an ordinary two-ounce meal, the entire quantity of bismuth is in the cecum and ascending colon at the end of six hours, in the average normal case. With a five or six ounce dose, some bismuth will be found in the lower end of the ileum after five, six, or eight hours in normal persons, according to Jordan's studies. He advocates, therefore, the five and six ounce doses, from which he has found no ill effects. It is important, of course to use a pure preparation of bismuth.

Classification of Cases from the Point of View of Treatment.—Having considered the cases of intestinal stasis with reference to the point of kinking, and with reference to the dominant features in the symptom-complex, we come now to the classification of cases with reference to treatment. For purposes of convenience the cases may be considered under the following types:

(1) Atonic or asthenic, in which there is general loss of muscular tone and nervous energy, with a slight degree of ptosis of the hollow viscera. In this class of cases there is usually a dropping over the brim of the pelvis of a loop of the ileum, causing increased resistance to the intestinal contents, or the duodenojejunal junction may be pulled upon and angulated. These are the milder forms of stasis, which may be easily corrected by abdominal supports, by tonic régime, by building up the nutrition, and by rest, until the tonus of muscles and nerves has returned.

In the treatment of this class of cases liquid paraffin has been found particularly useful. Mr. Lane,[12] in calling attention to this agent in the treatment of intestinal stasis, says: "It is a curious thing that while paraffin has only very recently been employed for this purpose by the medical man, it has been in use for time immemorial among miners and savage races for the treatment of almost any known disorder. Just how paraffin acts is not perfectly clear. In animals it destroys the worms that infest the intestinal tract, and such parasites as live on their skin. The eggs of *Ascaris lumbricoides*, which will go on dividing in glacial acetic acid, when placed in paraffin die, and no division takes place; and skin mycosis in a large bird, which resisted treatment with iodine, has been cured by daily applications of paraffin forcibly rubbed in. It also cures the dysenteric conditions to which animals are so liable, especially in captivity. Yet paraffin is apparently perfectly innocuous to the human subject, and loses none of its bulk in its passage through the intestinal tract." Liquid paraffin (oleum mineralis Russicum), is not mentioned in the National Standard Dispensatory (U. S. A.), edition of 1909.* In the British Pharmacopeia, last edition, it is described as a colorless, thick, oily liquid, practically tasteless and odorless. Finnemore[13] calls attention to the fact that there are two varieties of liquid paraffin on the market at the present time, in addition to the pharmacopeal one. "It is prescribed," he says, "in the pure form in doses of half to one fluid ounce two or three times a day. The smaller quantity once a day is often sufficient for patients not confined to bed. Although it has practically no taste, and most patients do not object to it, yet it is not pleasant to swallow this large amount of thick, oily liquid, and it is improved by flavoring with one minim to each ounce of one of the volatile oils, such as bitter almond, anise, cinnamon, cloves, lemon, or peppermint. For those patients who find it unpleasant to take on account of its oily nature, it is a good plan to prescribe it in the form of an emulsion, which appears to the writer to have the very decided advantage, that although it is as thick as the paraffin it can be diluted with water before taking to make a thin preparation which can be taken without the slightest discomfort."

(2) Misplaced appendix. Sometimes in connection with the condition known as "cecum mobile," described by Houssmann, in 1904, by Wilms, in 1908, and referred to in connection with intestinal stasis by Coffey and others, there may be displacement and kinking of the appendix, which acts as a ligament, twisting the mobile cecum or pulling it downwards, and with it the ileocecal valve. In some instances the ileum is drawn downward below the cecum, causing a kink above. In cases where the appendix is only slightly misplaced, and the consequent kinking is of a minor degree, removal of the appendix and correction of the kink will relieve the resulting stasis. Before the subject of intestinal stasis was cleared up by Lane, cases of this class, which are accompanied by symptoms of appendicitis, were considered as appendicitis cases, and were operated upon accordingly. The appendix was found to be only slightly diseased but its results were successful out of all proportion to the lesion. In the severer types of this class of cases, disappointment followed removal of the appendix. Mayo,[14] in calling attention to these cases, says, "For a number of years past, in dealing with intestinal stasis believed to be due to a diseased condition of the appendix, in which the seriousness yet obscurity of the symptoms required a larger incision for exploration than was usually made for the removal of the appendix when it was unmistakably diseased, and the symptoms more definite, we have at times noted a definite kink of the ileum within three inches of the ileocecal valve. However, the frequency with which the condition was seen in certain cases did not occur to us until a few years ago, when our attention was personally called to it by Arbuthnot Lane." Coffey[15] reports having called in a number of his previously operated appendix cases and having cured them by cutting the evolutionary band which formed with the dropping down of the ileum, and placing purse-string sutures in the upper leaf of the mesentery of the ileum, thus shortening it by plication.

(3) Ileal kink, from evolutionary bands about the ileum—"crystallization of lines of strain," as Lane calls them. These kinks may occur at different points along the terminal coil of the ileum, and may be due to the development of bands along the line of the strain induced by visceroptosis, independently of misplacement or kinking of the appendix, described under (2). The milder degrees of ileal kink may be corrected by simply cutting the adhesive bands, taking care to cut one way and sew up another, in such way as to lengthen. In the form with broad bands, however, it may be necessary to divide the ileum, inserting it directly into the pelvic colon or rectum obliquely by an end-to-side anastomosis (ileocolostomy or ileoproctostomy). After the anastomosis has been made, a running suture is placed in the peritoneum intervening between the large and small bowel, and the space obliterated. Broad bands, when cut, leave raw surfaces which, if not covered, invite the formation of adhesions. These raw surfaces may be covered with peritoneum, as indicated, or by a piece of omentum. I am now testing the efficacy of the latter method. A piece of omentum is detached and split, the raw surface being covered over with one layer.

(4) Kinking of duodenojejunal junction, usually secondary to ileal stasis. Evolutionary bands in this region may cause marked kinking, with secondary effects in the duodenum, the first part of which becomes distended. The second and third parts,

*Efforts are being made to secure a pure and refined paraffin in this country. This should be demanded, as druggists are prone to substitute another preparation.

which are under the peritoneum, are not much affected. Adhesions may form about the pylorus, giving rise to obstruction, which may lead to the mistake of interpreting the *x*-ray findings, reading into them "cancer of the pylorus," with the prognostication of impending death for the patient. The kink at the duodenojejunal junction can be corrected by cutting one way and sewing the other, or the loop of jejunum may be placed in the position of gastroenterostomy, held by several stitches of silk or linen. A gentle curve is thus made and the sharp angle obliterated. In some of these cases it may be necessary to resort to ileocolostomy, as described by Lane. Raw surfaces are always to be turned in to prevent the formation of inflammatory adhesions.

(5) Changes at the hepatic and splenic flexures of the colon, often with the formation of adhesions. In mild cases, with prolapse of the colon, Coffey's[16] omentopexy operation may be employed. In the presence of more marked adhesions, with disease of the transverse colon, the question of colectomy may be considered. Other attempts at correction may be made before this radical procedure is employed. Kinking at the hepatic and splenic flexures, it may be said in passing, transforms these round turns into sharp angles, subjecting these areas to increased irritation, and rendering more liable the production here of malignant disease.

(6) Changes at the sigmoid loop.* Sometimes the ends of the loop are brought together by the evolutionary bands. These bands may extend from the peritoneum external to the mesosigmoid, shortening it up, until, as Lane has pointed out, the mobile loop of bowel is replaced by a short, straight tube, which crosses the iliac fossa obliquely, with only a partial peritoneal covering. Lane calls attention to the observation that this type of change exists apparently without exception in tuberculous subjects. In some of these individuals the portion of mobile gut which intervenes between the upper fixed portion of the sigmoid loop and the portion of the rectum which has no peritoneal covering, is exceedingly long. This fact renders it possible to insert the ileum into the mobile loop, close to its termination. "Never put the ileum into the large bowel above the level of the brim of the true pelvis," cautions Lane, "since the communication is then affected above the last kink, or obstruction, which, curiously, is one of the earliest to develop." Anastomosis should be between the ileum and the beginning of the pelvic colon.

(7) Extreme cases, with diverticulitis, many bands, and much persistent pain. Exsection of the large bowel is indicated.

(8) Various kinds of adhesions of an inflammatory and noninflammatory nature. Remove the adhesions and cover over the raw surfaces.

Treatment. Preparation for Operation.—Preparation for the radical treatment of chronic intestinal stasis is instituted 48 hours before the time of operation. An ounce or two of castor oil is given eight or ten hours before operation. Three or four enemas are given, Mr. Lane, as a rule, using treacle for the purpose, others preferring the ordinary soap enema. Nothing is administered by mouth except beef tea and brandy and water. Saline hypodermoclysis into the axillæ is begun with the anesthetic and continued throughout the operation. One quart to three pints of saline solution under each breast, in prolonged operations, sustains the patient, keeps up the blood pressure, and prevents shock. Sterile glucose or dextrose, one-half ounce to the pint of physiological saline solution may be injected under each breast.

Surgical Technique.—For the benefit of those who happen not to be familiar with the technique of the more important operative procedures concerned in the correction of intestinal kinks and the eradication of chronic intestinal stasis, the technique of the two operations advocated by Lane is given: (1) Ileocolostomy (Lane's "shortcircuiting" operation). (2) Colectomy.

Anesthesia.—It is particularly important in these cases that perfect muscular relaxation be maintained throughout, that absolute quiet on the part of the patient be insured, and that postoperative vomiting be avoided. For these reasons, I prefer to operate under the essence of orange-ether sequence, as originated and practised so successfully by Gwathmey. As a routine practice, I dilate the sphincter ani after the operation, thus insuring freer escape of gas and other intestinal contents.

Ileocolostomy.—The abdomen is opened through the left rectus, or in the median line. The viscera are subjected to careful examination, in order to determine the location and degree of obstruction. The lowest point of obstruction is located. The ileum is divided slightly obliquely, encroaching upon the convexity; the distal end is invaginated by a purse-string suture, and the proximal end is implanted into the lowest accessible portion of the ileopelvic colon. Above this point the sigmoid is kinked. When this step of the operation is completed, a full-sized esophageal tube is introduced through the anus, up through this anastomotic juncture. It is fixed in position by a suture through the perineum. In passing the tube beyond the junction any difficulty which may be encountered is obviated by using a Higginson enema syringe, one end of which is attached to the tube, while the other is placed in a bowl of liquid paraffin. By a few squeezes of the syringe bulb, a small amount is forced up into the bowel. The tube is thus easily passed beyond the junction.

Colectomy.—If the symptoms are of sufficient severity or chronicity, or if they are recurrent after the performance of ileocolostomy, it becomes necessary to resort to the more radical procedure of resection of the colon up to the point of anastomosis of the ileum with the colon. The mesocolon is ligated and divided. The ileum is divided near the cecum and the end toward the large intestine—the distal end—is invaginated; the proximal end is implanted into the pelvic colon by a slightly oblique anastomosis.

After-treatment.—If the tube does not drain properly at the end of twelve hours, six or eight ounces of liquid paraffin may be passed in. For the first twelve hours brandy and water, or champagne, may be given, and the usual diet gradually instituted. Morphine may be exhibited freely after the operation if there is much pain. An ounce of liquid paraffin is administered, by mouth, three times a day, as long as may be necessary. The patient is placed in the Fowler position for several days and then let down gradually. The stitches holding the tube in place are cut on the fifth day, and the tube is removed on the sixth day. The tube usually

*It may be noted that in the newer British textbooks on anatomy the term "sigmoid" is not employed, the portions of the colon being designated as "descending," "iliac," "pelvic," colon, and rectum.

drains between twelve and twenty-nine ounces in the twenty-four hours. It should be borne in mind that, in these cases, a tendency to infection in the wound may be noted about the tenth day after operation. This is not due to external infection, but to the action of the colon bacillus, which, it has been shown, can burrow its way through the intestinal wall, without an opening.

In several cases in which gastroenterostomy was performed for pyloric obstruction secondary to intestinal stasis, a pure growth of *Bacillus coli communis* was cultivated from the contents of the stomach and duodenum, thus showing the existence of an ascending infection in these cases. In this connection it is interesting to note that examination, made by Dr. J. W. H. Eyre, of London (observations not yet published), of the bodies of forty patients, dead of accident, showed the duodenum to be sterile.

Prognosis.—The prognosis must be modified, of necessity, in accordance with the conditions found in the individual case. In the vast majority of the milder forms of kinking and stasis, in whatever portion of the gastrointestinal tract, the simpler surgical procedures will prove effectual. In many of these types the non-surgical measures to which reference has already been made, will restore the normal relations of the abdominal viscera, allowing the unimpeded onward passage of the gastrointestinal contents, and thus relieving the stasis and its concomitant symptoms. When the more radical measures are indicated, the prognosis must be considered from the point of view (1) of the operation itself, and (2) of the relief of the condition to be remedied. Chapple and Mullins collected the histories of sixteen operations at Guy's Hospital between June, 1909, and June, 1910, with one death. This was due to the bursting of an abscess from the abdominal wall into the peritoneum seven days after the operation. With reference to the results, Chapple [9] makes the following statement: "I do not wish to convey the impression that all these patients have been restored to a condition of perfect health. In a large number this has been done. This list includes many of the earliest cases, and this brilliant piece of work has been carried out on material that might well be described as wreckage. Even a casual glance at the patients and their stories shows the nature of the conditions that had been dealt with, and we must not forget that all other treatment had hopelessly failed. Speaking generally, I take it that the object of any surgical procedure is to render the individual more efficient, and to what extent success has been attained in these cases must be obvious to all. One has only to see these patients to realize how good the results really are."

Cases.

In the vast majority of instances, unless there is a congenital defect, the conditions described are preventable and should not be allowed to progress to the degree which calls for operative interference. A more intelligent understanding of the importance of exercise, of proper hygienic régime, of position, and of adequate support to the abdominal organs, will do much toward obviating the lodging of large quantities of material at given points in the intestinal canal. With this accomplished, chronic intestinal stasis will be forestalled. It is for this reason that Mr. Lane's brilliant pioneer work deserves the most widespread and careful consideration.

Whatever may be their cause, the conditions described by Mr. Lane do exist, as I have been able to demonstrate in a large number of cases. The accompanying pictures, reproduced from drawings made at the operating table, with brief historical data of the actual conditions found, are selected from the number merely for the purpose of demonstrating various types of adhesions, "evolutionary bands," and membranes, found upon examination of the abdominal contents by laparotomy. No attempt is made to give detailed histories of the cases, to outline the surgical procedure, or to trace the results. It may be said, however, that in all cases in which the length of time has been sufficient to warrant an opinion, the symptoms, as a rule, have been relieved; in some, absolute cure has resulted. At a later date I shall present a large series of cases, with accurately collated data concerning each.

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EXOPHTHALMIC GOITER CURED BY LIGATING ONE SUPERIOR THYROID ARTERY

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THE simple and conservative operations are steadily gaining favor in the treatment of goiter because of their safety and ease of application. A single or double ligation always benefits even though it does not cure every case.

FIG. 1.—Showing the enlargement of the right thyroid gland. The left side is only slightly enlarged

FIG. 2.—The local anesthesia infiltration is about two inches in length along the inner border of the sternomastoid, with its center at the upper border of the thyroid cartilage.

FIG. 3.—The superior thyroid artery is transfixed at the upper pole with a mass ligature, as advocated by Crile. He believes it is more important to cut off the nervous communication with the brain than to shut off the blood supply to the gland. The wound is closed with a subcuticular suture of plain catgut. The exophthalmos is well shown in this picture.

Operations on the thyroid should be performed under local anesthesia whenever possible. The advantage of local anesthesia lies in the nerve block which completely isolates the brain from the field of operation. This prevents the shock and exhaustion of the brain cells, as first shown by Crile, which is largely responsible for the severe and often unexplainable reaction that frequently follows thyroid operations. Ligation should be preceded by several days' rest in bed while the operator gains the confidence of the patient. This eliminates much of the

FIG. 4.—Taken two weeks after the ligation. There is a noticeable recession of the exophthalmos, although the gland is still enlarged.

FIG. 5.—Taken six months after the ligation. There is only a slight exophthalmos. The thyroid enlargement has entirely disappeared.

shock due to fear. One hour before operation the patient receives a dose of morphine or morphine and hyoscine, sufficient to allay restlessness and prevent psychic shock.

CASE REPORTS.—Mr. J. M., age thirty, married, clerk. For the past three years he has been subject to frequent psychic storms; during these attacks the right thyroid gland increased two to three times its normal size, and the pulse mounted to 150-160 and the temperature rose to 103°-104° F. The pulse for the twelve months preceding ligation had never been below 130. The exophthalmos was steadily increasing. Oct. 1, 1912, the pulse was 135 and temperature 99° F. The enlargement was practically all on the right side, therefore only the right superior thyroid was ligated at this time. Ligation was done in the patient's home under local anesthesia.

The following day the temperature was normal and pulse 90; the latter has steadily become slower until now, ten months after the ligation, it ranges between 70 and 75. The patient says it is slower than ever before. He was back at his place in a grocery store two weeks after the ligation and has not missed a day from work since then. He received ergotin, gr. 1, with quinine hydrobromate, gr. 2, and thyroidectin, gr. 3, three times daily. He took this for two months. He then noticed that there were intervals of several days without the pulse rate increasing on exertion. During the third month he took the medicine about half the time, then stopped it entirely as all symptoms had disappeared.

The immediate improvement must be credited to the ligation. He received the same medical treatment for three weeks preceding the operation; it was without effect on the insomnia, nervousness, exophthalmos, tachycardia or psychic storms.

Two weeks after ligation both thyroids began to enlarge symmetrically. This gradually increased for six weeks, and for a short time the patient was unable to wear a collar; but the nervousness, insomnia, and psychic storms had disappeared and the tachycardia and exophthalmos were rapidly improving. In the third month the enlargement began to subside and within three weeks had entirely disappeared and the gland assumed its normal size.

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A COLLAPSIBLE-WEIGHTED STOMACH-TUBE AND A NEW GASTRIC GLASS BULB.*

By I. O. PALEFSKI, M.D.,

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The passage of a stomach-tube is by no means a pleasant experience and the difficulties encountered in lavage and extraction of test-meals are familiar to every practising physician. In this communication I shall point out the causes responsible for such difficulties and will describe a modified stomach-tube devised by me, free from any of these.

The disadvantages which the present stomach-tube possesses arise from two sources. First, its tubing is thick and firm—practically non-collapsible. Secondly, its passage through the oral-esophageal

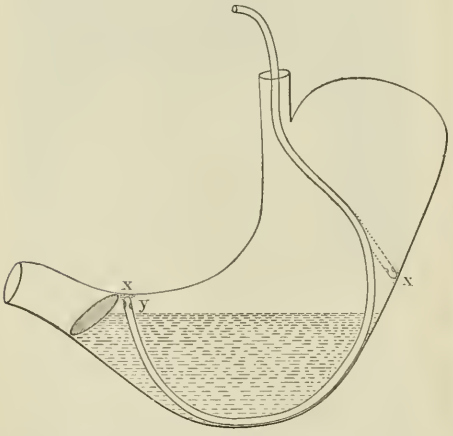

Fig. 1—The introduction of the ordinary stomach-tube. X and X' show the tip striking the greater and lesser curvatures respectively.

tract is a forcible one, at times even a violent one. By referring to Fig. 1 it will be observed how the tube first strikes the floor of the stomach, then follows for some distance the greater curvature and emerging from the under surface of the gastric contents, strikes and irritates at the lesser curvature. The adjustment of its eyes to the level of the gastric contents necessitates the constant moving of

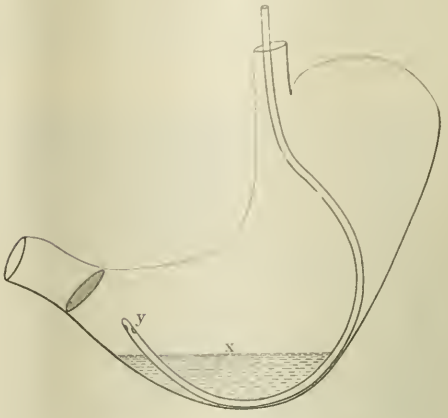

Fig. 2—Incomplete evacuation of the stomach. X—level of the gastric contents. Y—the eyes of the tube above this level.

the tube back and forth giving rise to gagging, coughing, vomiting, and sometimes even traumatism. Furthermore, with this tube the stomach can be seldom completely evacuated owing to the fact that the long axis of the tube is thrown into a curve and its eyes are at a higher plane than the most dependent portion of the stomach (Fig. 2). A moderate degree of gastric stasis is very often undetected. Finally, as the passage of the tube is apt to cause exhaustion, its use is contraindicated, or to be exercised with a great deal of care, in the old and debilitated, in gastric and pyloric ulcers, and in advanced cardiac or pulmonary diseases.

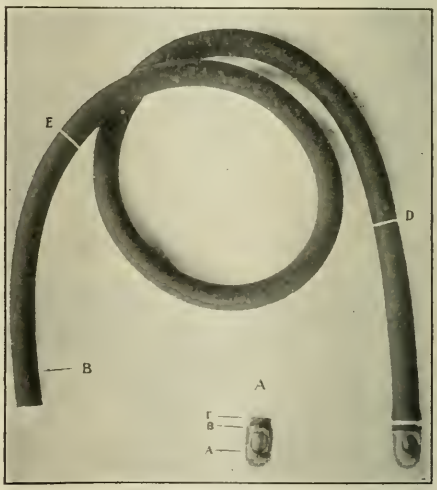

Fig. 3—Palefski's Modified Stomach-tube. (G. Tiemann & Co., N. Y.) A—Gold plated lead tip; a, solid half; b, hollow and perforated half; c, neck. B—Soft and collapsible tubing; d, 15 cm. mark.

*From the Gastroenterological service of the Montefiore Home and Hospital. Demonstrated before the Harlem Medical Association, February 5, 1913, and before the Section on Medicine, New York Academy of Medicine, April 15, 1913.

The passage of the modified stomach-tube depends upon the force of gravity assisted by deglutition but is uninfluenced by the force of the introducing fingers. It consists of: (Fig. 3) A. A gold plated lead tip weighing 140 grains, ¾-inch long, and 25 French, one-half of which is solid serving

Fig. 4—Introduction of the modified stomach-tube (stage 2), showing the position of the patient and the operator supporting the outer end of the tube, which is moving down the esophagus by gravity.

as a weight and the other half hollow and perforated, terminating in a neck to which is attached by means of silk, thread No. 1. B. Soft and collapsible pure gum red tubing, 60 centimeters long, 25 French, and 6 by 8 millimeters in diameter. It is marked off at 15 and 45 centimeters from the metallic tip, showing when the latter has reached beyond the pharynx and cardia respectively. The diameters of the lumen of the tube of the eyes and of the neck of the metallic tip are of equal size, thus allowing the free passage of the gastric contents.

Procedure: This may be described as consisting of three stages: Stage 1, during which the tube pases through the mouth and pharynx. The patient in the recumbent posture rests and extends the head over a pillow with the mouth wide open. The operator places the metallic tip on the dorsum of the tongue or directly into the pharynx and tells the patient to swallow it, after which the latter assumes the erect posture. Sometimes, and particularly the first time, the patient refuses to swallow the metallic tip, in which even I make use of a flexible stylet consisting of a double length No. 8 French catheter of gum elastic. When introduced into the stomach-tube, the latter is made temporarily more resilient, allowing the operator to introduce the metallic tip beyond the pharynx and thus obviating the necessity of having it swallowed by the patient. However, the stylet must be removed as soon as mark 15 centimeters has approached the lips while the patient is still in the recumbent posture. The use of the stylet is seldom necessary after the first or second time on the same patient, as the latter readily learns to swallow the metallic tip without much discomfort.

Stage 2: The patient having assumed the erect posture with open mouth breathes deeply and slowly. The operator, supporting the outer end, allows the weighted tube to move into the esophagus by gravity until mark 40 centimeters has approached the lips. The length of time required for the passage of the modified stomach-tube becomes an unimportant factor owing to the fact that by its use the irritation and discomfort have been minimized. The more slowly this stage is performed the more readily the tube reaches the cardia. There is also a tendency on the part of the patient to chew the tube, which action invariably hinders its passage. The patient, therefore, must be instructed to keep his lips apart (Fig. 4).

Stage 3: When the tube has reached the cardia, as evidenced by the mark 40 centimeters near the lips, the patient places himself on the right side, the right cheek resting on the pillow, the mouth open (Fig. 7), and the head brought slightly forward. In this posture the pylorus (Fig. 5) is the most dependent part of the stomach and gravity will cause the weighted tube to move along the lesser curvature toward the pylorus where also the gastric contents have collected, while the tube will be seen moving into the mouth 10 to 15 centimeters more. Its eyes are constantly under the level of the gastric contents, and hence the stomach now can be completely evacuated—a remote possibility with the ordinary stomach-tube.* In extraction of test-meals an aspirating bottle and suction bulb will remove the gastric contents. In lavage the patient lies first on the back then on the left and finally on the right side. The entire gastric mucosa is thus thoroughly washed of its mucus. To make it suitable for lavage the tube must be lengthened, after its introduction, by another length of tubing connected by means of a glass connecting tube. In its removal it is slowly withdrawn until it stops at the pharynx. The patient is told to swallow, after which the metallic tip appears in the mouth.

Advantages of the modified stomach-tube: (1) Its tubing has no resistance, hence, it does not irritate the gastric mucosa. Blood in the gastric contents, if present, will, therefore, point to some organic condition. (2) By its use a moderate degree of gastric stasis will be readily detected. (3) It

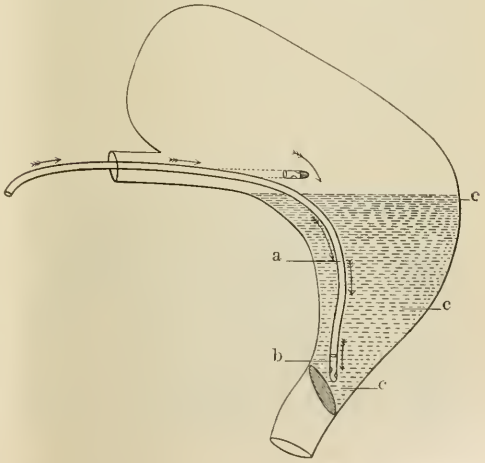

Fig. 5—Position of the stomach when the patient is lying on the right side. a—Tube along the lesser curvature. b—Eyes of the tube at the pylorus. c—The gastric contents collected toward the pylorus.

*This was found true by giving patients to eat on a fasting stomach three slices of bread and one glass of water, removed at once, measured, and followed by a stomach wash—the water returning clear. The quantity recovered equaled that ingested within the limits of 5 to 15 cubic centimeters.

may be kept in the stomach as long as desired. (4) It lessens preparation and renders assistance unnecessary in lavage and in the extraction of test-meals. (5) As its introduction causes no exhaustion, it may be employed in conditions in which the use of the ordinary stomach-tube is contraindicated. (6) In

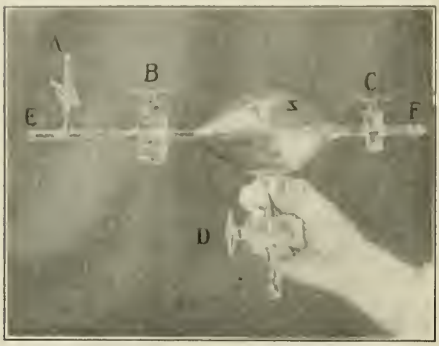

Fig. 6—Palefski's Gastric Glasss-bulb. (Eimer & Amend, N. Y.) A—Inlet for air. B—Inlet for gastrict contents. C—Outlet for air. D—Outlet for gastric contents. E—Gastric end. F—Suction end.

inflation of the stomach, effervescent powders generally are employed, which, invariably, produce overdistention and distortion, besides giving rise to epigastric distress. Following lavage or extraction of test-meals, an inflating bulb attached to the outer end of the tube will inflate the stomach to any desirable degree without any distress whatsoever. (7) Finally, it enables one to study the functions and disturbances of the stomach more readily and more accurately.

Contraindications of the modified stomach-tube: (1) In emergencies requiring rapid action. (2) Whenever the cooperation of the patient cannot be secured, as in a state of unconsciousness, etc.

I have used the modified stomach-tube for the last year and a half on hundreds of patients at various stages of life with surprisingly good results. It must be remembered, and I cannot too strongly emphasize that its successful use depends upon the correct knowledge of the technique employed in its introduction into the stomach, which, I am certain, will be acquired with little practice on those into

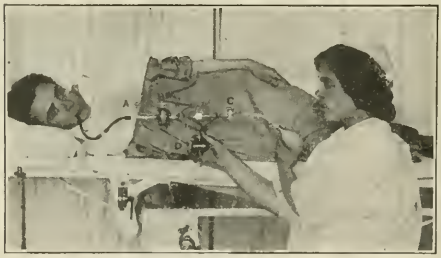

Fig. 7—Aspiration of gastric contents: A and D closed; B and C open; E attached to the stomach-tube.

whom a stomach-tube had been passed once or twice, and this must be learned even by those who have been passing stomach-tubes quite frequently. With it lavage and extraction of test-meals are performed with more thoroughness and with less distress and discomfort and the patients submit themselves more readily for subsequent examinations and treatment.

A New Gastric Glass Bulb.—The purpose of this device is to facilitate the aspiration and collection of gastric contents. It is a graduated ten ounce glass bulb having two inlets, A and B, and two outlets C and D (Fig. 6) for air and gastric contents respectively, each opened or closed with stop-cocks. It is attached to the outer end of the stomach-tube after its introduction and a suction bulb at C will now aspirate the gastric contents into the glass bulb provided A and D are closed and B and C are left open. When filled to its capacity the gastric contents in the glass bulb can be emptied through D into a receiving vessel. It can be used with low and high suction power. In the former case the cock B is left unclosed during the manipulation with the suction bulb at C. With each suction about ten to fifteen cubic centimeters of gastric contents are aspirated into the glass bulb. In the high suction method A, B, and D are closed and the air in the glass bulb is rarified through C with the suction bulb or mouth, using a clean mouthpiece. On opening B, the gastric contents then will flow into the glass bulb three or four ounces at a time. The cock A comes into play in this method when the tube occasionally collapses, due to obstruction by large particles of food, in which event B is closed to preserve the vacuum and a few blows into A will dislodge the obstructing particles back into the stomach. The chief advantages of the glass bulb are that it prevents the soiling of the clothes or bedding, it lessens preliminary preparation, and renders assistance (Fig. 7) unnecessary in lavage or in the extraction of test-meals. The low suction method is to be employed in the extraction of test-meals while the high suction method is employed in lavage, particularly when performed at the bedside or the home of the patient. I have used this bulb in conjunction with the modified stomach-tube with the most gratifying results.

In conclusion, I desire to express my indebtedness to Dr. S. Wachsmann, Medical Director of the Montefiore Home, whose suggestions have aided me in the designing of the modified stomach-tube and the gastric glass bulb.

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THE COMPLICATIONS OF PEPTIC ULCER.*

By J. N. HALL, MD.,

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The complications of this affection have long attracted much attention. Their real significance is much better appreciated since the more general recognition of the definitely surgical character of chronic ulcer, and the consequent widespread study of the pathology of the affection as seen during life. Indeed, a fear of the development of some of the severe complications, using this term in its wider sense, leads the internist to advise operation much more freely than he otherwise would.

This study of the complications of ulcer is based upon an analysis of my private cases made by my associate, Dr. T. R. Love, and I shall first present this analysis briefly. Unfortunately, the records of my public hospital services have not been available for study because of their incompleteness.

*Read by invitation before the Buffalo, N. Y., Academy of Medicine, May 8, 1913.

During the past eleven years the diagnosis of gastric ulcer was made 188 times; that of duodenal ulcer, 78; a total of 266. The proportion of duodenal ulcers would be greater under present methods of classification, since all involving the pylorus were formerly classed as pyloric ulcers and included under the heading "gastric ulcer." Thus 61 of the first 93 operated cases were called pyloric, a majority being in fact probably duodenal.

Of the gastric ulcers 66 came to operation; of the duodenal ulcers 50. Acute perforation occurred 8 times (4 gastric and 4 duodenal). Chronic perforation had apparently occurred in several cases, but there was much difficulty in differentiation from severe adhesions of non-perforative origin. In 24 of the 66 gastric ulcers operated upon pyloric obstruction was due to scar or adhesions. The ulcer was active in the remainder, and in all but 6 compromised the patency of the pylorus, though not actually situated there in all. Hour-glass stomach was found in 5 cases at operation, and in one case not operated upon was exquisitely demonstrated by means of the bismuth plate. Multiple ulcers were found in 15 cases; in 8 of these there was a duodenal ulcer concomitant with one of the stomach; in the remaining 7 there were multiple gastric ulcers. The second ulcer may be a "contact ulcer," directly opposite the original one. In 3 cases not included here confidently diagnosed as pyloric ulcer, only a chronic appendicitis was found, and cure resulted from appendectomy. In several other cases the appendix was removed during an acute attack elsewhere and no examination of the stomach was made, so that the gastric diagnosis remains in doubt.

Cancer was proven 6 times with evidence of its origin from an ulcer. Very extensive tumor growth with adenitis was found in 4 other cases, but no gland was excised for histological examination. In view of the long history of ulcer the diagnosis of cancer was assumed. In one a gastroenterostomy was done because of the pyloric stenosis, and a fatal prognosis given. The woman remains well after four years, so that there was obviously an error in our conclusions. In a similar case in a male, recovery resulted. It is safe to withhold the diagnosis of malignancy in these cases unless proven histologically, for two surgeons of extensive experience, Drs. Craig and Freeman, agreed with me that the diagnosis of cancer was so evident from the gross appearances that it was best not to add to the patient's burden even by the excision of a gland. Suppuration of both parotids occurred in one case of gastric ulcer, and in one of duodenal ulcer, with recovery after operation in both. In another case death resulted from sepsis in connection with suppurative parotitis of one side. Gastric ulcer was found in two members of the same family three times. One pyloric ulcer was successfully operated upon during pregnancy.

We may consider first the troubles arising mechanically. The stomach becomes dilated either from pyloric spasm in case of active ulcer with hyperacidity, or, more commonly, from the presence of the swelling and consequent obstruction of an active ulcer, or, as seen at operation, yet more frequently from the scar of a healed ulcer. Such dilatation is probably the chief feature in leading to the resort to surgery. In my first 50 operated cases gastrectasis was present 30 times, and due to active ulcer, pyloric or duodenal, in 14 of these; to scar in 16. I believe that there is little justification for any prolonged medical treatment of pyloric ulcer with dilatation, since the healing of the lesion so commonly results in permanent pyloric obstruction, and as we shall see later, failure to heal so frequently leads to cancer. Stenosis of the cardiac orifice of the stomach rarely occurs, being very unusual as compared with pyloric stenosis, and unfortunately much less amenable to direct surgical relief. Marked prolapse of the stomach may be present, as the result of pyloric obstruction, due to the drag of the weight of the retained contents, the lessened strength of the supporting tissues and the pull of adhesions. In about 4 per cent. of the operated cases hour-glass stomach was found as the result of a chronic girdling ulcer. It may even be trilocular. The signs of hour-glass stomach are present and the interference with nutrition leads to surgical intervention. In one case Dr. Freeman successfully connected the upper compartment with the jejunum, this being the easiest operation on account of the serious adhesions, but in many cases the operative work may be confined to the stomach.

Marked duodenal stenosis is not uncommon. I have seen the duodenum contracted to such a degree and over such a length as to make it resemble the little finger in shape and size, with greatly indurated walls. Serious deformity of the stomach is very common, especially in saddle ulcer at the lesser curve, with great interference with its motility. Such deformity is caused in part by the adhesions so often found in the chronic indurative type of ulcer. The deformity may be the cause of the obstruction, without actual pyloric lesion. Many of the complications result from the extension of the ulceration, after a "protected" perforation, to adjacent parts. I have repeatedly seen portions of the liver or pancreas involved by such a process. In one case successfully operated five years ago, the larger portion of the pancreas projected into the stomach. The futility of medical treatment in such a condition must be apparent.

Perisplenitis may occur. The gall bladder is occasionally drawn into the mass of adhesions, and I have been puzzled to know, in such a case with puckered and shrunken gall bladder, whether the original process had been due to rupture of a cholecystitis into the stomach or of an ulcer into the gall bladder. Jaundice is a not very rare complication, in case adhesions compromise the common duct, and a chronic cholangitis may be established. While chronic pancreatitis is vastly less frequently found than in cases of gallstone disease, it is sufficiently frequent to deserve consideration. One very marked case occurred in my first 50 operated cases, and I have seen the complication occasionally since. The adhesions which are at times found uniting a healed ulcer to the anterior abdominal wall may be a source of great distress, apparently because of the constant pull exerted upon them, as the peristalsis and the variation in size of the stomach as it fills and empties vary the relations of the affected surfaces. Suppurative perigastritis will be mentioned later.

Perforation is a most prolific source of trouble. Occasionally one may detect the attempt at perforation through the occurrence of sharp pain, exquisite tenderness and rigidity, and frequently superficial hyperasthesia over the region affected. This may especially be the case when one has had the opportunity of watching the patient so that the general diagnosis and the new local abdominal signs are clear. Operation should be done at once to avoid the more serious troubles likely to follow. An advantage in early intervention is that gastroenterostomy or other curative operation may be done, as in certain of my cases, while after perforation it would be unsafe.

The acute peritonitis, commonly fatal within two or three days resulting from such perforation is well recognized. The greater peritoneal cavity is involved directly and suddenly, especially in perforation of ulcer of the anterior wall. Invasion of the lesser cavity is not infrequent, and is less readily recognized. I have mentioned elsewhere the occasional development of dry pleural friction just above the region of the spleen, due to diaphragmatic involvement, with extension through that organ and general pleural inflammation as a result. Empyema upon the left side is probably most frequently accounted for by such a process in case of peptic ulcer. Perforation into the bowel is not unusual, the gastrocolic fistula being most frequent. Perforation into the kidney has been recorded.

In general, the peritonitis excited by perforation of peptic ulcer is more severe, as the perforation occurs higher in the digestive tract, presumably because the duodenal contents are less infective than those of the stomach.

Subphrenic abscess of other type than the above is not very unusual. Osler estimates that 6 per cent. of the cases of this affection are due to perforation of duodenal ulcer, the abscess being commonly either in the right kidney pouch, or retroperitoneal. Probably twice as many are due to perforation of gastric ulcer. Although I have seen many cases of perforation of the diaphragm and lung by subphrenic abscess of appendiceal origin, I have seen but a single one due to gastric ulcer, and, indeed, that one was not absolutely proven, since an autopsy was denied. I have not seen perforation of the pericardium, although according to Pick this cavity is involved in about one-third of the instances of perforation of the diaphragm. Perforation into the mediastinal space with suppurative mediastinitis is a very grave and, fortunately, rare complication of ulcer. The following downward along the ascending colon of the abscess resulting from duodenal perforation should be noted since in many cases the appendix is charged with the symptoms. Only yesterday a case of mine was operated upon for duodenal ulcer with classical symptoms. The appendix had been removed several years before, presumably either because the symptoms of this same ulcer had been misinterpreted or else such a descending type of inflammation had led to an acute process which was wrongly thought to be of appendiceal origin. Many cases have been operated in the past without a sufficient exploration of the upper quadrant when the appendix was found to present locally a pathology inconsistent in its degree with the gravity of the general process. A peculiarity of the ulcerous type of subphrenic abscess is the frequency with which it is complicated with the presence of free gas. This should always suggest such an origin, although it is not infrequent in appendicitis and occasionally occurs in gastric cancer.

General septic invasion probably occurs more frequently as a result of localized burrowing of subphrenic abscess than in any other condition associated with ulcer. In one of my cases it resulted from a complicating parotitis. Perforation into the portal or other great vein is occasionally reported. Biliary colic due to obstruction of the common duct is not very infrequent, entirely apart from any disease of the gall bladder. It probably occurs as a result of (a) acute kinking or compression of the duct by the pull of adhesions, or (b) mechanical compression of the duct by the extensive induration of the duodenal ulcer. In several cases in which the attacks of colic were typical of biliary obstruction, we have found a very large and thickened ulcer involving the duct in its peripheral extension. This is not as commonly recognized a complication as most of those considered.

Hemorrhage may be so justly regarded as a symptom rather than a complication that we shall merely mention it. The severity of the hemorrhage from duodenal ulcer is such as to lead the careful physician to try to anticipate any serious results by the early recommendation of operation. I have seen several fatal cases in which earlier diagnosis and operation should presumably have been life saving.

The anemia following hemorrhage, especially frequently recurring chronic hemorrhage, is a feature of much importance. Although often of a mild secondary type it may so deplete the patient that death from apparently almost trivial intercurrent disease may occur. Such an anemia is a very frequent factor in the development of the neurasthenia, hysteria, and general enfeeblement so often found in advanced cases of chronic ulcer. The condition of lessened resistance in advanced cases of peptic ulcer leading to increased liability to tuberculosis, grippal pneumonia or other affections, deserves especial mention. I have seen many cases die from intercurrent diseases which should never have been permitted to reach such a state of lessened ability to withstand infection.

Vascular accidents are not very rare. Embolism and thrombosis are occasionally seen. In much depleted patients femoral thrombosis is to be feared, especially after the added shock of operation. I have not noted pulmonary embolism, but it may occur. Blindness, delirium and general convulsions may result from cerebral thrombosis. I have several times seen very ominous edema of the feet and legs without evidence of kidney involvement, and, therefore, presumably of hemic and circulatory origin, in patients who had delayed surgical interventon until much debilitated. In one woman who had lost a third of her weight such edema was the cause of much anxiety for a month after operation, although a full recovery finally occurred.

I have seen no mention in the literature of the frequency of arteriosclerosis as a complication of chronic ulcer. The long-continued indigestion with the throwing into the blood stream of the products of imperfect digestion and metabolism is a prolific source of arterial degeneration in

even comparatively young subjects. I have many times noted definitely palpable arteries in patients with ulcer before the middle of the fourth decade. The tendency to a widespread tissue degeneration in these cases has not received proper consideration. The not infrequent albuminuria and cylindruria are closely associated features and should be carefully weighed before submitting a patient with ulcer to further medical treatment.

The frequency of small central line abdominal hernia, especially between the navel and the ensiform cartilage in gastric ulcer is apparently too great to be accounted for as a coincidence. In general, the sac contains only a bit of the omentum, and I have seen an excellent surgeon insist until the neck of the sac was demonstrated, that such an omental hernia was but a small, fatty tumor. Pressure upon the hernia is commonly very distressing, and in two cases in which the hernia and ulcer were operated upon through the same incision, so that no doubt remained as to their character, pressure upon the hernia would result in such instant belching as to suggest the almost instantaneous action of an electric bell upon pressing the button. So far as I know, no explanation of the concurrence of the two conditions has been forthcoming. I am certain that the hernia should always be detected and operated upon in any case of ulcer demanding intervention if a cure is to be hoped for.

The occurrence of parotitis, not rarely suppurative, should be mentioned. It is of serious omen, but in two of this series recovery ensued after bilateral suppuration with operation. This complication is especially common after perforation of the ulcer. Rollestone states definitely his disbelief in the origin through infection by way of the salivary duct.

Although perhaps to be regarded wholly as a symptom, hiccough is so rarely mentioned that I wish to report its occurrence in one case over a period of eleven years, generally for a few weeks at a time, when the symptoms of gastric ulcer were undergoing an exacerbation, without a suspicion on the part of various physicians of its very direct dependence upon the ulcer. It was promptly cured by a gastroenterostomy done by Dr. I. B. Perkins. Puckering and adhesions about a saddle ulcer on the lesser curvature were present.

Jejunal ulcer developing as an after effect of a gastroenterostomy has been occasionally reported, but no such complication has to my knowledge been present in any of my operated cases, and improved technique seems to render it a less frequently reported complication.

The erosion of the incisor teeth by the acid eructations, notably in duodenal ulcer, as mentioned by Mayo, is a feature of interest.

The very frequent association of appendicitis with ulcer is worthy of consideration. In several cases there has been a clear history of an acute attack of appendicitis many years before, with chronic grumbling at intervals. Later the symptoms of ulcer appeared. To one who recognizes the very great frequency of acid indigestion as a result of chronic appendicitis, and of pyloric spasm, frequently associated with actual pyloric hypertrophy, the association of the two diseases would appear to be due to the development of the ulcer as a sequence of the chronic acid dyspepsia, resulting from the chronic appendicitis. The association of gallstone disease is probably rather the result of portal infection than an infection traveling to the gall bladder by way of the biliary passages, although the occasional blocking of the duct with its opportunity for infection in duodenal ulcer is worthy of very careful consideration.

Tetany has been more frequently reported abroad than in America. It occurs especially as a result of the gastrectasis, not primarily of the ulcer. I have not noted it in this connection. The occasional occurrence of pneumonia after operation for gastric ulcer has been mentioned by many writers. Acid intoxication is occasionally observed. A young and well-nourished nurse lost fifty pounds from an occluding pyloric ulcer. She was operated upon, but died toward the end of the first week after gastroenterostomy, as a result of this complication.

Most serious of all the complications of ulcer, and perhaps the most important in the consideration of the advisability of operation upon the pyloric variety, is cancer. I have seen the complication at operation many times, but the extensive statistics of the Mayos put all other reports in the background. "Sixty-eight per cent. of the pylori excised by the Mayos for cancer showed origin in an ulcer, while 71 per cent. of those excised under the belief that they were cases of ulcer showed cancerous changes beginning." (Wilson.) Under such a showing the physician assumes a weighty responsibility in withholding from the patient with chronic gastric ulcer the opportunity for surgical cure.

If operation were more frequently resorted to before more extensive pathological changes occurred, most of the complications we have studied would fail to develop. We need in the study of this disease, less an increase in our means of exact diagnosis than a fuller recognition that chronic peptic ulcer is a definite surgical affection, and curable by operation.

PREVENTABLE DEAFNESS.

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INSTRUCTOR IN DISEASES OF THE EAR, POLYCLINIC HOSPITAL; CHIEF CLINICAL ASSISTANT, EAR, NOSE AND THROAT DEPARTMENT, SAMARITAN HOSPITAL; CLINICAL ASSISTANT, EAR DEPARTMENT, PENNSYLVANIA HOSPITAL.

EVERYWHERE one goes one meets deaf people. What proportion of the population is afflicted with deafness to a degree incapacitating it from taking part in ordinary conversation no one knows. That the number of these unfortunates is great we must all admit. Comfort to the individual and usefulness to society is dependent in large measure upon communication with one's fellows by speech; thus the subject of deafness is worthy of study from the economic as well as from the humanitarian viewpoint. Many of these afflicted people take a steadily progressing hardness of hearing so philosophically as to consider their condition only a natural consequence of added years, even when a marked degree of deafness obtains by early middle life. Others dismiss the matter as due to heredity and submit most gracefully to what they consider their inevitable fate. Even the medical profession as a whole has been indifferent and needs awakening to its responsibility in this class of cases. The attitude of the profession and public is most important, for it

is only by a better knowledge of the subject that future generations can be benefited.

Deafness may be divided into two great classes: the one due to fault of the sound-perceiving apparatus and the other to fault of the sound-conducting apparatus. These are often spoken of, and quite properly, as nerve deafness and middle ear deafness. The sound-perceiving apparatus is made up of the internal ear or labyrinth with its complex system of special nerve endings, the auditory nerve proper, and the center for audition in the medulla oblongata. All these structures are deeply seated, well protected and not easily susceptible to outside influences. The sound-conducting apparatus is made up of the external ear and the middle ear, which latter includes the tympanic cavity with its chain of ossicles, the drum membrane, mastoid cells and eustachian tube. The structures composing the conducting apparatus are more superficially situated and are directly exposed to infection from without the body by way of the unbroken mucous membrane which lines the nasopharynx, eustachian tube, middle ear, and mastoid cells.

Middle ear deafness comprises some 80 to 90 per cent. of the total number of those who come to the physician for help because of failing power of the auditory sense. In all but a very small percentage of cases of middle ear deafness the condition is a secondary one, the primary disease being some degree of inflammation affecting the nose, pharynx, epipharynx, and by continuity involving the eustachian tube and middle ear. There is only a small percentage of cases in which the nasopharynx plays no part. These cases may be due to trauma, to infection directly from the external ear through the drum membrane, or to infection directly from the blood stream. In a few instances there is no inflammatory basis, vasomotor changes dependent upon constitutional disturbances being the causative factor.

There is, then, a great class of ear cases, of which the total number is an overwhelming majority of all ear cases of every kind, in which deafness in some degree is due to varying grades of inflammation, either past or present, involving either the middle ear, eustachian tube and mastoid cells, or the eustachian tube and middle ear without mastoid involvement. This group includes both the acute and chronic forms of suppurative and non-suppurative otitis media, and broadly speaking all are due to inflammations in the region of the pharyngeal end of the eustachian tube, by extension resulting in eustachian salpingitis and finally in middle ear disease. As concerns the causative factors the suppurative ear diseases differ from the catarrhal only in the kind or virulence of the infecting organism invading the nasopharynx, or, again, the difference may be in the resisting power of the individual affected, similar organisms producing in one suppurative, in the other catarrhal, disease only. Of all the conditions responsible for this train of inflammations, adenoid tissue in the epipharynx is the most common predisposing cause. Murray, in a most comprehensive article read before the Section on Otology, Laryngology and Rhinology at last year's meeting of the American Medical Association, dealing with the responsibility of conditions in the nose and throat as concerns middle ear diseases, placed the proportion of adenoid cases in children complicated by ear involvement at 30 per cent. He adds, however, that the percentage will be much higher if careful objective aural examinations are made and changes in the appearance of the drum membrane noted. The writer is convinced of the truth of this assertion and from routine examination in adenoid cases he believes that 75 per cent. have ear involvement. Changes in the contour of the membrane or in its translucency are the departures from the normal most often noted and these are evidences of deficient aeration of the middle ear even though subjective symptoms are not present. Again, quoting Murray, the writer agrees with him that many cases of chronic catarrhal otitis media that apparently have had their inception in adult life are in reality the result of a diseased condition of the nasopharynx existing during childhood.

It is not hard to understand why adenoid tissue is responsible for so many of these cases. The adenoid mass consists of irregular lobes and lobules of lymphoid tissue situated in the epipharynx directly between and adjoining the eustachian orifices and in direct line with the air current with its content of various irritants and microorganisms. A vascular tissue, capable of rapid and considerable swelling and divided by irregular sulci that offer ideal sites for the lodgement of débris and infective organisms, it is no wonder that it is subject to recurring inflammations. In children the position of the eustachian tube, too, favors infection, it being more horizontally placed and more nearly straight than in the adult and with a relatively wider mouth. This anatomical difference accounts somewhat for the frequency of ear complications in early childhood when so slight a disturbance as that accompanying dentition seems the only cause of a suppurative otitis.

Among other conditions predisposing to eustachian involvement are diseased faucial tonsils, chronic follicular pharyngitis, adhesions in the fossæ of Rosenmüller, accessory sinus disease, and intranasal obstructions. The faucial tonsils may be responsible both by reason of repeated inflammations with extension and by pressure interfering with the action of the palatal muscles and the mobility of the eustachian tube. In accessory sinus disease, and particularly in postethmoidal and sphenoidal empyema, the course of the flow of pus makes the reason for eustachian involvement obvious. Intranasal obstruction predisposes principally, according to Ballenger, by causing just behind the obstructions areas subjected to lessened air pressure; there is therefore more or less stagnation of blood with consequent lessened vitality of tissue, predisposing to infection. Murray, in speaking of this subject, brings forward statistics showing that in middle ear disease with nasal obstruction the ear showing the more marked deafness is always on the side of the nasal obstruction. The acute infectious diseases also predispose to ear involvements, influenza and the exanthemata of childhood being especially prone to this complication.

The diagnosis of the acute middle ear diseases causing deafness is of course made upon the history of the cases, by the constitutional symptoms and by finding the signs of inflammation upon inspection of the tympanic membrane. In the milder grades which stop short of middle ear involvement there are no tympanic signs and diagnosis rests upon the deafness, tinnitus, and partial or complete occlusion of the eustachian tube. In the chronic forms middle ear deafness is differentiated from nerve deafness by the changes in the middle ear and tympanic membrane, by eustachian involvement, and by functional

tests with watch and tuning forks, these showing relatively increased sound perception by bone conduction with decrease by air conduction, thus proving the integrity of the sound-perceiving apparatus.

Non-suppurative otitis media is amenable to treatment inversely to the degree of deafness and the length of time it has been present. In the acute forms, either with or without secretion in the middle ear, the prognosis is good for recovery of normal hearing under proper constitutional and local treatment. Without treatment recovery may take place, or a mild degree of inflammation may persist and the condition assume the chronic form. The prognosis in the long existent non-suppurative conditions depends greatly upon the extent of the pathological changes in the middle ear and particularly upon the degree of fixation of the chain of ossicles and tympanic membrane. If this is marked the degree of improvement will be slight, but if a considerable degree of motility is present, or can be secured, the prognosis is good for relief from the tinnitus and for a considerable improvement in hearing.

From a not inconsiderable experience the writer is convinced that the routine treatment of these chronic cases as conducted in many hospitals is entirely inadequate and incapable of doing the good that should be accomplished. With the large number of patients clamoring for treatment in our dispensaries and the limited time at our disposal for their relief it is perhaps surprising that so much good is, in most cases, accomplished. It is an unfortunate fact that we are obliged to treat these patients not as individual cases, but routinely with Politzer bag and massage instrument. In probably one-half to three-quarters of these cases the use of the Politzer bag does not mean that the middle ear is inflated. The patient's statements that he feels it in both ears are unreliable, as can easily be verified by any one so inclined. The use of the auscultation tube gives the operator positive evidence as to whether inflation takes place or not and gives, also, by the character of the sound heard, knowledge concerning the condition of the eustachian tube, the operator distinguishing between the soft blowing sound of the freely patulous tube, the râles heard when secretions are present and the various higher pitched notes of obstruction by adhesions and strictures. In all such cases the eustachian catheter should be used, for by this means air may be made to enter the middle ear and good be accomplished. With recent improvements in the technique of eustachian maneuvers, notably by Yankauer of New York and Holmes of Boston, the field of eustachian treatment and surgery looms up as an important one for future work. The next half dozen years will undoubtedly see a marked degree of improvement in our treatment of both these great chronic classes, non-suppurative and suppurative otitis media.

In conclusion the writer desires to state, what is already evident, that he has not endeavored, nor has he desired, to present an exhaustive or strictly scientific paper on the subject of deafness. The question is a complex one and its many phases should each receive our most thorough study. He has rather felt that the subject needs reiteration, that we need occasionally to have it brought forward in a general way, so we may look toward improvement in our work and a consequent greater usefulness to our patients and the public. The few points he would particularly emphasize are these: (1) Middle ear deafness comprises about 80 to 90 per cent. of all forms of deafness. (2) Ninety per cent. of the cases of middle ear deafness have their origin in inflammatory conditions of the nasopharynx with extension to the ear by way of the eustachian tube. (3) Adenoid tissue in the epipharynx is the most frequent predisposing cause of middle ear disease. (4) Systematic aural examination in adenoid cases discloses the fact that a high percentage, probably 75 per cent., have some grade of ear involvement. (5) The findings of routine ear examination in children with adenoids confirms us in the belief that many cases of middle ear deafness first noticed in adult life have their origin in inflammatory conditions of the nasopharynx, dating from childhood. (6) The milder acute forms of catarrhal otitis should receive appropriate treatment, for if untreated they are liable to assume the chronic form. (7) Routine treatment of chronic catarrhal deafness leaves much to be desired. More careful work is necessary if the best results possible are to be secured. (8) This is an age of preventive medicine. Possibly in no other field is there better opportunity than in the prevention of chronic middle ear disease and its deafness.

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ALASKA AND ITS HEALTH.

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Alaska, the Norway of the new world, is a region unknown and strange to most men. Its vastness is unappreciated. Its wonderful resources are not considered. Its strange peoples and their stranger customs are seldom described. More remarkable still, its matchless scenery and unsurpassed beauty of mountain and fiord are only now beginning to claim the tourist and vacation-seeker. The name itself is a corruption of the native word, "Al-ay-eksa," meaning a great country. And without doubt it *is* a great country—one-fifth as large as the continental United States, 600,000 square miles in area, stretching from Point Barrow at the 72d parallel, to Prince of Wales Island at the 55th.

Geographically it is separated into two portions by Mount St. Elias, a noble crest towering 18,000 feet above the sea. The southeastern portion is the coast strip which reaches well down toward Seattle. Fiords of the greatest beauty run deeply into the precipitous coast ranges here, and toward the Pacific are protected by numerous densely wooded islands, so that from Seattle to Dyea there are but few miles of open sea. Western Alaska embraces the great bulk of the district. Towering mountain chains, large lakes often set in wide-spreading swamps, and beyond these a bleak Arctic Sahara—such is the country here.

Switzerland is outdone by the glaciers of Alaska. Remarkable indeed is the majestic Malaspina, a vast elevated plateau of wasting ice, 1,500 square miles in extent, one-tenth the size of Switzerland itself. The Malaspina is fed by many lesser glaciers, among them the Seward, coming 50 miles in its course from Mount Logan, and spreading three miles in width at its narrowest point. The Seward has several ice cascades dropping hundreds of feet in its course.

Great extremes of temperature prevail, 80° below zero has been recorded, while the brief summer may see the mercury well over 90°. Along the coast frequent rain and fog are responsible for heavy vegetation, and the ports of Juneau

Sitka, and Dyea are open to navigation the year round.

A Russian expedition headed by Chirikov and Captain Vitus Behring discovered Alaska in 1741, and at once fishing and fur-trading posts were established along the coast. A charter was granted by the Emperor Paul in 1799 to a Russian-American fur company, and was renewed in 1839 when Sitka became the principal settlement. No one dreamed in those days of gold. Fur and fisheries were all-important.

In 1867 the whole of Russian America was bought by the United States for $7,200,000. Secretary Seward, who was responsible for the purchase, was bitterly blamed at the time for his folly, and "Seward's ice-box" was a by-word. But fortunately Seward's prophetic wisdom prevailed. Asked by a friend, not long before his death, what he considered his most important political act, the reply was, "The purchase of Alaska, but it will take the people a generation to find it out." The people are finding out now what Seward foresaw in 1867, but in the meantime scant attention and little aid have been extended to Alaska, and in no particular has this neglect had less excuse than in regard to health conditions among Alaskan natives. These natives number about 25,000, scattered over a vast territory in villages of from 25 to 300 persons each. Four ethnologic types are represented: (1) The Eskimo or Innuit, of which the Aleut is an offshoot; (2) the Haidas or Kaigan who live chiefly on Prince of Wales Island and its vicinity; (3) the Thlinkets, and (4) the Tinnehs or Athapascans, the stock race of the great interior country. The native villages are, as a whole, very inaccessible. The ordinary means of travel is by boat, and during the long winters dog teams afford almost the only means of communication.

Our treatment of Alaska stands in singular contrast to the policies which have transformed the Canal Zone, Cuba, and the Philippines from tropical pest-holes into sanitary, safe, and productive territories. With every advantage of undeveloped wealth, freedom from endemic disease, and healthy climate, Alaska has been allowed to drift into a sanitary condition which disgraces our proved prowess in this realm elsewhere. It ought now to have a place with our other dependencies, as a model of sanitation, and a monumental triumph of scientific preventive medicine. But Alaska is far from such a state.

At the request of the Secretary of the Interior, a medical officer was detailed from the federal Public Health Service in April, 1911, to make a study of disease in Alaska, and of the conditions favoring its spread, with a view toward inaugurating adequate measures of prevention. This timely and difficult task was assigned to Dr. M. H. Foster, and his thorough and scientific investigation has been made the basis for active measures for the medical relief of the Alaskan natives.

From the standpoint of the sanitarian, one of the most serious conditions lay in the housing facilities. While the dwellings were well built and substantial, they had practically no provision for ventilation, and were, as a rule, entirely too small for the number of occupants. Overheating, overcrowding, and lack of ventilation were very conductive to the spread of diseases, especially such as tuberculosis. No attempt is made by the natives to dispose of garbage and household refuse. It lies where it falls, but after all this is an esthetic rather than a sanitary offense in such a climate.

The staple article of diet is fish, and no sea product is more dearly loved or more widely used than fish oil. This fish oil is made by filling pits with masses of fish, which are left until putrefaction begins. Then the ill-smelling mass is dug up and placed in canoes together with water and hot stones. As the oil comes to the surface it is skimmed off and stored for future use. Not only is this fish oil an important article of diet, but it is also used liberally for external application. The consequence is that the natives smell horribly and cannot even be admitted to white wards in the hospitals because of the overpowering stench. Digestive troubles are of frequent occurrence because their food is commonly bolted, and over-eating in times of plenty alternates with starvation in times of want.

The outdoor occupations of fishing and salmon canning are healthful. In most of Alaska the ablebodied can make a living if they are industrious. Poor management and laziness, however, stand in their way, and the Indian is by nature improvident. The effects of alcohol are as destructive as among other primitive peoples. The most serious condition is the lack of a suitable water supply in most of the villages. In only a few is water of good quality piped to the village in abundant quantity. Good water is almost always available and in sufficient amount, but the fact that it must be carried from well or spring by hand and often up-hill is an insurmountable obstacle to the Alaskan, whose nature abhors physical exertion. In the extreme north melted snow is the chief source of water. The result of these conditions is that, especially above the Arctic Circle, urine is commonly used for personal ablutions, and decomposed urine for washing clothes, both on account of the lack of a good water supply and because of the ammonia contained. This is paralleled by the practice of the natives of Anadir across Behring Strait in Siberia, where urine is employed in a sort of Turkish bath.

Some villages depend for their water supply on seepage water from the surface, a dangerous and precarious source. In spite of this, water-borne diseases are extremely rare. It is worse than useless to expend money and effort in teaching cleanliness and personal hygiene when there is no water with which to be clean. Foster considers that government funds could be spent in no other way so advantageously as in providing a suitable water supply for native villages. He cites the great improvement which followed the efforts of the resident missionary at Klukwan, who through the generous aid of an Eastern philanthropist, piped water through the settlement. Excellent springs and streams are numerous, and a small fund would do great good.

The diseases most prevalent among Alaskan natives are tuberculosis, syphilis, and trachoma. These are causing great ravages. The native Alaskans have no heredity of immunization, such as falls to civilized races today, and disease takes a virulent course. Foster examined 1,364 natives himself, and checked his results by the observations of local missionaries, teachers, physicians, and government officials. He found 0.5 per cent. to have active syphilis, and 5.3 per cent. showed symptoms indicating the disease in a latent or hereditary form. The disease yields readily to treatment, but continued

treatment is almost impossible outside of an institution because the Indians will not carry out directions or submit to control otherwise.

Pulmonary tuberculosis is not so common as might be expected from the personal habits, housing, and lack of hereditary immunity. Foster rightly believes that the high fat content of the diet, consisting so largely of fish oil, has a definite rôle in increasing the resistance to tuberculosis. At the present rate, sixty or seventy years will see the last of these natives. The death rate now is about 85 per thousand, as compared with an average of about 22 per thousand for the United States. The birth rate in Alaska is high, but not nearly in proportion to the death rate. This enormous death rate is in no small degree due to tuberculosis. Foster considers it hopeless to attempt to care for the tuberculous except in proper sanitaria, and his suggestion in this regard merits serious consideration.

Eye diseases of all kinds are very common, over 16 per cent. having some such disorder. Half of these were trachomatous. In some sections more than half of the population suffered from trachoma. The blind are seen everywhere, and a government home is badly needed for these as well as for destitute and helpless cripples, all of whom receive scant sympathy from their fellows and have no employment.

Foster concludes that apparently little lasting effect can be expected from a campaign of education and moral suasion. More vigorous measures are demanded. Alaska should have a commissioner of public health to enforce a thorough sanitary code. Authority has been asked for the surgeon-general of the Public Health Service to appoint one of the officers of that corps to serve in such a capacity. In accord with this suggestion, Dr. Emil Krulish has been detailed for this duty and has assumed charge of measures for the medical relief of the natives.

It has been a slow awakening to Alaska's need and to our obligation as a nation. Great things must be done. They can be done as they have been done elsewhere. Every American should have an intelligent pride in the wonders and resources of Alaska, as well as a conscious obligation to further by every possible means the measures now being inaugurated in behalf of the Alaskan natives.

720 East Holt Avenue.

UNILATERAL AMBLYOPIC AND DIPLOPIA FOLLOWING SUPPRESSIO MENSIUM.

By S. LATIMER PHILLIPS, M.D.,

SAVANNAH, GA.

Many authors have noted a connection between impaired functions of the female sexual organs and the organs of vision, symptoms having varied from a slight irritation of the eye to complete loss of vision. That sudden suppression of the menses should have its effect upon the eye is not surprising when we consider the shock to the whole system. The case reported below is especially interesting in that only one eye was affected. Most of the cases I could find reported had both eyes involved.

Miss ———, 41 years of age, apparently in the best of health, consulted me May 24, 1912, with the history of almost entirely having lost sight of left eye during the preceding three weeks. $V = R \frac{15}{x}, L \frac{15}{cc}$. Eye had sensation of "over fullness." There was some pain in moving the eye about, and when the ball was pressed firmly back into the socket. Neuralgia in left side of face and head, so severe in lower jaw I had her consult a dentist, who found an exposed nerve, afterwards filling the tooth. Some protrusion of eyeball, normal. Mobility of eyeball outward impaired. She had been doing quite a lot of fine needlework which she thought might have had some influence on her eye. Being energetic she was in the habit of stirring around considerably, getting overheated, then sitting down with her sewing before a large open window opposite an open door, with a strong breeze blowing through. A little over three weeks before coming to me, when her courses were on, she did this; after one day, menstruation ceased, and the eye began to get painful and lose sight. Thinking the eye would improve every day she put off seeking help as long as possible. Ophthalmoscopic examination: R normal, L large peripheral spot of choroidal atrophy of 15 years' standing. I head treated her at that time with good result. $V = L \frac{15}{xv}$. Besides the above condition there was only light infiltration of optic nerve and retina, with veins fuller than normal. At once three leeches were applied to left temple. Hot foot bath at night with 2½ gr. each of calomel and soda. Condition seemed no better on the 25th. I then ordered potassium iodide gr. X, t.i.d., with very hot sitz bath every night. On the 28th menstrual flow returned, and has been regular ever since. Vision began slowly to return. On June 8 $V = L \frac{15}{lxx}$. As vision began to improve she observed diplopia, but this, too, got better and she noticed it only when looking to left. On July 8 vision in left eye was $\frac{15}{xv}$. She continued to take potassium iodide until July 25 when it was discontinued. $V = R \frac{15}{x} L \frac{15}{xv}$. Reads and sews in moderation and has had no further eye trouble save a slight attack of catarrhal conjunctivitis in right eye this last Spring.

Samelsohn explained these cases by the sudden closure of the uterine vessels, overfilling the blood stream, which lead to extravasation and transudation, and consequent compression of the optic nerve. Similar cases we meet with in circumscribed hemorrhage in the substance or sheath of the optic nerve whereby the conducting power of the nerve is completely cut off. On the other hand Mooren believes in a central cause—basing his supposition upon the orbital pain—which might be explained in a natural manner by a simultaneous compression of the root of the trigeminus.

232 Bull Street.

Myeloid Leucemia and Tuberculosis.—Otto Roth cites a number of cases including his own that seem to show a close association between tuberculosis and myeloid leucemia. According to Nana tuberculosis may under certain circumstances be the main causal factor in the production of chronic myeloid leucemia. This etiological sequence is regarded by the author as all the more probable in the case of acute myeloid leucemia.—*Zeitschrift für klinische Medizin.*

The Water Requirement of the Infant.—L. F. Meyer points out that the living tissues consist of more than one-half of water. In the growing organism water plays a more important rôle than in the full-grown animal. It was shown by O. and W. Heubner that an inadequate gain in weight in nursing infants is often to be attributed to an insufficient supply of water to the infant. In an experimental investigation conducted with the view of testing this observation the author succeeded in differentiating three groups of children: (1) Those fed on a concentrated and sweetened preparation of casein- milk, who lost in weight and gained only when water was added to the diet. (2) Children that on a similar diet maintained a stationary weight and gained only on the addition of water. (3) Children that on a concentrated diet thrived and gained in weight, but that at the end of a number of weeks attained a stationary weight; at this stage the addition of water to the diet was followed by an increase in weight. The following practical rule is laid down: An infant needs on an average daily 150 grams of water for each kilogram of body weight.—*Zeitschrift für Kinderheilkunde.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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EPIDEMICITY OF LARYNGEAL DIPHTHERIA.

ONE of the most interesting and baffling facts in connection with the prevalence of infectious diseases is the varying virulence and epidemicity of these diseases from year to year. This was observed most strikingly in Germany about two years ago when diphtheria attained an unusual degree of virulence and diffusion, in spite of prompt and thorough antitoxic treatment. Still more remarkable is the fact that diphtheria of the larynx considered apart from diphtheria of the pharynx is subject to certain unusual degrees of prevalence and severity. The occurrence of a large number of cases of diphtheritic croup in the city of Naples during the past eleven years enabled Alfonso Montefusco to record a number of interesting data pertaining to this subject (*Giornale Internazionale delle Scienze Mediche,* August 31, 1913).

A most unusual phenomenon observed in Naples was the relatively large proportion of cases of diphtheritic croup as compared with the cases of diphtheria in general. In the Cotugno Hospital from 1902 until 1912 there were treated 2,464 cases of diphtheritic croup, and 539 cases of diphtheria in which the larynx was not affected. The mortality in the former group was 25.3 per cent. In the latter group the mortality was 8.8 per cent. The greater frequency of diphtheritic croup as compared with pharyngeal diphtheria might be explained on the supposition that many of the milder pharyngeal cases are not reported to the sanitary authorities and hence do not appear in the statistics. Moreover, a greater proportion of the croup cases are undoubtedly sent to the hospital, so that figures based upon hospital admissions would be apt to show an unduly large percentage of croup cases. Nevertheless, even if one admits these facts, there can be no doubt that in the city of Naples during the past decade laryngeal diphtheria was the predominating type of this disease.

How can this extraordinary fact be explained? It might be advanced that in Naples the Klebs-Loeffler bacillus has acquired a peculiar virulence. This supposition can be dismissed with the statement that although croup cases are much more fatal than ordinary cases of diphtheria, this greater severity is not due to any greater virulence of the infective organism but is the result of the anatomical conditions which render so ominous even a mild membranous invasion of the larynx. Moreover the mortality of 25 per cent. which characterized the cases of croup in Naples compares most favorably with the mortality figures with reference to this disease in other parts of the world. One can therefore leave out of consideration any question as to the relative virulence of the germ. There is some unknown factor which seems to preside over the anatomical distribution of the diphtheritic process. A close analogy is afforded by the study of plague. In most of the epidemics of this disease the bubonic type is the predominating if not the sole type. On the other hand there are epidemics in which the pulmonic type is the prevailing one. No explanation has yet been forthcoming as to why the *Bacillus pestis* at certain times and in certain localities invades the lungs rather than the lymphatic system. The same selective anomaly applies to the diphtheria bacillus. There is one difficulty that may be explained in the case of the anatomical distribution of diphtheria. One should distinguish between cases of membranous laryngitis which are the result of an extension by continuity of the diphtheritic process from the pharynx, and cases of membranous laryngitis which are primary, or, in other words, which start in the larynx. It is to the latter group of cases to which should be confined the study of the factors which underlie the anatomical distribution of the diphtheritic membrane. Conkey has pointed out that in cultures of diphtheria bacilli there is a greater production of toxins during the period from the end of September to the end of March. There is thus a parallelism between the incidence and mortality of diphtheria on the one hand, and the production of toxins in cultures of the diphtheria bacillus on the other hand.

The large number of cases of laryngeal diphtheria that were studied by Montefusco enabled him to glean other important data relating to the epidemiology of this disease. It is least frequent and has the least mortality from the first to the seventh month of life. After this period the frequency increases up to the first year, when it attains its maximum frequency. This continues until the second year of life, after which time the frequency gradually diminishes up to the fifth year. Beyond the fifth year the incidence of croup rapidly diminishes. The curve of mortality is parallel to the curve of incidence. Croup is more frequent and more fatal among males than among females. It is relatively more common in rural than in urban communities but there is no marked difference in the mortality in comparing city and country. The incidence and mortality of croup are in general greatest during the period from December to March, and least during the summer months.

SECRETIN.

WHEN it is considered that not more than thirty years have elapsed since Brown-Séquard first advanced the view that the internal secretions might play an important part in the working economy of the human system, the progress made in the eluci-

dation of the obscure points with regard to this theory has been on the whole satisfactory. Brown-Séquard, although he had probably grasped the right idea, to a large extent was groping in the dark and the extraordinary development in this branch of physiology owes much to the investigations carried out by Pavlov in the Institute of Experimental Medicine at St. Petersburg. Pavlov cleared up many of the biological facts, and other investigators, notably Starling of London, have set themselves to the study of the chemical and physical conditions which determine the digestive changes in the foodstuffs and to the means whereby the pancreas is excited to secrete. Starling, in his recently published "Physiology," explains lucidly and succinctly both these matters and further unfolds several more leaves of this hitherto closed book. Much has been learned of late years regarding the relation of the internal secretions to most parts of the body and especially of their relation to the intestinal tract, to which branch of the subject Pavlov, Edkins, Baylis, Starling, Dopielski, Wertheimer, and others have particularly devoted themselves, nor must the labors of Sajous in this field be overlooked.

When Pavlov made the discovery that the pancreas is normally excited to secrete in response to stimuli originating in the gut, he thought that the stimuli were afforded by means of the nervous system. But Starling with the assistance of Baylis found out that the nervous system did not provide these stimuli, but that they were supplied by the dispatch of a chemical messenger or hormone from the seat of stimulation to the reacting gland through the blood stream. Moreover, subsequent investigations have demonstrated the existence of other chemical correlations of the same nature, and, as Starling says, suggest that by the detection and isolation of such hormones we may later be in a position to influence and control a number of the chief functions of the body. Starling has named the hormone, or exciting agent which arouses the intestinal ferments to perform the proper functions, secretin. This substance may be formed from mucous membrane by the action of any acids or even by simply boiling the tissue with water. On the other hand, mere extraction with cold water or alcohol, in which secretin is freely soluble, does not result in the production of an active solution. As an outcome of these investigations Starling concludes that the epithelial cells lining the gut contain a body, prosecretin, which is insoluble in water or salt solution, but which, under the influence of agents such as acids, undergoes hydrolysis with the formation of a new body, secretin. Consequently when hydrochloric acid is introduced into the small intestine it acts on the prosecretin and produces secretin, which in turn causes a flow of the pancreatic secretion necessary to proper digestion. The physiological reason for the flow of pancreatic secretion is that by the agency of the HCl in the chyme secretin is produced and this is absorbed into the circulation and borne in the blood stream to the pancreas where, as said before, it acts as a specific stimulus to the secretory cells. It is also confidently assumed, if not absolutely proven, that secretin excites the secretion of bile by the liver-cells and the secretion of intestinal juice by the glands of the intestine.

UNMARRIED MOTHERS.

Edith Livingston Smith contributes a very remarkable article to *Harper's Weekly* of September 6, 1913, on various social aspects of "unmarried mothers." The author does not use any circumlocution in handling a subject in which the new feminist movement is so deeply interested. So-called maternity homes are condemned for three reasons: Their atmosphere is abnormal. The prospective mother needs expert obstetrical care at the time of her confinement, and it is difficult to combine medical efficiency with professional charity. These "homes" are economically inefficient in not yielding the best results for the money expended. As a substitute for the maternity home the author would keep the pregnant girl in her own home until she can go to a lying-in hospital for her confinement. If such a girl cannot stay in her own home she should be placed in some family under the care of a good and sympathetic woman. The author holds that just as the institutional care of orphans has failed, so has the institutional care of unmarried mothers.

After reading this rather sensible presentation of a subject which seems to be nowadays regarded as a fit topic for discussion in the family circle, one is somewhat startled by the sudden interjection of a modern fairy story in the guise of a report of what the author would have us believe is a "typical" case of the unmarried mother. "Pretty as a picture, impulsive, and outspoken," Louise has syphilis and gonorrhea (ulcus molle was apparently overlooked) and is pregnant besides. The father of her child and the one she loves is a college graduate. (All bad men nowadays are "college graduates"—usually, we believe, from Harvard.) Another man, James G., wants to marry her "to save her from her fate, and to protect her and her unborn child." He will not live with her until she is cured (wherein he shows a modicum of common sense); he will even wait for her as her husband three years. So Louise marries honest James, but she still loves the "college graduate." The author asks: "What is morality? Living with a man one does not love because of a wedding ring upon the finger? Bearing the child of a man she does love who will not shield her from their mutual folly? Poor Louise!"—Poor James G.! The pathetic tale furnishes abundant material for a modern sex drama, absolutely guaranteed to draw crowded houses from the ranks of men and women who are far beyond the need of instruction in the problems of sex and the danger of lax morals.

An Official Warning Against Dangerous Diet Cranks.

Of all the numerous diet systems, the advocates of which plague the average citizen with their vociferous claims and persistent advertising, one of the most illogical, inconsistent, and dangerous to health is the raw food faddism. The high priests of that cult and of others nearly as

back, whether fakers or just cranks, have been making of themselves such nuisances that people all over the country have written to the Agricultural Department calling its attention to the misstatements in the advertising literature and seeking protection from the annoyance. In response to their requests the specialists in the Department have issued a statement warning people against adopting the dietary recommendations of persons having no scientific standing. In most of the arguments of these self-styled "experts," the statement says, there is hardly a shadow of reason, though they may seem plausible. An example is cited of a raw-fooder who fed rabbits on cooked food exclusively and found they did not thrive, and therefore, with admirable logic, offered the conclusion that human beings should confine themselves to raw food. Not only is the fact ignored that civilized man for ages has cooked the greater part of his food and that his palate and his digestion will accept only a few raw things, but the danger in raw foods of infection with pathogenic microorganisms and infestation with intestinal parasites is never mentioned, probably because unknown to these faddists. Another assertion made by them —for of course, like most diet cranks, they abhor meat-eating, corpse-eating as they call it—is that meat is filled with bacteria. But it is tiresome to catalogue the absurdities of these diet cranks who pick up a few isolated facts or bizarre notions and attempt to base on them a system of living adapted to all sorts and conditions of men. The Agricultural Department does well to warn the people against all these fantastic diet systems.

News of the Week.

Local Epidemic of Typhoid Fever in New York.—From September 3 to September 20 178 cases of typhoid fever have been reported from the district east of Third Avenue between Sixth and Thirty-third streets. There were on September 21, 210 cases of the disease in the city. There are 72 cases in Bellevue Hospital,more than have been in that institution at one time in half a century. The Health Department has succeeded in tracing the source of some of the cases to a certain milk supply and will continue the investigation until the dairy from which the infected milk comes has been discovered. Immunizing treatment is offered by the Health Department to families one of whose members has the disease, but the east-siders are not very desirous of availing themselves of this offer.

Cholera in Roumania.—It is reported that there have been 1,200 cases of cholera, with 45 deaths, in Bucharest during the past fortnight.

Fewer Medical College Graduates This Year.—The number of graduates from the medical colleges of this country for the year ending July 30, 1913, was 3,981, a decrease of 502 as compared with the previous year, a decrease of 202 below 1911, and a decrease of 459 below 1910. The total number of graduates this year was 1,166 less than in 1904. There were 209 graduates from the homeopathic colleges, or 57 more than in 1911. The eclectic colleges graduated 93, one more than in the previous year, but 17 less than in 1911. About 20 per cent. of the graduates of the regular medical schools had baccalaureate degrees, while in 1911 but 15.3 per cent. were reported as holding such degrees. Of the 753 graduates holding baccalaureate degrees, the largest number, 139, came from Illinois colleges, while 99 came from New York, 80 from Maryland, 73 from Pennsylvania, and 60 from Massachusetts.

Changes at the Army Medical School.—Orders issued at the War Department on September 9 relieve Col. Walter D. McCaw and Major Charles R. Reynolds from further duty at the school. Col. Champe D. McCulloch, Jr., is assigned to duty as professor of military and tropical medicine; Lieut.-Col. James D. Glennan, as professor of the medical department administration; Major Eugene R. Whitmore, as professor of bacteriology, pathology, and clinical diagnosis, and Captain Edward M. Tabott, as assistant professor of ophthalmology.

Registration of all Births Urged by Government.—A bulletin issued by the Government Children's Bureau at Washington, D. C., has been sent to all the States asking that laws for the adequate registration of all births be passed by the States. The bulletin points out that in Arkansas, Georgia, North Carolina, and South Carolina there are absolutely no laws for the registration of births. In sixteen States, including New York, New Jersey, and Wisconsin, there are adequate laws that are not enforced, while in twenty States, including Illinois, Indiana, and Iowa new laws and amendments are necessary.

The Harvey Society Lectures.—The first lecture of the Harvey Society will be given on Saturday, October 4, at the Academy of Medicine at 8.30 P.M., by Dr. Augustus D. Waller, of the University of London. His subject will be "A Short Account of the Origin and Scope of Electrocardiography." Dr. Waller brings with him from London his own apparatus with which he will give demonstrations during the lecture.

A Pettenkofer Memorial.—In the *Muenchener medizinische Wochenschrift* for August 26 there is a brief account of a medical building, the Pettenkofer House, which is intended to serve both as a monument to the great sanitarian and as a home for the medical profession. At present the plans are being drawn, all the local medical societies having united to carry out the project. It is hoped that the next session of the International Medical Congress, which meets at Münich in 1917, will be able to hold its general sessions in the great auditorium of the Pettenkofer House. The latter will also be open to visiting medical men. The large library and reading room of the Aertzlicher Verein will be moved into the new building. Much of the required funds will be raised by Government lottery.

Cancer Statistics in Norway and Elsewhere.—Careful study of the remarkably accurate data gathered by the Norwegian cancer committee show for that country two remarkable variations from the figures for the rest of the world. More men than women died of cancer in Norway, and cancer of the stomach is the most prevalent form, death from this form of cancer ranging from 63 to 74 per cent. in different provinces. Again the incidence of cancer in women is markedly different from that in other countries. These findings suggest that cancer is more influenced by habits of life, food, and external surroundings than has been supposed possible. The cancer statistics from the registration area of the United States show that there were 44,024 deaths from cancer in 1911 or a death rate of 74.3 per 100,000 population. The rate for 1910 was 76.2, which was higher than that for any other year for which the records are available. The high-

est crude death rate from cancer occurred in the State of Vermont and was 101 per 100,000 population. Other States with high rates were Maine, 98.6; New Hampshire, 96.8; Massachusetts, 94.4, and Rhode Island, 88, while the lowest rates were shown for Montana, 40; Kentucky, 42; Washington, 46.1; Utah, 51.9, and North Carolina municipalities, 54.8. Among the cities having the highest rates were Albany, 122.8; Boston, 111.2; San Francisco, 110.6; Oakland, 105.3. Those with the lowest rates were Memphis, 51.9; Seattle, 57.4; Atlanta, 61.2; Detroit, 65.1, and Jersey City, 65.5.

Low Death Rate for New York.—The mortality statistics for the week ending September 13 show a rate of 11.50 per 1,000 population, the lowest death rate that the city has ever experienced with the exception of the week ending June 28, when the rate fell to 11.49. The death rate for the corresponding week of 1912 was 1.62. The death rate for the first thirty-seven weeks of 1913 is .26 lower than during the corresponding period of last year.

Government Investigation of the Friedmann Remedy.—The United States Public Health Service in a letter replying to an inquiry regarding the efficacy of the Friedmann treatment for tuberculosis states that the experiments which have been conducted by that department have not up to date been satisfactory. The formal report on the Government tests of the turtle bacilli is being prepared and is in accordance with the statements already given out to the effect that the bureau cannot give its recommendation to this form of treatment for tuberculosis.

The Drug Crusade in Jersey City.—A rumor to the effect that hundreds of young men in lower Jersey City had become addicted to the use of heroin and cocaine has led to an investigation by the Director of Public Safety. As a result four druggists and two clerks have been arrested on the charge of selling drugs illegally and have been held in $2,500 bail pending examination.

Personal.—Dr. E. S. McCain who has had charge of the quarantine work of the State Board of Health at Galveston has been transferred to Tampico, Mexico, in order to assume charge of the refugee camps at that port.

Dr. Louis W. Sambon of the British School of Tropical Medicine was the guest of the Medical Society of South Carolina on September 8. He addressed the society on the subject of pellagra and on his findings in regard to that disease in Charleston. He then went with several American scientists to Jamaica for the purpose of studying pellagra.

Examination of Candidates for Assistant Surgeon.—An examination is announced for the position of Assistant Surgeon in the Public Health Service at a salary of $2,000 a year with the privilege of examination for promotion with an increase of salary at the end of four years. Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B street, S.E., Washington, D. C., and at the Marine Hospitals of Boston, Mass., Chicago, Ill., St. Louis, Mo., New Orleans, La., and San Francisco, Cal., on Monday, October 20, 1913, at 10 o'clock A.M. for the purpose of examining candidates. Further information in regard to requirements and invitation to appear before the board of examiners may be obtained by addressing the Surgeon-General Public Health Service, Washington, D. C. The announcement states that successful candidates will receive early appointments.

Charitable Bequests.—*The will of Miss Emmalissa Purvis* leaves $1,000 to the Seney Hospital, Broklyn, N. Y.

By the will of Homer N. Lockwood the Auburn (N. Y.) Hospital receives $20,000 to be known as the Homer N. Lockwood Free Nurse Fund; the Women's Hospital and the Presbyterian Hospital of New York City each receives $5,000.

By the will of the late John L. Ringwalt of Philadelphia residuary bequests are made to Jefferson Medical College Hospital and the Chester County Hospital at West Chester, Pa.

By the will of the late Caroline C. Crosby the sum of $1,500 is bequeathed to the Methodist Hospital, but the bequest may be rendered void because it was made within thirty days of the death of the testator.

By the will of the late Judge Edward Harvey of Allentown, Pa., the sum of $50,000 is bequeathed to the Allentown Hospital to be used as an endowment fund for maintenance and also one-third of the residuary estate.

The Southern Minnesota Medical Association, which is to be held in Mankato, Minn., on December 2 and 3, has arranged for clinics to be conducted by Dr. Isaac Abt of Chicago, Dr. Robert H. Babcock of Chicago, Dr. James A. Herrick of Chicago, and Dr. Ludwig Hekteon of the University of Chicago.

The Negro Physicians State Medical Association of Louisiana at its meeting held in Shreveport on September 9 and 10 elected the following officers: *President,* Dr. W. H. Ennis of Bunkie; *Vice-President,* Dr. Thaddeus Taylor of New Orleans; *Secretary,* Dr. W. E. Shallowhorne of Baton Rouge; *Treasurer,* Dr. W. M. Wallace of Shreveport.

British Home Office Reports on Vivisection.—This report which follows an inspection of the conditions under which animal experimentation is conducted in England and Scotland states that everywhere the inspector found the animals suitably lodged and well cared for, and the licensees attentive to the requirements of the act, as well as to the conditions appended to their licenses by the Secretary of State. A graded series of licenses is issued by the Home Office specifying the requirements for different kinds of experiments. In all 83,599 experiments were performed during the year 1912, or 11,604 less than during 1911. An anesthetic was used in 5,043 cases, compared with 4,996 in the previous year. The report states that 24,870 experiments were carried out during the year by 24 licensees at eight institutions in the course of cancer investigation. Eighty-two licenses reported over 22,000 experiments, which were performed for Government departments, or public health authorities. During the year 1912 there were in all 598 persons who held licenses.

The National Medical Association, whose membership consists of colored physicians, druggists, and pharmacists, at its fifteenth annual meeting held in Nashville, Tenn., August 26-28, elected the following officers: *President,* Dr. A. M. Brown of Birmingham, Ala.: *Vice-Presidents,* Dr. J. M. G. Ramsey of Richmond, Va., and Dr. O. La Branch of New Orleans, La.; *Secretary,* Dr. W. G. Alexander of Orange, N. J.; *Treasurer,* Dr. J. R. Levy of Florence, S. C.

The New Hampshire Surgical Club held its autumn meeting at Portsmouth, N. H., on Septem-

ber 5, when the following officers were elected: *President*, Dr. F. E. Kittredge of Boston; *Vice-President*, Dr. Elmer H. Carleton of Hanover.

The Kentucky State Medical Association at its closing session on September 4 elected the following officers: *President*, Dr. J. W. Ellis of Masonville; *First Vice-President*, Dr. L. L. Neel of Warren County; *Second Vice-President*, Dr. M. McDowell of Cynthiana; *Secretary*, Dr. A. T. McCormack; *Treasurer*, elected for five years, Dr. W. B. McClure.

Permanent Commission of the Eighteenth International Congress of Medicine.—The following have been elected members of the permanent commission for the International Medical Congress, which is to be held in Munich in 1917.: *President*, Friedrich von Müller of Munich; *Vice-Presidents*, M Calman Muller of Budapest and Sir Thomas Barlow of London; *Secretary*, M. H. Berger of Amsterdam; *Assistant Secretary*, D. Ph. van der Haer of The Hague; *Member*, M. L. Dejace of Liege, who is president of the International Association of the Medical Press.

Obituary Notes.—Dr. Charles Lester Leonard of Philadelphia died of *x*-ray cancer at his summer home in Atlantic City on Tuesday of this week. He was born in 1861 and was graduated from the Medical Department of the University of Pennsylvania in 1889. Nine years ago a severe *x*-ray dermatitis developed on the right hand and when malignant degeneration appeared the hand was amputated. The disease, however, extended up the arm and this was removed at the shoulder at the beginning of the summer—too late, however, to save his life. Dr. Leonard was a member of the Polyclinic Hospital staff and was Professor of Roentgenology in the University of Pennsylvania.

Dr. Robert E. Moore of Brooklyn, N. Y., died at Saranac Lake on September 13, at the age of 34 years. He was graduated from Johns Hopkins University in 1896 and was a member of the New York State and Kings County Medical Societies. He was assistant surgeon to the Kings County and Bedford Street Hospitals.

Dr. Paul Gervais Robinson of St. Louis, Mo., a graduate of the Medical College of the State of South Carolina in 1856, died on August 23, aged 79 years. Dr. Robinson was a Civil War veteran and professor emeritus of the principles and practice of medicine in Washington University, St. Louis, Mo.

Dr. John Lochner of Jersey City, N. J., a graduate of New York University Medical School in 1871, died on September 5, aged 73 years. Dr. Lochner was medical examiner for the Jersey City Fire Department for twenty years, a member of the Jersey City Board of Health for nineteen years, and a member of the Hudson County Pathological Society.

Dr. Thomas Robinson of Washington, D. C., a graduate of the Georgetown University School of Medicine in 1876, and for forty years connected with the Treasury Department in Washington, died after a prolonged illness on August 24, aged 77 years.

Dr. E. V. Ezell of Angleton, Tex., a graduate of the Medical Department of the University of Louisville, Ky., in 1872, died on August 26, aged 60 years.

Surgeon Howard Smith of the United States Navy, a graduate of the University of Pennsylvania in 1871, died in the Naval Hospital at Norfolk on September 4, aged 65 years. He served on the interior coast defense and later on the *Michigan* during the Spanish-American War.

Dr. J. Howard Lever of Flushing, Long Island, N. Y., a graduate of the College of Physicians and Surgeons, N. Y., in 1869, died of cardiac disease recently at the age of 72 years.

Dr. George C. Laws died at Paulsboro, N. J., on September 5 at the age of 67 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1871. He was a veteran of the Civil War.

Dr. Frank J. Wagenseller of Selins Grove, Pa., died at the Samaritan Hospital, Philadelphia, on September 5, as the result of acute uremia following an operation, at the age of 58 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1875.

Dr. Amandus H. Fegley died at Spangsville, Pa., on September 4, of gangrene following infection of the foot, at the age of 70 years. He was graduated from Jefferson Medical College in the class of 1872.

Dr. Benjamin Franklin Severs died at Philadelphia on September 7 at the age of 58 years. He was graduated from the Long Island Medical College Hospital in the class of 1888.

Dr. Elwood Maulsby Corson died at Norristown, Pa., on September 7 at the age of 71 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1863. He was a member of the Montgomery County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association. He served as surgeon in the U. S. Navy during the Civil War.

Dr. Charles H. Ballantine of Philadelphia died at Jefferson Hospital on September 8 at the age of 58 years. He was a graduate of the Philadelphia College of Pharmacy and of Jefferson Medical College in the class of 1882.

Dr. Charles A. Meeker of Newark, N. J., died at the Homeopathic Hospital in Newark following an operation for gallstones, aged 67 years. Dr. Meeker was one of the founders of the New Jersey State Dental Society, and Secretary of the State Board of Dental Examiners for eleven years; he was also a member of the Odontological Society of Manhattan, the New York Institute of Stomatology, and the American Academy of Dental Surgery.

Dr. James A. Coyne of Newark, N. J., a graduate of Jefferson Medical College in 1896, died at his summer home in Sterling, Mass., September 8, aged 40 years.

Dr. Walter M. Flemming of Mount Vernon, N. Y., a graduate of the Albany Medical College in 1862, died September 8, aged 75 years. Dr. Flemming practised medicine in New York City from 1869 to 1909.

Dr. Walter E. Russell of Walla Walla, Wash., a graduate of Hahnemann Medical College and Hospital, Chicago, in 1889, died of cancer after a lingering illness, on August 29, aged 55 years.

Dr. A. N. Fegley of Spangsville, Pa., a graduate of Jefferson Medical College in 1870, died September 4, aged 70 years.

Dr. Henry M. Emerick of Milton, Pa., a graduate of the Baltimore Medical College in 1880, died from acute indigestion on August 31, aged 59 years.

Dr. Philander S. Boyd of Florence, Ala., a graduate of the University of Tennessee, Nash-

ville, in 1888, died in New York City, where he had gone for treatment, on September 6, aged 63.

Dr. James O. Callahan of Muskogee, Okla., a graduate of the Missouri Medical College in 1888, died August 29, aged 53 years.

Dr. Thomas Edward Pickett of Maysville, Ky., died September 3 at the age of 72 years. He was graduated from the University of Pennsylvania in 1865, and was a life member of the British Association for the Advancement of Science, of the American Academy of Medicine, the American Association for the Advancement of Science, and the National Geographical Society. Dr. Pickett was one of the first men to introduce into this country the treatment of fractures by massage and mobilization. He was the author of the book, "The Quest for a Lost Race," which won him a membership in the Royal Society of Arts of England.

Dr. Nathan Jacobson of Syracuse, N. Y., died suddenly from a heart attack on September 16 shortly after arriving at the Syracuse Hospital for the purpose of attending to his usual duties. He was 56 years old. He was graduated from the Syracuse University College of Medicine in 1877. He was a member of the American Surgical Society, the American Medical Association, the New York Academy of Medicine. He was surgeon to St. Joseph's Hospital and consulting surgeon to the Hospital for Women and Children.

Dr. James M. Barr of Eufaula, Ala., a retired physician, died on September 8, at the age of 80 years.

Dr. Ephraim Wood Norwood of Spencer, Mass., a graduate of the Harvard Medical School in 1882, a member of the Medical Society of the State of Massachusetts and of the Worcester County and Brookfield Medical Societies, died suddenly on September 11, aged 65 years. He had served as medical examiner for his district for two terms of seven years each when he was appointed last year by Governor Eugene N. Foss to serve a third term.

Dr. John M. Smith of Williston, S. C., a graduate of the Medical College of the State of South Carolina in 1868, died September 12, aged 69 years.

Dr. John H. Howard of Lexington, Tenn., a practitioner of medicine for forty-eight years, died suddenly of pulmonary hemorrhage on September 7, aged 81 years.

Dr. Edwin Wilcox Bartlett of Milwaukee, a graduate of the University of Vermont College of Medicine in 1866, died after an illness of several months, on September 10, at the age of 74 years. He was a member of the American Ophthalmological and Otological Society, the American Medical Association, the Medical Society of the State of Wisconsin. He was Professor Emeritus of Ophthalmology and Otology in the Marquette University Medical Department, Milwaukee, Wis.

Dr. John R. Stivers of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1894, a member of the American Medical Association, the Medical Society of the State of New York, the Brooklyn Pathological Society, the Associated Physicians of Long Island, and the Long Island Medical Society, Visiting Physician to the Kings County Hospital, and Physician-in-Chief of the Samaritan Hospital, died September 18, aged 43 years.

Dr. George Batchelder Langmaid of East Greenwich, L. I., a graduate of the Boston University School of Medicine in 1876, a former practitioner of Melrose, Mass., died on September 15, aged 65 years.

Obituary.

JOHN GREEN CURTIS, M.D., LL.D.

NEW YORK.

Dr. John G. Curtis, brother of the late Dr. Edward Curtis, and for over twenty-five years professor of physiology at the College of Physicians and Surgeons, died at his summer home in Chatham, Mass., on September 20. Dr. Curtis was born in New York City, October 29, 1844, was graduated in arts from Harvard University in 1866, and in medicine from the College of Physicians and Surgeons of Columbia University in 1870. His leaning was at first toward surgery, and he was an attending surgeon to Bellevue Hospital from 1876 to 1880, and demonstrator of anatomy at Columbia from 1870 to 1875. In 1876 he was appointed assistant professor, and in 1883 full professor of physiology at the College of Physicians and Surgeons, succeeding the late Dr. John C. Dalton. In 1909 he retired with the title of emeritus professor of physiology. He was joint author of the American Text-book of Physiology, published in 1896.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE COMING SESSION—LONDON HOSPITAL EXTENSION — DENTAL EDUCATION, COMPLAINT, REGISTER, EXHIBITION — GOVERNMENT CLINICAL LABORATORY—SCHOOL OF TROPICAL MEDICINE—PREPARATIONS OF ERGOT—KING EDWARD'S FUND —OBITUARY.

London, September 5, 1913.

The shadow of the coming session is upon us, for the first of October continues to be the medical anniversary, when the schools reopen and new students make their entry. The hospital staffs and college teachers are specially interested, but more practitioners regard the first as a date on which to think of their old schools, and many to attend the dinner or other celebration of the occasion. The prospectuses are coming in apace, and each sets forth the attractions it can offer. The London Hospital is the largest and two prospectuses of its teaching organization lie before me, one of the "Medical College," the other of the "Dental School"—thick 8vo pamphlets of 112 and 65 pages respectively. The hospital itself dates from 1740 when as the "London Infirmary" its 136 beds occupied two houses but it soon became necessary to erect appropriate buildings and a Royal Charter was granted to the "Governors of the London Hospital" in 1758. From that time the growth has been continuous until now it contains 922 beds accommodating about 17,000 patients a year, while over 200,000 are relieved as out-patients annually. This great field for clinical study is cultivated by the staff and supplies special departments in every branch.

The Dental Department was remodeled and converted into a complete dental school a couple of years ago. Accordingly its third session will open on October 1 concurrently with the 129th session of the Medical College. How thoroughly well this dental school is equipped you may judge from its museum which contains besides the specimens for teaching others showing the dentition of all classes of animals. Students entering will find every facil-

ity for making themselves accomplished dentists and may at the same time qualify as members of the colleges or graduates of the university—a course strongly recommended even though they intend to restrict their future practice to dental surgery as ophthalmic surgeons and other specialists do. We have among us such distinguished practitioners of dentistry.

In contrast to them you may be surprised to hear of the existence of a small section of dentists who affect to consider their department as more than a branch, in fact as the greater part, if not the whole, of the healing art. The voice of these extremists made itself heard at the meeting of one association at Cambridge. One speaker complained that they were not properly supported by the doctors and wanted a public dental service. This set the ball rolling and another declared they were no specialty of surgery. The next went further by asserting roundly that doctors knew nothing about dentition, did not moreover know the difference between oral sepsis and pyorrhea. Another speaker was equally sure that the mouth was an unknown region to surgeons and a public dental service should follow the Insurance Act. I do not think any of those holding degrees or diplomas were present or would think it less honorable to belong to a branch of our profession than to an independent specialty.

The legal position is this: Any one on the Medical Register is entitled to practise the dental branch, but he cannot have his name on the *Dental* Register unless he holds a special diploma in that branch. As all the colleges of surgeons and most of the universities grant such diplomas, the dentists have no room for the complaint that their art is neglected.

An International Dental Exhibition has been held this week. It was organized by the Incorporated Society—not the one where the complaints were made—and it is said to have brought together the most complete collection of inventions connected with dentistry ever shown. All practitioners were invited to view it but the lay public were not admitted.

The government chemist's report on the work of his laboratory has appeared as a Parliamentary paper. Besides the usual chemical work for the government departments and public bodies investigations for the home office on lead compounds in paint, celluloid, milk powders, and non-alcoholic beverages have been made. The samples examined have increased during the year—354,759 analyses were made. For checking dilution and adulteration 9,453 samples of beer were taken from 2,398 retailers. It was found diluted in 581 to the extent of not more, as a rule, than 3 to 36 per cent., but occasionally as much as 12 to 36 per cent. The manufacture of sugar from beet root was again commenced after a lapse of some forty years. The process was under the observation of the revenue authorities and analyses were made of all stages. The heavy duty on saccharin which has 500 times the sweetening power of sugar renders smuggling such a temptation that it is said to be searched for in all likely places and 526 samples were examined for it. Other analyses were called for in relation to cider, wines, spirits, tea, tobacco, etc., for the customs and excise, as well as articles of food for the navy and testing others for the board of agriculture and other government departments.

Important additions have been made to the buildings of the London School of Tropical Medicine. The new laboratory is continuous with the former one making up a square and setting free space for special preparation and investigation rooms. Resident accommodation is provided chiefly in response to a wish expressed in India and other dominions from which a demand has also been made for a course in tropical sanitation and hygiene. An eight weeks' course of laboratory study of this kind has been arranged and will include bacteriology. Students can be prepared for examinations and those who have passed such can take out extra courses which would give them advantages as candidates for positions in tropical countries where good salaries are to be obtained with great opportunities for original investigations connected with tropical medicine and hygiene.

The B. P. preparations of ergot have long been considered as unsatisfactory—so much so that numerous proprietary articles have largely displaced them. The ergots of other grasses have to some extent been substituted and it is admitted that ergot of wheat is more active while one from a New Zealand plant is much more potent. The active principles also, ergotoxine, ergamine, and tyramine have been tried; they have the advantage of being obtainable in crystals. Messrs. Carr & Dale brought the subject before the late Pharmaceutical Conference in a paper pointing out the deficiencies of the B. P. preparations and offering definite suggestions. The extract, generally regarded as the most uncertain, they would reject, though if such a form were thought necessary they would make it with alcohol 60 per cent. and 2 per cent. citric acid. Instead of the liquid extract they recommend that of the U. S. Pharmacopeia. For the injection they would employ salts of the active crystals. The infusion would not be required if the U. S. fluid extract were employed, nor would the tincture, which is a very unstable preparation, perhaps due to its containing ammonia.

The statistical report of King Edward's Hospital Fund for 1912 was issued yesterday. It deals with 109 hospitals which provide together 9,223 beds in daily occupation during the year; the total number of in-patients admitted being 134,647 while 1,529,197 out-patients were seen. The ordinary expenditure amounted to £1,038,791. This, of course, excludes all capital expenditure and interest on borrowed money. The total income would not, by a large amount, have sufficed to meet the year's working expenses, without the grants made by King Edward's Fund and the Metropolitan Sunday and Saturday Funds. The increased cost noticed in 1911 has continued in 1912 amounting now to £21,800. Before 1911 there had been for several years a tendency to decrease. No doubt there has been a rise in prices but not enough to account for the present increase. These statistics will assist hospital managers, contributors, and all interested in comparing any particular hospital with others, as to cost per bed for in or out patient, etc. It makes available a mass of material supplied by each hospital for the assistance of all in their efforts for economy.

Inspector-General of Hospitals and Fleets, Sir Duncan McCormick Hilston, M.D., K.C.B., Hon. Physician to the King, whose death occurred on August 28, at the age of 76, saw service in New Zealand 1863-4, was wounded and was mentioned in dispatches and received the medal. In 1867-8 he was in the Abyssinian War for which also he received the medal. At one time he had charge of Hasler Hospital being the inspector-general. He

received the higher inspectorate in 1892 and retired in 1897.

Col. Andrew Clark (A. M. S. T.), F.R.C.S., Consulting-Surgeon to Middlesex Hospital, late surgeon and lecturer on surgery, died on August 29, æt. 66. He qualified in 1868-9, was made D.Sc. (Hon.) of Oxford, 1873, and took F.R.C.S. the same year. He filled many offices at the Middlesex and became president of its medical society. He wrote its Surgical Reports 1872-3-4, gave the ambulance lectures 1888, and edited the fourth edition of Fairlie Clarke's "Manual of Surgery." He held the Volunteer decoration and contributed to the *Path. Trans.* and societies and journals. He had been examiner at the Apothecaries' Society and consultant to several institutions.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 11, 1913.

1. Gonococcus Vaccines and Glycerine Extracts of the Gonococcus in the Diagnosis of Gonorrheal Infections. G. C. Shattuck and W. S. Whittemore.
2. The Pathological Lesion of Whooping Cough. F. B. Mallory.
3. Note on Adductor Response to Homolateral and Contralateral Stimulation. A. Myerson.
4. Fibroma of the Ovary Weighing Thirty-five Pounds. Operation. Recovery. R. S. Titus.
5. Tests for Renal Function Based Upon the Selective Excretory Activities of the Kidneys. R. Fitz.
6. A Case of Anthrax. G. A. Buckley.

1. **Gonococcus Vaccines and the Diagnosis of Gonorrhea.**—G. C. Shattuck and W. S. Whittemore conclude that the reactions thus far observed after injections of gonococcus vaccine have not been clearly specific for gonorrheal infection. The reactions seem to show a selective action in some types of gonorrheal disease. Local reactions after injections are common in non-gonorrheal cases. They are not valuable for the diagnosis of gonorrhea or for the demonstration of its cure. Focal reactions are seen frequently in active gonorrheal arthritis and salpingitis; but, whereas they have been observed in cases showing no other evidence of gonorrhea, their diagnostic value is small. A general reaction is seldom noticeable, and it may be easily simulated by slight symptoms due to other causes. it has, *per se*, no diagnostic value. Gonococcus vaccine autolyses rapidly, and thus undergoes changes little known. A concentrated vaccine used by the authors showed no superiority for diagnostic tests. It produced in gonorrheal and in control cases a local lesion like that of a chemical irritant. The authors believe that autolysis may have been a factor in producing the supposedly irritating properties of their vaccine; that the changes in the vaccine may have prevented it from producing a specific reaction; and that the unsatisfactory therapeutic effects of gonococcus vacine may, perhaps, be traceable to autolysis. Glycerine extracts of the gonococcus inoculated by the method of von Pirquet caused, in a few cases, the formation of peculiar papules which may have represented a specific reaction. Most of the cases showed no definite reaction. Although the authors' tests were negative in the main, and although the work of others using similar methods has yielded unsatisfactory results for diagnosis, the authors believe that failures serve as guideposts to progress, and that present knowledge justifies the hope that a valuable diagnostic test for gonorrheal infection may yet be devised through improved methods of preparing vaccines or extracts of the gonococcus.

2. **The Pathology of Whooping Cough.**—F. B. Mallory has observed in cases dying of whooping cough the presence of minute organisms packed in large numbers between the cilia of the epithelial cells lining the trachea. Better sections and stains showed the organisms to be minute bacilli. They were present in great numbers, dozens to a hundred or more, over the surface of each cell. The action of the *Bacillus pertussis* seems to be largely mechanical. It interferes with the normal movements of the cilia and therefore furnishes a continual irritation which excites the coughing. The organism also secretes a mild toxin as is indicated in three ways by a slight inflammatory exudation, by a lymphocytosis, and by the production of a specific antibody. The finding of this particular lesion naturally suggested experimental work. The author first obtained sputum from acute cases of whooping cough and inoculated it into the trachea of a puppy and of a rabbit. Later the animals were killed and the respiratory tract was studied microscopically. Organisms identical in every way with those found in whooping cough were present between the cilia in the trachea and bronchi of both animals.

3. **Adductor Response to Homolateral and Contralateral Stimulation.**—A. Myerson points out that the adductor reflexes, whether homolateral or contralateral, are more independent of the site of stimulation than any of the tendon reflexes. Occasionally a knee jerk can be obtained from the sole of the foot or upper partitions adjacent to the patella. The ankle jerk can also at times be elicited from the sole of the foot, a phenomenon first observed, so far; but, in a case reported by the author, both the contralateral and homolateral adductor reflexes were obtained from the anterior superior spine, from the patella tendon, from the internal condyle, from the sole of the foot, from the Achilles tendon, etc. The author concludes that the homolateral adductors either depend for their elicitation upon or are intimately related with the existence of the knee jerk on that side. The knee jerk may be present without these reflexes and often is so present, but the reverse does not obtain. In the author's case, with the left ankle jerk absent, all the left adductors were absent. In the same way the contralateral adductors are intimately related to the existence of the knee jerk opposite to the side of stimulation, but are in no way dependent on the knee jerk of the side of stimulation.

New York Medical Journal.

September 13, 1913.

1. Discarded Battleships to Be Used as Sanatoria and Open Air Schools. S. A. Knopf.
2. The Relative Value of Turtle Tuberculin in the Treatment of Tuberculosis. W. J. Beattie and E. E. Myers.
3. Hygiene of the Skin. Daisy O. Robinson.
4. Internal Causes of Skin Diseases. A. S. Clark.
5. The External Causes of Skin Diseases. G. M. Mackee and J. Remer.
6. The Therapeutic Value of Oral Prophylaxis and Treatment. G. F. Boehme, Jr.
7. The Botanic Family Physician. W. R. Riddell.
8. Two New Tests for the Detection of Defectives. H. A. Knox.
9. Cerebrospinal Meningitis; Its Occurrence in New York City During Half a Century; References to Some Recent Literature. M. L. Ogan.

1. **Discarded Battleships as Sanatoria and Open-Air Schools.**—By S. A. Knopf. (See MEDICAL RECORD, September 6, 1913, pages 438 and 440.)

2. **Results with Piorkowsky's Turtle Tuberculin.**—W. J. Beattie and E. E. Myers report their results with the use of this preparation. They state that the most suitable cases are the incipient pulmonary, glandular, laryngeal, and joint cases. In glandular cases the most striking beneficial effect of turtle tuberculin is observed in glandular tuberculosis. Improvement is noticed after three weekly injections have been made. The glands gradually become smaller and, where there is a discharging sinus, the secretion progressively diminishes, the opening becomes smaller, the sinus finally closes up, and the temperature gradually returns to normal. The patient gains in weight, his appetite improves, and a feeling of buoyancy replaces that of languor and lassitude. In the case of joint tuberculosis after about four weeks there is a noticeable diminution of the swelling about the joints, the pain diminishes or disappears, and the amount

of motion is increased from five to ten degrees. In pulmonary tuberculosis in about six weeks after beginning treatment the patient's general condition improves. His cough becomes less, and his sputum diminishes and becomes more mucoid in character. The pains in the chest disappear, and the night sweats become lessened and gradually disappear. If a patient has a localized bronchitis the râles gradually disappear. If there is an area of consolidation this is occasionally noticed about the end of the eighth week. In laryngeal tuberculosis the ulcerations slowly but progressively diminish and soon heal. The treatment is usually continued until all objective and subjective symptoms disappear, which is generally in from six to nine months. The duration of the course of treatment varies with the stage of the disease and the type of the case. Glandular and joint cases usually respond in six months.

9. **Cerebrospinal Meningitis in New York City During Fifty Years.**—M. L. Ogan notes that outbreaks of the disease have not been very frequent, and show a remarkable periodicity, occurring about every ten years. In 1872, 1881, 1893, and 1904-5 the death rate per 10,000 of population reached 8.7, 4, 2.7, and 5.4. In the year after the outbreak the rate was above the average, but during the remaining intervening years it was very low. Thus, from the sixties up to 1872 it was less than one-half of one per 10,000 annually, though steadily advancing. From then it rose to 1.5 in intervening years, then showed a tendency to decline, until the advent of lumbar puncture and bacteriological diagnosis, when the interim average fell at once below one per 10,000, due to the exclusion of many tuberculous and other cases from the statistics. The effects of the great outbreak of 1872-3 are felt to the present time. These combined years yielded a death rate of 10.5. Never since that time has the rate come down to the one-fourth of one per 10,000 which had characterized several preceding years, even with the aid of more exclusive diagnosis and serum treatment. Each of the two succeeding decennial outbreaks showed a marked tendency to a decline in severity, and the interval annual rate also was slowly falling until the remarkable outbreak of 1904-5. This, the fourth epidemic in a half century, was the severest of all, showing a death rate for the two years of 10.9, which is even higher than that of 1872. Eight years have passed since that time, and the death rate has fallen from 1.02, in 1906, to 0.36, in 1912. The mortality in serum treated cases is reduced at least one-half from the old rate of seventy to seventy-five per cent. Flexner's analysis of a world wide series of 1,294 cases shows a fatality of only 30.9 per cent.

Journal of the American Medical Association.

September 6 and 13, 1913.

1. Epidemic Streptococcus Sore Throat—Its Symptoms, Origin and Transmission. J. A. Capps.
2. Chronic Streptococcus Arthritis. D. J. Davis.
3. A Biological Classification of Pneumococci by Means of Immunity Reactions. A. R. Dechez and L. P. Gillespie.
4. The Teaching of Laboratory Physiology. A. D. Bush.
5. A Study of the Spinal Fluid in One Hundred Cases of Syphilis, Including Investigations for Arsenic after Intravenous Administration of Neosalvarsan. M. F. Engman, R. Buhman, F. D. Gorham and R. H. Davis.
6. Chronic Adherent Pericarditis—A Study of Sixty-two Cases. W. H. Smith.
7. The Intensive Treatment of Syphilitic Nervous Affections Controlled by Examinations of the Cerebrospinal Fluid. W. V. Brem.
8. The Value of Abdominal Measurement in Pregnancy. A. Statistical Study. A. B. Spalding.
9. The Essentials of Sanatorium Treatment of Tuberculous Gravidæ and Puerperæ and Their Children. C. S. Bacon.
10. Some Features of Roentgenographic Changes in Pituitary Diseases. A. Luger.
11. A Comparative Study of Antigens for the Wassermann Reaction. H. R. Varney and F. W. Baeslack.
12. Clinical Observations on the Emetic Action of Digitalis. C. Eggleston.
13. Physiology of the Pylorus, Pilleus Ventriculi, and Duodenum as Observed Roentgenographically. L. G. Cole.
14. Unique Wrist Injury. Recurrent Anterior Dislocation of Ulna. A. C. Yoder.
15. A First-Aid Packet for Miners' Use. W. V. Gage.
16. A New Forceps. C. S. Venable.
17. A Useful Pipet. J. E. Cook.
18. Longitudinal Fracture of the Lower End of the Radius Toward the Ulnar Surface. J. C. Wilhoit.
19. A Fatal Case of Coccidioidal Granuloma. P. K. Brown.
20. The Pneumothorax Manometer. E. von Adelung.
21. Chronic Focal Infection as a Causative Factor in Chronic Arthritis. F. Billings.
22. The Rôle of the Prostate and Seminal Vesicles in General Toxemias. H. H. Young.
23. Therapeutic Pneumothorax as a Palliative Measure, Safeguarded by Stereoroentgenograms. A Report of Twenty Cases from the Cincinnati Tuberculosis Hospital. K. Dunham and C. S. Rockhill.
24. Ether Percentages. W. M. Boothby.
25. Administration of Alkaloids Before Anesthesia. Isabella C. Herb.
26. Nitrous Oxide and Oxygen Anesthesia. H. G. Sloan.
27. Intratracheal Insufflation Anesthesia (Meltzer-Auer). Report of a Series of Four Hundred and Twelve Cases. C. H. Peck.
28. Local Anesthesia. J. F. Mitchell.
29. Vaccine Therapy for General Practitioners. J. H. Richards.
30. General Anesthesia in the Surgery of Childhood. W. C. Woolsey.
31. Hydrotherapy in Nervous Fatigue. C. Pope.
32. The Quality of Drugs Sold to Dispensing Physicians. W. A. Puckner.
33. Syphilis and the Nervous System. Joseph Collins.
34. The Demonstration of the Spirocheta Pallida in the Brain Substance of Living Paretics (Forster and Tomaszewski). U. J. Wile.
35. The Administration of Salvarsan and Neosalvarsan by Enteroclysis. L. Oulmann and J. L. Wollheim.
36. Removal of a Foreign Body Introduced Into the Uterine Cervical Canal to Prevent Conception. A. P. Heineck.

1. **Streptococcus Sore Throat.**—J. A. Capps reviews the history of the epidemics of streptococcus sore throat at Boston, Baltimore, and Chicago that have occurred within the past two years. About 1,400 persons were stricken in the Boston outbreak; in Baltimore, about 1,000, and in Chicago, it is estimated, over 10,000, though 1,271 were interviewed. In all three cities a peculiar type of hemolytic capsulated streptococcus was secured from throat cultures or from the peritoneal exudate of fatal cases. Those from each outbreak were compared and found practically identical. The disease occurred during the winter and spring months and its onset was explosive, often affecting several members of the same family at once. The clinical symptoms were identical in the three epidemics. Intense hyperemia, with or without a grayish exudate, was the usual picture, and enlargement of the cervical lymph nodes, sometimes with suppuration, was characteristic. Extreme prostration and a tendency to relapse were emphasized by most observers. The complications were strikingly similar in all three epidemics. Otitis media, peritonsillar abscess, erysipelas, or some other skin eruption were common sequelæ. Arthritis, endocarditis, and myocarditis occurred in many cases. Pleurisy and pneumonia often ushered in a fatal septicemia, but the most dangerous and remarkable complication was peritonitis, which caused a number of deaths. The infection was traced definitely to a single milk supply in each city, though secondary contact cases also occurred. In the Boston epidemic the actual primary infection was attributed by Winslow to a human carrier. In the Chicago epidemic the history of a sore throat epidemic among the workers in the milk supply was also established. Human carriers, however, do not fully explain these epidemics as well as does mastitis in the cow, which may itself originate by transmission of human streptococcus from the milker.

6. **Chronic Adherent Pericarditis.**—W. H. Smith concludes from a study of his cases that adherent pericarditis may be impossible of diagnosis in cases unassociated with cardiac symptoms, cardiac enlargement, or murmurs. The diagnosis under such conditions is unimportant, as in this type of the disease it probably contributes but little to the disability of the patient. A second type in young adults, with a previous rheumatic history, with associated endocarditis, is serious. Adhesive pericarditis is overlooked because the coincident endocarditis appears in the foreground. Adhesive pericarditis should always be thought of in a young adult whenever rheumatism followed by endocarditis appears in the history, and especially considered when the cardiac failure is more marked or the cardiac enlargement more

extensive than the endocardial damage seems to warrant. More careful records should be made of the presence or absence of cardiac dilatation in cases of acute rheumatism without endocarditis or pericarditis.

9. **Sanatorium Treatment of Tuberculous Gravidæ, Puerperæ, and Their Children.**—C. S. Bacon states that there are 32,000 tuberculous women pregnant each year in the United States, and about a third of them die within a year of labor. Of 10,000 children under five years old who die of tuberculosis each year, three-fourths are born of tuberculous mothers. Besides this mortality there is also an increase of infection among the attendants, relatives, and associates, and this factor has not been sufficiently recognized in the past. The proper obstetrical management of these cases can be carried out in a private house only with considerable difficulty and probably not more than 10 per cent. of the cases are ideally managed at their homes. Maternity hospitals do not care to take tuberculous cases and the conduct of the latter part of pregnancy and a long puerperium cannot well be provided. Hence the necessity of a maternity department in the tuberculosis sanatorium, and Bacon thinks that three-fourths or nine-tenths of the cases should be cared for in such. Up to the present time there has been no provision for such patients in this country or in Europe, and this is probably in part due to the fact that no special emphasis has been laid on this feature of the tuberculosis problem and in part to the difficulty of making such provisions. It is with the object of calling attention to this need that his paper is written, and he gives an account of the provisions being made in the Chicago Municipal Tuberculosis sanatorium now being constructed. In this there are accommodations provided for gravidæ, a room for confinements, and departments for caring for children. The outline is given as a contribution to the solution of the problem and to stimulate discussion. Later he hopes to be able to describe its work and compare it with other like institutions.

12. **The Emetic Action of Digitalis.**—C. Eggleston reports the results of a study of the emetic action of digitalis, so frequently observed with the use of this drug in cardiac disease. Experiments on animals indicate that the emesis is due to a direct action on the bulbar centers by absorption and the characteristic phenomena occur in dogs after removal of the gastrointestinal tract. While the same methods cannot be employed on man, it was thought that if careful clinical observations in cases of heart disease showed that nausea and emesis were dependent on absorption of the drug, it would support the view of the central action of digitalis in therapeutic doses. There is no valid evidence, either experimental or clinical, that the emesis after digitalis administration is due to gastric irritation, but much and strong evidence to the contrary, and from both clinical and experimental findings the conclusion that they are due to a direct action on the vomiting center is a logical necessity. The author concludes that it is irrational to seek to avoid these symptoms by resort to another preparation or another channel of administration. Apparent success from such methods is due either to a weaker emetic action or less absorption of the new preparation, or the new channel is one in which absorption has been less complete.

13. **Physiology of the Pylorus, Pilleus Ventriculi, and Duodenum.**—L. G. Cole calls attention to his findings in the first inch and a quarter of the pylorus which differs materially from those of the descending and horizontal portions, and for which he proposes the name pilleus ventriculi or cap of the stomach. The differences have been noticed by others, but the author's claims to be the first to specially recognize it as belonging more to the stomach than to the intestine, are made prominent. Its roentgenographic appearance is of value in the recognition of gastroduodenal lesions. It may be spasmodically contracted and variations resembling pathological deformities may occur. Its function is that of a reservoir. It receives the acid chyme propelled through the pylorus and it is probable that the finishing touches of gastric digestion are done here. It is separated from the pars pylorica by a space of one-eighth to one-quarter inch occupied by the pyloric sphincter. The author discusses certain questions relating to the function of the sphincter, and says that from a careful study of more than 12,000 serial roentgenograms in about 500 cases he has not been able to detect the rhythmic contraction which has been described. A study of these pictures shows that during the systole of every gastric cycle the pylorus is open and a small amount of the liquid chyme is propelled into the reservoir cap. This occupies about seven-tenths of the cycle. The other three-tenths is occupied by the diastole in which the peristaltic contraction of the stomach reaches the sphincter and closes it so that the chyme is prevented from dropping back into the stomach. The emptying of the cap, he concludes, is effected through duodenal peristalsis. The motor phenomena of the pylorus, pilleus ventriculi, or cap, and duodenum can be demonstrated in all human stomachs having a moderately active peristalsis.

21. **Chronic Focal Infections in Chronic Arthritis.**—By F. Billings. (See MEDICAL RECORD, July 5, 1913, page 37.)

22. **The Rôle of the Prostate and Seminal Vesicles in Toxemia.**—By H. Young. (See MEDICAL RECORD, July 5, 1913, page 37.)

23. **Therapeutic Pneumothorax.**—K. Dunham and C. S. Rockhill report twenty cases in which artificial pneumothorax was used as a palliative measure in tuberculous patients. The most important items for success in this treatment are local anesthesia, perfected apparatus, accurate technique, careful asepsis, the ability of the one lung to collapse and of the other to carry the double burden, and the accessibility of the patient for the necessary refillings. The careful selection of cases often determines success, and the Roentgen rays prove that refilling should be frequent and the gas-pressure slight, the amount of gas injected being just sufficient to keep the lung collapsed and no more. If the negative pressure is raised to zero, this is more than enough. The possible dangers are heart displacement causing derangement of blood-supply or kink in the vessels, which, like a break in the mediastinum, might result from too great strain; gas embolism, which can hardly be insured against, but can be largely guarded against by careful watching and can then be properly treated; infections of the pleural cavity; emphysema, which is more an inconvenience than a danger; and abnormal conditions which have been avoided by never giving an injection during the menstrual period or after a debauch. The authors' real advance beyond their predecessors has been in the constant use of stereoscopic roentgenograms to determine the extent of the lung collapse, to avoid pressure on the heart and mediastinum, to exclude pleural effusion, and to safeguard the unfilled side.

25. **The Administration of Alkaloids Before Anesthesia.**—Isabella C. Herb concludes that the administration of morphine, scopolamine, and atropine before general anesthesia has certain advantages, but these advantages are not sufficient to counterbalance the risks attendant on their employment. The loss of the pupillary reflex is a serious handicap, as nothing else indicates so unerringly the degree of narcosis. That the danger from ether, chloroform, or nitrous oxide is diminished is contrary to the evidence at hand. The alkaloids should not be employed when untrained, inexperienced anesthetists are in charge, as the anesthetic is rendered more complicated and extra skill and judgment are required. The routine use of cer-

tain fixed doses before every anesthetic regardless of the patient's condition should be discouraged. The employment of alkaloids has a distinct field of usefulness before local analgesia.

26. **Nitrous Oxide and Oxygen Anesthesia.**—By H. G. Sloan. (See MEDICAL RECORD, July 5, 1913, page 38.)

27. **Intratracheal Insufflation Anesthesia.**—C. H. Peck notes that intratracheal insufflation, administered with accurate control of the strength and amount of ether vapor, is a new principle in anesthesia which in certain classes of cases has many advantages over other methods. The difficulty of intubating and the necessity of inducing full surgical anesthesia before this can be accomplished makes this method unsuitable for many short, simple operations. Its use should be restricted to the cases in which it has special advantages. It is absolutely safe both as to administration and freedom from deleterious after effects if a proper apparatus is used and the simple precautions mentioned in detail are observed. It is an ideal method of differential pressure for operations involving the opening of one or both pleural cavities, greatly reducing the danger of intrathoracic operations. It greatly lessens operative shock through the absolute relief of strain on the respiratory apparatus and coincident freedom from strain on the circulatory apparatus and the central nervous system, and from the even, advantageous degree of anesthesia maintained. This is especially evident in aged patients, in those cachectic from malignant disease or anemia, and debilitated from other causes. The disparagement of ether as an anesthetic as compared to nitrous oxide, so popular of late among the advocates of the latter, is based on observations of faulty methods of ether administration rather than the inherent toxic effect of the drug itself. The wide margin of safety with ether has so long permitted abuse with this drug that faulty technique has been assumed by its opponents as customary in its administration. It prevents aspiration of mucous or saliva, vomitus, blood or other foreign matter into the trachea; simplifying and decreasing the danger of operations on the tongue, jaws, mouth, nose, or pharynx; preventing aspiration pneumonia, and practically eliminating the necessity of preliminary tracheotomy in such cases. It is especially useful in operations about the head and neck. The anesthetist is out of the way; the operative field is easily kept sterile and obstruction of the upper air-passages is absolutely prevented. The same may be said of operations on the kidney, the spine, and in awkward positions in general. The degree of anesthesia is under perfect control. Overetherization is impossible at or below 21 per cent. by weight of ether vapor. Insufflation of pure air for the last few moments of the operation hastens the recovery of consciousness and minimizes the after-effects.

28. **Local Anesthesia.**—By J. F. Mitchell. (See MEDICAL RECORD, July 5, 1913, page 38.)

30. **General Anesthesia in the Surgery of Childhood.**—By W. C. Woolsey. (See MEDICAL RECORD, June 28, 1913, page 1189.)

33. **Syphilis and the Nervous System.**—Joseph Collins points out that the most serious of the organic diseases of the nervous system are syphilitic; myelitis and cerebral and spinal endarteritis may occur during the first months after the infection, and tabes and general paresis, which are exclusively due to syphilis, often display their initial symptoms within five years. The conceptions of parasyphilis and metasyphilis have been a drawback in treatment; now it is known that syphilis is syphilis, no matter in what form it is encountered. The negative Wassermann reaction does not, however, necessarily exclude syphilis. The treatment by the rank and file of the profession of the present day is the old one of mercury by the mouth for a year, mixed treatment for another year, and after that the iodides alone. The author does not say that this is practised by all, but for one case properly treated and controlled by the Wassermann reaction twenty are treated in the old fashioned way. Syphilis is not a local disease and its primary manifestation is not by any means necessarily the classical chancre. The spirochete may enter the body in various ways and the sooner one can get at it with salvarsan the better. Hence it is dangerous to wait for secondary manifestations, and it is dangerous to trust to mercury by the mouth. It is more than likely that there are definite strains or varieties of the spirochete and that one of these may elect the nervous system as others do the skin. This cannot be proved at present, but it is scarcely a coincidence that so many of the author's syphilitic patients had a history of light primary attacks. In nearly 1,000 administrations of salvarsan the author has seen serious consequences in only one case, an apparent myelitis which recovered in four months, and was probably edema rather than inflammation. Severe toxic effects have been observed in four cases similar to acute arsenical poisoning, but readily yielding under treatment. Salvarsan is more efficient than neosalvarsan, though the latter has some advantages in administration its effects are not as good.

The Lancet.

September 6, 1913.

1. The Present Position of Postgraduation Medical Education in the United Kingdom. C. O. Hawthorne.
2. Pain and Sleeplessness: Their Remedies Apart from the Consideration of Local Sedatives or Anesthetics. R. Jones.
3. A Contribution to the Study of Pellagra in England. G. S. Blandy.
4. Notes of a Case of Pellagra. J. W. E. Cole.
5. The Effect of the Ductless Glands Upon Development. Hastings Gilford.
6. Military Experience with Traumatic Aneurysms. V. Soubbotitch.
7. The Value of Anoci-Association (Crile). J. H. Chaldecott.

2. **Remedies for Pain and Sleeplessness.**—R. Jones notes that tea and coffee drinking as well as the excessive use of alcohol and the various drug habits are frequent causes of sleeplessness. Intestinal autointoxication may be associated with sleeplessness. The latter may also be caused by beginning arteriosclerosis, in which case erythrol tetranitrate acts better than any sedative. Indirect remedies for sleeplessness associated with increased arterial tension are podophyllin, ¼ grain; extract of colocynth, 2 grains; aloes, 2 grains, and etaterium, 1/10 grain. By adding tone to the cerebral arterioles digitalis may act as a cerebral sedative, especially in the wakefulness of delirium tremens. When strychnine is used its effect is best kept up by alternating it with the tincture of nux vomica. Of the direct sedatives opium is at the head of the list. The conium preparations are generally unreliable. Chloral hydrate has the disadvantage of weakening and depressing the heart. Paraldehyde is a safe hypnotic in dose of one-half to two drams. Of all the sedatives the bromides are the most valuable to the nerve centers. They are best given in single large doses. Cannabis indica is useful in sleeplessness associated with migraine, asthma or uterine spasm. Sulphonal is a strong neuronic poison. It should be used only for the sleeplessness of chronic cases. Urethane, given in five-grain doses, is a safe and useful hypnotic.

5. **The Effect of the Ductless Glands upon Development.**—Hastings Gilford discusses the inhibition or reenforcement of such correlations of the body as are carried on through the medium of chemical secretions or hormones. There are certain local adjustments that are independent of the nervous system and of the ductless glands. In considering the problem of the disorders of these organs and the light they throw upon their normal action one is greatly aided by the advanced state of one's knowledge of the thyroid gland. This shows that the inaction of a gland at one stage of development may produce results which superficially differ from those in another stage of development, and that those due to defective action are by no means always contrary to those due to ex-

cessive action. Thus the infantilism, dwarfism, and sexual stagnation of cretinism cannot be contrasted with any premature senile decay, gigantism, or sexual exaltation in Graves' disease. Neither is there any orbital change in cretinism opposed to the bulging eyes of Graves' disease. It seems clear that the part allotted to the thyroid in the complex working of the ductless gland system is to stimulate the metabolism of the whole body. A gland in certain respects in inhibitory relations with the thyroid gland is the thymus, which is regarded as a lymphoid structure and part of the lymphatic system. There is a striking contrast between the human being in infancy and childhood, when lymph tissue is at its highest development, and the condition met with in Graves' disease. This contrast is accentuated in lymphatism, where the special type qualities of the infant are magnified. Destruction of large tracts of the lymphatic system by degeneration, as in Hodgkin's disease, gives rise to a syndrome in which extreme emaciation and debility and catabolic excess may be contrasted with the stolid fatness of lymphatism and with its pallor and increased muscular growth. By studying these extremes one may arrive at some sort of conclusion, however hazy, as to the normal action of the glands in question. One finds that by virtue of their secretions, or in some more cryptic manner, they preside over certain correlations of the body. These correlations are by no means rigid, but are, indeed, exceedingly variable, and this variability is most apt to be shown when circumstances are abnormal. The adjusting mechanism of development is not only flexible, but is more or less reciprocal, so that a ductless gland both influences development and is itself influenced by the changes of general development. In the harmony which is produced by the concerted action of the ductless glands there is reason to suppose that the leading part is played by the thyroid. This supplies a stimulus for the metabolism of the body as a whole. During infancy and childhood, when it is most important that the fires of metabolism should be controlled, the influence of the thyroid is checked by the thymus gland, by the lymphatic system in general, and perhaps by the pineal gland. These also bring about that delay of sexual activity which is so essential to the proper maturation and stability of the somatic faculties. Probably the first to break through this cordon of conservative influences is the adrenal system which awakens the dormant sexual organs and hastens the growth of the muscular and skeletal systems. At about the same time the skeletal system is still further stimulated by a secretion from the pituitary gland. This secretion quickens the development of every organ in the body, including the sex organs. These latter now ripen apace, and assisted by the combined action of the ductless glands, some animating, others restraining, carry the development of the body in waves and tides to its flood.

6. Military Experiences with Traumatic Aneurysms.—V. Soubbotitch reports the results obtained in the treatment of traumatic aneurysms in the military hospitals of Servia in the recent wars. Operations were performed upon 60 arteries and 17 veins. The femoral artery was tied 22 times and sutured 11 times. These cases occurred among 20,000 wounded. Many aneurysms are cured by non-operative treatment, especially by well applied digital pressure, but these proceedings are difficult to carry out in military hospitals in time of war. Where the conditions make it possible non-operative treatment should be attempted. The author has tried injections of gelatin on several occasions, but only with transitory success. If hemorrhage threatens, if the swelling increases, if the pain is severe, if there appears no tendency toward retrogression, then it is certainly better to operate than to wait. Arteriovenous aneurysms should be operated upon, as they offer small prospect of spontaneous cure, although they often remain stationary for a long time and cause relatively little trouble. A certain amount of preliminary treatment is useful. It is especially desirable, when there is much swelling, that the limb should be elevated for a time in order to reduce the swelling, if the conditions permit of this. If operation is undertaken early, within a few days of the injury, the walls of the vessel will probably be found soft and friable, and the stitches will tear out easily. On the other hand, with later operations, three to four weeks after the injury, cicatricial changes are often found which render the dissection to a certain extent difficult. If there is extensive extravasation of blood into the surrounding tissues the hematomata should always be removed. Simple ligation of the afferent artery, without removal of the clots, may in certain cases cut off the circulation completely and thus produce gangrene. In some cases local anesthesia is sufficient. The localization is often more easy if the operation is performed without the use of an Esmarch bandage. The Servian army surgeons did most of their operations without it. Nevertheless, when this is possible, the bandage may be laid loosely round the limb in readiness for use if required. Perhaps the damage to the vessels is also less if Esmarch's bandage be not employed. If violent hemorrhage suddenly occurs, as it often does while the dissection of the vessels is being carried out, it is not always easy to bring the bleeding points quickly into view. It is frequently possible with surprising rapidity to feel and to close with the finger the hole in the vessel from which the blood is flowing and which is frequently quite large.

British Medical Journal.

August 30, 1913.

1. A Lecture on Modern Methods in the Diagnosis of Phthisis. C. Riviere.
2. The Nomenclature of Tuberculin Doses. J. A. Codd.
3. A Difficult Diagnosis in an Insane Person. R. Jones.
4. The Treatment of Congenital Syphilis by Salvarsan. J. W. Simpson and L. Thatcher.
5. The Physiological Treatment of Pathological Scoliosis by Rotation. A. M. Forbes.
6. Acute Pancreatitis: Its Causes, Symptoms, and Treatment. With a Description of Three Cases. A. J. Evans.

1. The Diagnosis of Pulmonary Tuberculosis.—C. Riviere reminds one that phthisis is a disease of intermittent course, that the real beginning is often passed over as an influenza or a "chill," and that it has generally advanced to quite diagnosable stages by the time the patient has discovered his symptoms. This is true, as a rule, even in cases of hemoptoic onset; even here signs are generally discoverable to skilled examination. One should devote all the attention one can to ordinary physical signs, especially to light percussion, and after this to auscultation. The modern methods cannot in any way take the place of physical examination, though they are most valuable aids to it. One should not, also, neglect the temperature chart, nor yet the evidence of symptoms. One should also study carefully the value of the evidence to be derived from modern methods. Blind reliance should not be placed on any of them, any more than it should be on any single physical sign. Most of these modern methods give valuable information, but this must be weighed against other information from other sources before judgment is given. If this is done, and the other methods, under modern improvements, are not put aside, it may be said that we have made considerable strides in the diagnosis of phthisis in recent years. It is, indeed, only here and there that a case is met in which skilled examination is not able to decide the matter, and that fairly rapidly, one way or the other.

4. Salvarsan in Congenital Syphilis.—J. W. Simpson and L. Thatcher conclude that salvarsan is a potent remedy, and with proper dosage and technique can be used with safety in the case of the youngest child. In very severe cases, however, such as those with pemphigus, extreme wasting, etc., the dose should be reduced from

0.01 gram to perhaps half that amount. In three of the authors' most severe cases death ensued within sixty hours, and they think that a smaller dose, repeated afterward if necessary, would have been safer. In comparison with mercury, salvarsan gives much better results, especially in the severer cases. After giving an injection it is wise to continue the mercurial treatment, as a combination of the two seems to be more efficacious. Some of the authors' cases, however, which did not attend again for three or four months, had done well with salvarsan alone. In all the older children mercury and iodide had been previously given, with very slow improvement (especially in eye cases). After salvarsan was given improvement was much more rapid, but it is always advisable to carry on the mercury and iodide treatment also after the injection. In doubtful cases of congenital syphilis it is better to take the blood from the mother for a Wassermann reaction than to submit a weakly infant to such a procedure.

6. **Acute Pancreatitis.**—A. J. Evans points out that acute hemorrhagic pancreatitis, gangrenous pancreatitis, and purulent pancreatitis are simply phases of the same disease. The symptoms are at first vague in the early stages. There is often gastric uneasiness, flatulence, obstinate constipation, and persistent vomiting. After some hours—sometimes several days—the patient is struck down by agonizing, unbearable pain in the epigastric region, often shooting toward the back. This is followed by vomiting and collapse. The pain is continuous, with periods of paroxysmal increase, and it may be so intense as to cause the patient to faint. There is also acute tenderness of the upper abdomen, especially so in the middle line. The pulse becomes rapid and thready, and assumes the abdominal type. The temperature is usually normal or subnormal, but as inflammation increases it may become irregular. In two of the author's three cases there was marked cyanosis, in striking contrast to the pale, pinched aspect of ordinary peritonitis. Constipation is a marked feature, so much so that this condition has been mistaken for intestinal obstruction. Delirium is very constant, and was particularly marked in the author's third case, alternating with perfect mental clearness. Jaundice may be present. Its presence and its intensity are entirely dependent upon whether there is obstruction in the bile passages or not. Sugar is rarely found in the urine, although it was present in the author's case. If the disease has progressed for some days a definite mass can be felt in the epigastric region; it is well defined, circumscribed, and limited to the upper abdomen. The treatment is wholly surgical—immediate laparotomy, with exposure of the pancreas, and its free drainage.

Berliner klinische Wochenschrift.

September 1, 1913.

Cystinuria.—Fromherz has collected notes from the recent literature of this subject. Cystin is an amino acid and is present in most albumins, constituting the sulphur complex of the molecule. It is obtained most readily from horn shavings and hair. Chemically it is cystein disulphide. In rare cases it is found in the urine in hexagonal crystals, and its presence leads naturally to calculus formation. Urine cystin is identical with the cystin split off artificially from albumin. In severe cystinuria cystin crystals may be found in various organs and even may be universally distributed throughout the body. It is disputed whether or not a trace of cystin in the urine is physiological or not. If a normal subject ingest cystin it is completely burned in the body when given beneath certain limits, the sulphur for the most part reappearing in the urinary sulphates. There has been much dispute as to whether or not cystin may change to taurin. When the organism cannot oxidize cystin we should find associated a general insufficiency in attacking all of the other amino acids. We sometimes see in certain urines, along with cystin, leucin and tyrosin. As the fate of the amino acids in the body is normally transformation by various steps into urea, their appearance in the urine indicates an interference with this process. In theory diamines should also be found in cystinuria. This has in fact been witnessed by observers who found putrescin and cadaverin penta- and tetramethylendiamin. It is quite probable that alkaptonuria represents an allied condition. The interference with normal metabolism present under all these circumstances seems to have little bearing on the general health, aside of course from the formation of cystin concrements in the urine. Cystinuria no doubt sometimes accompanies rheumatism, syphilis, etc., and disappears as these diseases are cured. But they play no causal rôle nor do they possess any diagnostic significance. Familial cystinuria occurs especially in arthritic families. In as far as cystin in the body represents lowered rate of oxidation it should yield with other symptoms to remedies which promote oxidation. The ingestion of certain halogen benzols and salts of cystein is said to produce cystinuria.

Certain Important Sources of Error in the Phenolsulphonephthalein Test of the Renal Function.—Roth sums up as follows: The method is not suitable for pregnant women nor for women with affections of the genitals. The chemical must be used with great caution with especial heed that the injection fluid is not wasted. The solution should be absolutely trustworthy. In measuring off the urine care must be taken to recover all residual urine. If the amount voided seems too little it must be controlled with the catheter. Preparations from different manufactories differ much among themselves and yield different results. Injections should be made intramuscularly and by preference in the lumbal muscles; intragluteal injections give untrustworthy results.

Münchener medizinische Wochenschrift.

August 26 and September 2, 1913.

Treatment of Lymphosarcoma.—Fabian sums up as follows: We may only venture upon surgical intervention in these cases when the seat of the growth is isolated and when we can exclude all similar lesions, such as might arise from leucemia, pseudoleucemia, malignant lymphonia, tuberculosis, and syphilis. We should perform radical extirpation whenever this is technically possible for there is upon record a series of successful operations of this sort without recurrence upon lymphosarcoma in the tonsils, pharynx, colon, spleen, and testicle. The least outlook for recovery is seen in what unfortunately is the most common type of the disease, to wit, lymphosarcoma, which takes its start in the external lymph nodes. Highly peculiar are the regressive changes seen at times in recurrent, inoperable, and generalized lymphosarcoma. These suggest attempts at recovery which, however, are only transient. Nevertheless, in such cases it is our duty to push all our therapeutic resources.

The Psychology of the Declarations of the Injured.—Foerster refers, of course, to injuries which call for financial compensation. The subject has undergone much discussion in the past few years. The testimony of the presumably normal witnesses differs much from that of the injured, undoubtedly as a result of the psychic shock which involves incidentally the memory, judgment, etc. The injured may find certain bruises upon himself which seem to bear no relation to the accident and tend to confuse him. Certain accidents in connection with the use of special apparatus (for example, the telephone) are often without witnesses. Certain operators hearing some peculiar sound which has, as they believe, injured the ear have reported most peculiar results, chiefly such as might be imputed to electric shock. These receive no

compensation because there is no external evidence of damage. They continue with their work for years, yet always maintaining that they should have received indemnity for symptoms which they attribute to the electric discharge. In general in many types of injury, the injured has a very defective notion of the amount and kind of damage because of the psychic insult, and some memories became extinguished, and afterward rehabilitated by conversation. In the aged and mentally diseased conditions may be much worse. The general public is unaware of this fallibility of the testimony of the injured.

Medical Observations in Central Brazil.—Aumann states that much misinformation exists in regard to sanitary conditions in this part of the world. He has just completed a sojourn in Rio, Santos, and Sao Paulo. In the first named city is the "Institut de Manguinhos" for the study of tropical diseases. There is also a museum of hygiene. All the cities have isolation hospitals, stations for emigrants, and for disinfection. Sao Paulo, by reason of its great altitude, is best suited for Europeans and regular sleep is possible. It has a serotherapeutic institute, and a vaccinogenic plant. Ordinary hospitals, in contrast with the preceding institutions, rather lag behind the times.

Treatment of Malignant Tumors.—Luckenbein first refers to his already reported attempts at treating inoperable cancer with its autolytic products. He notes benefit in both the primary and secondary growths. The interval has been too brief for the proofs of absolute recovery, but several authorities have reported quasi cures both of cancer and sarcoma. The substance used ought to possess great prophylactic virtues when used with other modern methods, especially the use of mesothorium. Roosing prepares his autolysate as follows: the extirpated growth, or even a portion excised from an inoperable growth or a gland metastasis, is finely comminuted in sterile physiological salt solution, shaken up thoroughly, allowed to stay on ice for three days, and then filtered. The filtrate is again sterilized by heating for one hour at 56° C. and is then ready for use. The author himself selects only closed non-infected tumors for autolysis, and carries sterilization to a greater extent, so that every receptacle and utensil is involved. The author also agitates the cancerous particles in the solution for one or two hours. Whether to concentrate or dilute the filtrate is a problem which the author has solved conditionally by making the specific gravity 1009-1010, which is the most suitable for injection. The intravenous method is preferred, and the extract must invariably be freshly prepared, and each extract employed for growths of its own origin. The theory of the success obtained is that the autolysate contains defensive ferments. It is advised to associate the treatment with sero- and vaccinotherapy.

Electrical Antifat Cures.—Schnée writes at length upon this subject. Its beginnings go back to the first introduction of the static machine. A systematic study based on experiment goes back only to 1897, when the author's father took up the subject. Naturally the subject of electric light baths is not included here as being a form of warm bath. The elder Schnée and his son the author tested the alternating and faradic currents, but also used all other known methods as synergists. The author made reports of his methods in 1910 and 1912. Several years ago Bergonié of Bordeaux introduced his now well known method in which electricity is for the time the sole resource used, and in which the value of the faradic current is well shown. After him came Nagelschmidt, replacing faradism with the Leduc current. In the meantime the author had been testing primary and secondary faradic currents, interrupted currents, the Leduc, semisoidal-faradic and other currents. All exerted some effect on muscular contraction, but this varied in its sensory component. The author has embodied his experience in a machine which he hopes to use in a great variety of conditions, although he names it "Schnée's Degrassator." He thinks "myomotor" might have been a more suitable designation because he hopes, like Bergonié, to treat muscular insufficiency of all kinds.

Deutsche medizinische Wochenschrift.

August 21, 1913.

Physiology and Pathology of the Thymus.—Meinhold considers especially the medullary hyperplasia of the organ, the status thymicus, and thymic death, and reports a personal case of the latter, due apparently to the application of the primary alternating current. Patient a vigorous male adult, who suffered only from some ear trouble. While undergoing tests for galvanic nystagmus, a weak faradic current was also employed, with interruption of one or two minute intervals. No ill results were noted, and he was referred to the psychiatrist for mental examination. Nothing abnormal was found and he was next referred to the neurological clinic, where he underwent a general faradization. He was somewhat excited and cried out, but submitted willingly. At the close of the seance he suddenly developed a tetanoid convulsion, which in two or three minutes caused death from cyanosis. A careful examination showed that the current was perfectly safe for the average patient, hence the need of invoking a predisposition. Autopsy developed nothing of this sort save persistent thymus. The medulla of the latter was the seat of marked hyperplasia. The patient's history showed a notable excitability, with tendency to phobias. He was fearful of military service, was prone to homesickness, and dreaded the electrization. In the thymic death there is a notable failure of heart and respiration. This species of death does not mean necessarily that death is due even indirectly to the state of the gland, or its mechanical compression of the trachea. Rather does a persistent thymus indicate a state of great bodily weakness or low vitality, as a result of which we see sudden death follow trifling accidents.

Juvenile, Traumatic Dissecting Epiphysitis of the Tibia.—Ebbinghaus states that in strong and healthy children at or near puberty a trauma affecting one or both knees may give rise to dissecting epiphysitis. The condition was first recognized by Schlatter about fifteen years ago. It is undoubtedly much more common than is believed, and school physicians should be on the watch for it. Diagnosis can be made only by *x*-rays, for Schlatter seems to have been ignorant of the precise nature of the trauma (he thought it might be either a separation or crushing of the crow's bill process of the tibial epiphysis). The condition is really an epiphysitis accompanied by detachment. The inflamed portion should be extirpated and the healthy detached portion restored. The operation may be done under local anesthesia.

Removal of the Dangers of Paraffin Embolism.—Hartney believes that in some quarters the fear of paraffin embolism is still present. He has worked out a method by animal experiment. We must make it impossible for minute portions of paraffin to enter the veins wherever regeneration of the latter is to occur. The remedy lies largely in the use of Esmarck's bandage to the extremities during and for some time after the injection, *i.e.* until all the injected mass has solidified. The filling of a bone cavity, etc., may thereby be practiced in safety. In case of forming a paraffin testicle, the same end is attained by the application of a slender rubber catheter about the penile and serotal veins. In certain other localities, as the breast, and especially the nose, various resources may have to be combined, and each case becomes a law to itself.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SELF SELECTION (*Continued*).

Self-Selection in Different Ages.—While adverse selection is constantly at work in all ages, it is exercised at times under peculiar circumstances among young and elderly applicants. Medical examiners will render material assistance to their respective companies by instituting a careful inquiry whenever one of these suspicious features is disclosed.

Self Selection Among the Young.—Medical selection in this country, more so perhaps than in Great Britain judging by a comparison of the mortality tables, has succeeded in eliminating a good proportion of the doubtful risks which formerly were accepted among entrants of from 15 to 25 years of age, and in reducing the death rates in this class in both countries to lower levels. Allowing for a mortality which has become lower on account of the improved conditions of living among the young and the preventive measures and modern treatment of infectious diseases, there still remains a tendency to a high death rate strong enough to invite the exercise of self selection, particularly in the cases of dependent non-supporting minors.

Statements explaining the object of the insurance applied for by these young people are usually to the effect that it will be taken with the idea of inculcating the habit of saving and creating a fund for use later in life. Such motives should be encouraged but a suspicion of speculation is immediately aroused when it appears that the individual who will pay the premium is at the same time the beneficiary. The payer of the premium in such instances is almost always the one upon whom the insured will have to depend for support, protection and care during illness. It has already been pointed out that these young people are tender, unseasoned, susceptible to disease and subject to a high mortality. They are, therefore, ready material for self selection, unconscious perhaps as far as they are concerned, but exercised for them by the payers of the premiums. Revolting as the idea may be, these facts must be considered, for history repeats itself in referring to the forgetfulness and cold neglect of some dependent when the person who should extend protection and support will gain financially by the death of the former.

Conscious self selection is more apt to appear in the advanced ages when the applicants have means to pay the premiums for themselves and have become more sophisticated.

Self Selection in Advanced Ages.—The selection of risks applying at from 60 to 70 is a difficult task. The special uncertain conditions encountered in this group probably account for the varying rates of mortality experienced by the companies ranging from only fairly satisfactory to excessive. These differences in experience must also be attributed in part to the standard of selection followed in each of the companies. A study of these lives clearly shows that the mortality is too high, on the whole, and, furthermore, that it has a tendency to increase, especially in the United States. This increase in the death rate may be ascribed primarily and principally to the strenuous business methods and the excessive indulgence in food, drink, and high living in general, which so often accompany the acquisition of wealth. It would almost seem from the data collected that the medical selection in this country has not always succeeded in keeping pace with these developing conditions and that it has been outstripped by a powerful self-selective force.

Men become more sophisticated, shrewd, and reticent as they advance in life and for these reasons cannot always be depended upon to be frank or to give out information freely, if at all, in regard to their feelings, symptoms, and ailments; furthermore, they become more conservative in parting with their money and not inclined to pay the large premiums which have to be charged to them for life insurance, unless they need the policy for very good reasons. The reasons may be quite legitimate, but, on the other hand, these applicants will often have some misgivings as to their hold on life and become anxious to make provision for their families at the expense of the other policyholders of the companies.

Other opportunities for self selection are presented in the cases of men and women between 55 and 70 who lend themselves to the designs of younger self-supporting relatives or relatives-in-law for the purpose of speculation when there are signs of advancing age or of some disease in the incipient stage. This self selection may be an unconscious one on the part of the applicants and exercised for them by those financially interested who will, also, usually pay the premiums.

Conclusions.—In selecting young risks there must be a close investigation into the personal and family history, the object for which the insurance is taken, the financial standing, and the character and surroundings of the applicant. The insurable interest of the beneficiary, especially if payer of the premiums, should always be definitely ascertained.

In regard to elderly applicants, the examination must be rigid and there must be a close inspection into the financial standing of the applicant and of his family relations and surroundings. The applicant must furnish sufficient evidence that he is able to and will pay the premiums. The investigation must be particularly careful whenever it appears that the beneficiary is a self-supporting child or son-in-law, and, furthermore, if it is established that such beneficiary will pay the premiums, the company will be fully justified in declining the risk.

Life Insurance and Medical Examinations.—At a meeting of the business committees of several Austrian and Hungarian Insurance Companies the following scale of fees was agreed upon: The examining physician is paid in proportion to the size of the policy. For one of any size up to 5,000 kr. his fee is 10 kr.; between 5,000 and 10,000 kr., 15 kr., while if the amount is 10,000 kr. or upwards he receives 20 kr. He must for this fee include the ordinary tests for albumin and sugar. The physician's attest must have each blank question fully and satisfactorily answered. If this is not the case the attest is returned to have vague answers and omissions cleared up. No extra fee is allowed for this service. The medical man is allowed mileage when he goes out of his district, and an extra 2 kr. for examining a man at his residence. The family physician is paid 8 kr. for his attest regarding a death.—*Zeitschrift für die ges. Versicherungs-Wissenschaft*, xiii, 1913.

Book Reviews.

HERBALS, THEIR ORIGIN AND EVOLUTION, a Chapter in the History of Botany, 1470-1670, by AGNES ARBER (Mrs. E. A. NEWELL ARBER), D.Sc., F.L.S., Fellow of Newnham College, Cambridge and of University College, London. Price $3.25. Cambridge: at the University Press; New York: G. P. Putnam's Sons, 1912.

THE main object of this book, the author tells us in the preface, is "to trace in outline the evolution of the *printed herbal* in Europe between the years 1470 and 1670, primarily from a botanical and secondarily from an artistic standpoint." Although the herbals are discussed from the medical side only incidentally, the book will yet be found of absorbing interest by any physician who has a taste for delving into the records of the past, especially if he has also some knowledge of botany. A list of the chapters will best give an idea of the scope of the book; these are: The Early History of Botany, The Earliest Printed Herbals, The Early History of Herbals in England, The Botanical Renaissance of the Sixteenth and Seventeenth Centuries, The Evolution of the Art of Plant Description, The Evolution of Plant Classification, The Evolution of the Art of Botanical Illustration, The Doctrine of Signatures and Astrological Botany, Conclusions. There are two bibliographical appendices, one a chronological list of the principal herbals and related botanical works published between 1470 and 1670, the other an alphabetical list of the principal critical and historical works dealing with the subjects discussed in this book. The illustrations, except portraits of which there are many, are copied from the various herbals. They are not all of plants for we note some very quaint drawings of a leopard, sparrows, peacocks, a unicorn playing in a lady's lap, an elephant, and other curiously fashioned beasts and birds.

THE BATTLE CREEK SANITARIUM. History, Organization, Methods. By J. H. KELLOGG, M.D., Superintendent, Battle Creek, Mich., 1913.

WHETHER one is a subscriber or not to the extreme views regarding diet, which are held and strictly practised at Battle Creek, it is interesting to learn at first hand just what the system is that is carried out in that institution, and the reasons therefor. This profusely illustrated book of 224 pages recites at length what is done there and explains why it is done. It is interesting to read and satisfies one's curiosity regarding a much talked of therapeutic method.

THE SURGERY OF THE STOMACH: A Handbook of Diagnosis and Treatment. By HERBERT J. PATERSON, M.A., M.C., M.B. (Cantab.), F.R.S.C., London. Price, $3.50. New York: William Wood & Co., 1913.

THE author describes in a concise and practical manner the diagnosis and treatment of those functions of the stomach which are amenable to direct surgical interference. He urges the test meal as one of the most essential diagnostic details in the investigation of gastric disease, and considers this procedure in its various aspects in the Appendix of the book. After taking up the methods of investigation of gastric cases and the preparation and treatment of patients before operations, he describes the technique of the latter, then considers the postoperative complications and the various stomach lesions of surgical importance. Mr. Paterson has had an extensive experience in operations of this character, especially with gastrojejunostomy, which he regards as one of the most important operations in the field of gastric surgery. He considers that the beneficial effects of the procedure in gastric ulcer are due to the entrance of the alkaline pancreatic juice and bile into the stomach. The acidity of the gastric contents is diminished about 30 per cent., and although gastric digestion is impaired after this operation, it is not entirely lost. Paterson does not regard this procedure as a drainage operation and the motility of the stomach for practical purposes is unaffected. Gastrojejunostomy moreover has no material effect on metabolism, the percentage of nitrogen and fat absorbed being within the limits observed in individuals who are apparently healthy. The book is illustrated with a great many half-tone plates made from specimens and dissections. Where these illustrations depict operative procedures they leave much to be desired as drawings of the modern type serve to render operative procedures much clearer than actual photographs of the same. Mr. Paterson's book is worthy of commendation as presenting in a succinct form our present day knowledge of the field of gastric surgery. It is only by repeated endeavors such as this, addressed to students and practitioners, that better results will be obtained, particularly in the malignant diseases of this organ in which as elsewhere, the risk of abdominal exploration is less than the risk of delay.

THE DIFFICULTIES AND EMERGENCIES OF OBSTETRIC PRACTICE. By COMYNS BERKELEY, M.A., M.D., B.C., CANTAB., F.R.C.P., LOND., M.R.C.S., ENG., Obstetric and Gynecological Surgeon to the Middlesex Hospital; Surgeon to In-Patients, Chelsea Hospital for Women; Senior Obstetric Surgeon, City of London Lying-in Hospital, etc.; and VICTOR BONNEY, M.S., M.D., B.Sc., LOND., F.R.C.S. ENG., M.R.C.P., LOND., Assistant Obstetric and Gynecological Surgeon to the Middlesex Hospital; Lecturer on Practical Obstetrics, Middlesex Hospital Medical School; Late Hunterian Professor, Royal College of Surgeons of England, etc. With 287 illustrations. Price $7.50. Philadelphia: P. Blakiston's Son & Co., 1911.

THERE are few branches of medicine in which on certain subjects there are such varying views and practices as in obstetrics. Methods that are condemned in one country are lauded in another, by men of equal eminence. It is therefore, of interest, in turning the pages of this book, to note some of the points in which the teachings of the authors, who stand in the vanguard of British obstetricians, differ from those current on this side of the Atlantic. They advocate the routine employment, in cases where a competent nurse is attending the woman, of vaginal douches after labor, basing this practice upon the fact that owing to the recumbent position of the patient, vaginal drainage is insufficient, and there is a tendency for the lochia to accumulate in the vagina and favor infection. For the same reason the authors are of the opinion that after all ordinary labors the patient should be allowed to sit up in bed on the day following labor, and to get up as soon as she wishes, provided that the temperature is normal. There is a great deal to commend this practice for it accords with the habits of primitive women and the hardier women of the lower classes. The treatment of occipito-posterior positions of the fetal head by means of manual rotation is the same as advocated by a group of prominent obstetricians in this country, with the exception that the authors delay this procedure until an advanced stage of labor rather than resorting to it as soon as the os is fairly well dilated. Exploration of the uterus is favored as a valid procedure in the early treatment of puerperal sepsis, and curettage is condemned. Cesarean section is given as the elective procedure in the treatment of contraction ring, as likewise advocated by certain obstetricians in this country. These are only a few examples of the fact that this work is based upon the authors' individual experience and not upon the teachings of others—a circumstance that immeasurably enhances the value of this book as a live one. There are many features about it that makes it one that should commend it to the general practitioner. The various obstetric procedures and operations are so clearly described with the aid of excellent and artistic illustrations of which there is a profusion, that the reader can have no difficulty in following the various steps. The authors do not discuss the physiology and management of normal labor, devoting their attention solely to the difficulties and complications. Many subjects that are omitted in the average textbook on obstetrics are here discussed in detail. For instance, childbearing in young primiparæ from eight to sixteen years of age forms an interesting topic. It is impossible to make adequate mention of many of the excellent features of this work, which is eminently practical, and certain to provide information in any difficulty that may arise in obstetric practice. In paper and typography, and above all in its artistic qualities this volume represents the best of the publisher's art.

DIE LIQUORVERÄNDERUNGEN IN DEN EINZELNEN STADIEN DER SYPHILIS. Ein Beitrag zur Biologie des Syphilisvirus im menschlichen Körper und eine Mahnung zur Vermeidung oberflächlicher Salvarsanbehandlung. Von Dr. WILHELM GENNERICH, Marine-Oberstabärzt. Mit 12 Tabellen. Price Mk. 2.80 Berlin: Verlag von August Hirschwald, 1913.

THIS brochure aims to throw light upon the syphilitic processes which lead to cerebral lues and metalues. The diagnosis of the liquor has attained special significance because clinical experience and experimentation have shown that it is very difficult to influence the spinal fluid therapeutically through the blood and therefore it is apt to remain the seat of a stubborn infection. The chapters deal with spinal fluid findings in primary syphilis, in the secondary stages, in recurrent secondary syphilis, in the tertiary stage, in latent syphilis, in meningocerebral syphilis, etc., etc.

Wayside Experiences. A Collection of Plain Tales as Heard Along the Road. By C. Elton Blanchard, M.D., Author of "The Letters of Dr. Betterman," "Medical Dollars and Sense," "The Nut Cracker and Other Human Ape Fables," etc., etc. Price $1.25. Newark, New Jersey: Physicians Drug News Company.

This is the latest addition to the newest kind of literature, namely that which aims at describing the effects of syphilis and gonorrhea, the so-called Social Diseases. The volume consists of a series of short stories, fairly readable, and occasionally interesting; fortunately there are no case histories of sexual diseases, and so the book is superior to some of the other volumes of a similar kind. In case a physician needs a book of this sort, the present volume may be of service.

The Psychoneuroses and Their Treatment by Psychotherapy. By Prof. J. Déjerine, Professor of the Clinic for Nervous Diseases of the Faculty of Medicine of the University of Paris, and Dr. E. Gauckler, Ancien Interne of the Hospitals of Paris. Authorized Translation by Smith Ely Jelliffe, M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System, Post-Graduate Medical School and Hospital; Visiting Neurologist, City Hospital, New York. Price, $4.00. Philadelphia and London: J. B. Lippincott Company, 1913.

This book will especially please those who cannot bring themselves to believe that a Freud analysis only can cure the true psychoneurosis. There is no allusion to Freud anywhere in the text. Again those opposed to the so-called "rational" methods of Dubois, of Berne, in the treatment of the psychoneuroses, will also find Déjerine still a doughty opponent to a psychotherapy based solely on reasoning and argument. From Déjerine's point of view, "psychotherapy depends wholly and exclusively upon the beneficial influence of one person on another." The hysteric and the neurasthenic, the authors state, "are only cured when they come to believe in you" and have "confessed" their entire lives to you. "Sentiment and feeling" create an "atmosphere of confidence," without which, they say, no psychotherapy is possible. They are "convinced that in the moral sphere the idea alone does not move one, unless it is accompanied by an emotional appeal which makes it acceptable to consciousness and thus brings about conviction." They quote the ancient adage: "It is faith that saves . . . or cures."

Déjerine has spent many years in the practical study of the neuropath, and this book is entirely devoted to the development of a theory that the psychoneuroses are a very special nosological group, "whose symptomatology is caused solely by a primitive modification of the moral or mental state, followed by a whole series of secondary manifestations." The book is divided into three parts: the first comprises an analytical study of symptoms; the second, a synthetic explanation of the general mechanism of the foundation of the psychoneuroses, and their variations and nature; the third part contains all those psychotherapeutic proceedings and helps which, in the authors' opinion, should be used in treatment.

It will be noted by the reader that the authors deny any antecedent lesion of the body as a cause of the symptoms and troubles of the neuropath. They also hold that "neurasthenia is due wholly to psychological factors, and that these psychological factors are essentially, if not exclusively, determined by emotion." It is extremely interesting to read, and the authors ably uphold their point of view. Those functions of the body which are not completely automatic, but, on the contrary, depend in their ultimate accomplishment upon various mental manifestations and call the will into play, such as the digestive and genitourinary functions, are especially affected in neuropaths by the influence of emotions. This part is very fully dealt with. Also those functions, such as belong to respiration, on which the will acts only in a contingent way. Also, the purely automatic functions which may be affected by the influence of the emotions, though requiring no direction from the psychic centers

The understanding and treatment of the neuropath are exceedingly difficult. We are grateful to Dejerine and Gauckler for their excellent and suggestive work. Why should the fact that they lay special stress on the emotional side destroy entirely our appreciation of the value of Dubois's "appeal to the intelligence of the individual"? Why should their apparent reversal of cause and effect deliver some of us entirely from our convictions or wean us completely from our dawning interest in Freud? The reading of this book will help us in the treatment of many minor psychic disturbances which more or less incapacitate numerous individuals. Thanks are due to Dr. Jelliffe and his wife for an excellent translation.

The Triumph of American Medicine in the Construction of the Panama Canal. By J. Ewing Mears, M.D., LL.D. Third Edition, Revised and Enlarged. Twenty-one plates. Philadelphia: Wm. J. Dornan, 1913.

The fact that this book has passed through three editions in a comparatively short time is convincing evidence of its popularity. It presents in an interesting manner the mechanical and sanitary difficulties which were overcome in the construction of this great waterway. While the fact that great mechanical achievements involved in the undertaking were made possible by the even greater sanitary triumphs is well known and appreciated by the medical profession, the book should be welcomed as presenting these "marvels of courage, energy and scientific thoroughness, skill, research, and original discovery" in an attractive way and entirely within the comprehension of the average reader.

Zur Pathogenese, Klinik und Therapie der erworbenen Mastdarmstricturen. Von Dr. Ernst Ruge, dirig. Arzt am stadt. Krankenhause in Frankfurt-Oder. Price Mk. 1.50. Halle a. S.: Carl Marhold, 1913.

This small monograph is divided into two main parts, 1, the benign inflammatory strictures and, 2, the malignant strictures. In each case the etiology, symptomatology, diagnosis and therapy are discussed. The author's aim is to give a condensed birds-eye view of our present-day knowledge concerning the pathological and therapeutic influences that act on the strictures occurring in the rectum. The congenital stenoses and valvular formations are not discussed.

Die Ermüdung der Stimme. (Phonasthenie). Dr. R. Imhofer, Prag. Mit Zwei Notenbeilagen. Price Mk. 5. Würzburg: Verlag von Curt Kabitzsch, 1913.

A short historical sketch of this phase of laryngology is given, tracing the steps in the interesting development of the conception of phonasthenia. The nature of the clinical picture of phonasthenia is discussed. Statistics and etiology of phonasthenia are given. Diagnosis, prognosis, and therapy are expounded. An extensive bibliography is appended at the end.

Lehrbuch der Meeresheilkunde. Für Aerzte und Gebildete Laien. Von Dr. Arnold Hiller, Professor, Oberstabarzt a. D. Mit 1 Landkarte und 11 Abbildungen. Price Mk. 7. Berlin: Verlag von August Hirschwald, 1913.

The six main chapters of this work concern themselves with: 1. Sea air, including the action of light. 2. The sea bath. 3. Winter cures at the seashore. 4. Ocean voyages, sanatoria on ships and excursions for curative purposes. 5. Therapeutic retrospects. 6. Physical characteristics of sea baths. This last subdivision gives the practitioner at the seaside resort an insight into those diseases which have thus far been benefited by sea baths and gives the general practitioner living elsewhere the opportunity of choosing the time of year and the climatic conditions of those resorts that will most benefit his patient.

Der Magensaftfluss und verwandte Sekretionsstörungen. Von Sanitätsrat Dr. A. Günzburg, leitendem Arzt an der innern Abteilung des Krankenhauses der Israelitischen Gemeinde zu Frankfurt a. M. Mit 5 Kurven im Text und 4 Röntgenogrammen auf einer Tafel. Price Mk. 2. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1913.

This little monograph confines itself to the data necessary for understanding the secretory activity of the stomach and hyperchlorhydria. Short chapters are concisely devoted to the subjects of hypersecretion, gastrosuccorrhea, intermittent secretory activity of the stomach, hyperchlorhydria, and its relation to peptic ulcer, disturbances in the intestines in hyperchlorhydria, anatomical and experimental basic principles, diagnosis and therapy.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc., etc. Edited by Henry W. Cattell, A.M., M.D. Volume I, Twenty-third Series, 1913. Price $2.00. Philadelphia and London: J. B. Lippincott Company.

This number of this well-known quarterly contains nineteen articles on diagnosis, treatment, medicine, surgery, etc. Articles deserving special mention are those on Bence-Jones proteinuria by Boggs and Guthrie, retarded mental development in children by McCready, and Albee's method of bone grafting by Rugh. As a whole this volume seems to be rather less satisfactory than this publication usually is. The résumé for 1912 is very comprehensive.

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held March 4, 1913.

THE PRESIDENT, DR. SMITH ELY JELLIFFE, IN THE CHAIR.

A Case of Acute Infective Encephalitis, Probably of Gonococcic Origin.—Dr. JOHN H. LARKIN and Dr. SMITH ELY JELLIFFE reported this case and showed the specimen. The patient was a Hungarian, 33 years of age, who had apparently enjoyed perfect health up to the time of his present illness. He was admitted to the City Hospital on the 13th of January, 1913, suffering from a urethral discharge. After spending a day or two in the genitourinary ward it was observed that he was not quite clear in his mind and he was transferred to the neurological service. At this time he complained of pain in the legs and bladder, and he had so much difficulty in passing his urine that he had to be catheterized. There was a slight discharge from the penis and constant priapism. Because of his mental condition it was impossible to elicit a satisfactory family history. With the exception of a slight increase in the reflexes of the lower limbs some spasticity and a doubtful Babinski, the neurological examination proved negative. There was no temperature elevation at this time. Shortly afterward the eyes were examined by Dr. Louis Casamajor, who reported beginning choked disk. Graually, the spasticity of the lower limbs increased, his mental condition became worse, he became more apathetic and less and less responsive, the choked disk became more apparent, especially on the right side, and these symptoms, together with the prominence of the spastic phenomena on the left side, led to the determination to make an exploratory opening over the right frontal lobe, in the hope of finding a tumor or other lesion to explain his symptoms. The patient's temperature, which had been normal at the time of his admission, gradually rose to 101°, then fell to normal, and again rose to 100°, where it remained until the day of his death, when it fell to subnormal. Upon exposing the brain, nothing abnormal was found on gross examination. The patient died, and the autopsy was made by Dr. Larkin, who made the following preliminary report: The brain, which weighed 1400 grams, was somewhat flattened on the left side, and was the seat of an acute form of encephalitis, in which the preponderance of the cells were of a large, irregular type, invading the white matter, with marked infiltration of the walls of the blood vessels. The gray matter was not involved. This patient, at the time of his death, had a gonorrheal infection of the posterior urethra, and smears, taken from the brain, showed a peculiar organism, a Gram positive bacillus, which by culture on serum agar gave a light growth corresponding very closely to that obtained from gonococci. On retransplantation, however, the cultures died out, and Dr. Larkin said he was therefore unable to positively assert that the encephalitis was of gonococcic origin, although that was his belief.

Tumor of the Spinal Cord.—Dr. WILLIAM M. LESZYNSKY presented the spinal cord removed from a woman 49 years of age. For nine years she had complained of characteristic root pains in the course of the left sciatic and anterior crural nerves, and at the end of the fourth year the right lower extremity became similarly affected. Subsequently there were paresthesiæ, attacks of transient loss of power in the extremities, and a band-like feeling at the level of the lower thoracic region. Ultimately she became completely paraplegic, with bilateral footdrop, loss of patellar, Achilles and plantar reflexes, and incontinence of urine. Hypalgesia and thermoanesthesia extended upward to several inches above the level of the umbilicus. The tactile sensibility was preserved. The Wassermann reaction was negative. Although several lumbar punctures were made no cerebrospinal fluid could be obtained. The diagnosis was made of a tumor involving the cauda equina, with secondary implication of the cord. At the operation, which was done by Dr. Charles A. Elsberg, a large tumor was exposed which filled the entire lower part of the spinal canal and extended to and over the conus. Most of the growth was removed within its capsule. No improvement followed, and death took place from exhaustion three months later. At the autopsy a tumor mass was found involving the cauda and filling the sacral canal. This was a glioma. There were syringomyelic cavities in the lumbar and thoracic regions, chiefly in the anterior portions of the posterior columns, with borders of pronounced gliosis. Both the ascending and descending tracts showed advanced degeneration.

A Demonstration of the Syphilitic Organism in the Brain in Paresis.—Dr. J. W. MOORE read a paper on this subject and exhibited a number of microphotographs showing the presence of the *Treponema pallidum* in the brain tissues of a paretic. The inception of this work, the writer said, and the preparation and staining of the specimens were his own, but the credit of having been the first to see the organism belonged to Noguchi of the Rockefeller Institute, to whom he loaned a duplicate set of slides for the purpose of looking for a possible granular form of the spirochete. The findings were published in the *Journal of Experimental Medicine* for February 1, 1913. Dr. Moore said that from his autopsy service at the Central Islip State Hospital he had a fairly large number of paretic brains in his possession. Early in 1912 a systematic search of these brains in groups of twenty and thirty was made for the *Treponema pallidum*. Seventy brains were thus examined, the cases being clinically and anatomically satisfactory as to the diagnosis of paresis. Without entering into the details of the technique of staining, the speaker said the Levaditi silver method was used, with some modifications which might or might not have been important. An unusually favorable degree of staining resulted in many of the specimens. Noguchi was the first to see the organisms, and found them in variable numbers in twelve out of the seventy cases. Immediately after learning of Noguchi's finding the speaker said he was able to locate the spirochetes independently and without much difficulty in all of these twelve cases. In about one-half of these cases they were very scarce, but in several they were quite numerous and not at all hard to find. The reason why the writer himself had not seen them during prolonged searching was due to a most interesting and significant fact regarding their location. Having in mind the chronic inflammatory changes which one found in paresis, namely, the infiltration of the pia and vessel sheaths with lymphoid and plasma cells, the writer devoted his attention almost entirely to these localities, particularly as it was here that the organisms had been found in cases of cerebral syphilis, in the narrower sense. In paresis, however, they were apparently absent in the pia and were seldom seen in the immediate neighborhood of the visible vessels. They occurred, instead, deep within the tissue of the cortex. Their motility and penetrating power was known from dark-field observation and from Noguchi's cultural experiments, and it was evidently by this means that they had found their way to the locations where they were encountered. They were almost always in the nerve-cell layers of the cortex; seldom in the marrow, and never in the external neuroglia layer, so far as the observations in these few cases went. Dr. Moore said it was apparent at once how important the knowledge of the existence of the syphilitic organism in paresis was, but he wished to call attention to a few of the more salient points. First, we were afforded a tangible cause for the chronic inflammatory reaction if not for the degenerative changes in paresis, and one which corresponded fairly satisfactorily in location and distribution. It was no longer necessary to offer theories of metabolic disorder, overproduction of anti-body, deficiency in lecithin, etc. In the actual presence of the treponema we saw the reason for the serological findings in blood and spinal fluid. The difference between paresis and cerebral syphilis could be conceived to be only one of location and distribution of the organism. When we considered the results of the experiments with vital staining, which showed that fluids introduced into the circulation practically never reached the depths of the brain tissue, or at most only the superficial neuroglia layer, and also that potassium iodide and even antigens and immune bodies did not pass through the meninges, the inefficiency of anti-syphilitic treatment in paresis, whether it be introduced into the circulation or spinal canal, was made clear. The outlook for the future was also rather hopeless, since the organisms lay at a depth at which they apparently could not be reached by ordinary methods.

Dr. CHARLES B. DUNLAP said there was very little to add to the presentation of facts that Dr. Moore had given. After various modifications of the Levaditi silver method Dr. Moore obtained a very clear stain, showing the spirochetes (*Treponemata pallida*) jet black against a yellow background. The fact that Dr. Moore failed to find the organism in his earlier examinations was not surprising; they were found not in the mesoblastic tissues, where he had been especially looking for them, but free in the cortical tissues, and one might search through many sections from various parts of the brain and find none. The

results of this work by Drs. Moore and Noguchi, the speaker said, were far reaching, since they proved (if confirmed—and there was scarcely a doubt that they would be confirmed) what had long been suspected, that the *Treponema pallidum* was the essential causative factor of general paralysis, but this clearing up of the etiology in no way lessened the clinical or anatomical value of the work previously done in connection with this subject. General paralysis would still stand as a distinct variety of cerebral disease, distinct in its anatomical features from other forms, distinct as a clinical group, and distinct in its failure to adequately respond to therapeutic agents and methods heretofore effective in the treatment of ordinary syphilis. While this was so, the demonstration of the treponemata rendered the problem of future therapeutic attack much more definite and more hopeful.

A Case for Diagnosis.—Dr. William Steinach presented a man, 69 years old, a native of Germany and a machinist by occupation. He stated that his father, who died at the age of 78, of cardiac disease, had some sort of a tremor. His mother died in childbirth. The patient was the father of eleven children, of whom seven were living, four having died in infancy. One son was a deaf mute, the result of some meningeal trouble following an injury to the head in childhood. Aside from this there was no history of any nervous or mental disease in the family. The patient denied lues and had always been temperate in his habits. He had malaria and typhoid fever in childhood. He was well and worked regularly as a machinist in a safe manufactory up to November, 1892. At that time, while bending over, he was struck on the back of the neck by the end of a bar of steel, two inches thick and fourteen feet long, weighing fully 120 pounds. He was knocked unconscious and remained so for fifteen minutes. He was taken to his home and shortly afterward began to complain of headache, pain in the back of the neck, fatigue on slight exertion, and inability to work. About two months later he became depressed and developed suicidal tendencies, when he was sent to Ward's Island, where he remained for six months. About a year after his injury the patient developed a tremor which became much aggravated on intentional movements. About eleven years ago he developed convulsive attacks which had recurred more or less regularly about three times weekly. He also had daily attacks of transient dizziness. His convulsive attacks were at times accompanied by total loss of consciousness; at other times the loss was only partial. Sometimes he cried out, foamed at the mouth, and bit his tongue, and after the more severe attacks he generally fell asleep. There was no aura. During his attacks, as repeatedly observed by Dr. Steinach and others, he alternately stiffened and relaxed. The seizures had rather the character of hysteroid attacks. His memory afterwards was very hazy. Aside from the intention tremor, the patient showed no organic symptoms. His pupillary and knee reflexes were normal; his abdominal and cremasteric reflexes were present. He had no Romberg. His eye grounds, as reported by Dr. S. M. Ingerman, showed a slight pallor on the temporal edge of both disks. In connection with this case, Dr. Steinach offered the following conclusions: 1. The persistence and severity of the symptoms after the lapse of over twenty years. The man was wholly incapacitated from performing his usual duties. 2. The absence of litigation or any question of damages, which was a strong feature of most of the traumatic neuroses. 3. The strong resemblance of the condition to multiple sclerosis. 4. While a tentative diagnosis of traumatic neurosis had been made, there was a question whether some organic changes had not been superadded.

Dr. J. Ramsay Hunt, who had seen this patient some years ago, said he could never find any definite signs of organic disease. While he regarded it as a case of traumatic neurosis or psychosis, it had always seemed to him, from the severity of the injury, that there might have been some organic lesion.

Dr. Leszynsky, who had had this patient under his observation about fourteen years ago, said he had noticed that his symptoms always seemed to become more aggravated when he was being exhibited.

Dr. L. Pierce Clark thought that in spite of the fact that the tremor became more intense when the patient was under observation, the condition had existed so long that we probably had to deal here with some organic change rather than a purely traumatic neurosis.

Dr. Benjamin Rosenbluth said that in a similar case seen at the City Home six or eight years ago, where the tremor came on after an injury and was diagnosed by successive visiting physicians as a traumatic neurosis, the post mortem disclosed a lesion in the thalamus.

Spinal Decompression for Meningomyelitis.—By Dr. Alfred S. Taylor and Dr. J. W. Stephenson. The patient was a married man, 62 years old, a watchman on the railroad, whose previous history was negative with the exception of an attack of pleurisy and pneumonia seven years ago. His family history was unimportant; there was no history of lues; no cough. The patient's present illness began in May, 1912, when while at work he was seized with an intense pain in the chest and back, which became very sensitive to the touch. He was taken home, and for several days the pains persisted. He was delirious and was said to have fever. His condition was diagnosed as rheumatism and so treated. Two weeks after the onset of his illness an abscess developed on the right chest; this was incised and its contents evacuated. At this time he also suffered from retention of urine and his testicles became swollen. This, however, soon cleared up. The pain and fever persisted intermittently, recurring at variable intervals, and early in August, the pain "seemed," according to the patient's statement, to locate in the neck and back of the head and was followed by a heaviness of the legs and consequent difficulty in walking. The legs gradually became stiff, and in place of the pains he began to have "cramps" which would double him up. In the course of time he also noticed that the upper extremities were growing weak and stiff, and all symptoms gradually progressed until about the middle of August, 1912, when the patient became bedridden. He also complained of considerable pain over the region of the bladder, and examination revealed retention, with overflow. There was obstinate constipation. When the patient was admitted to the Neurological Institute, on November 13, 1912, in the service of Dr. Frederick Peterson, he was unable to walk or stand, having been bedridden for three months, and complained of paroxysmal cramps in the legs. Examination revealed a marked spastic paraplegia, with decided weakness of both upper extremities. He was unable to feed himself, and voluntary movements of lower extremities were impossible. The bladder was distended and there was impaction of the colon. There were no distinct atrophies, though the leg muscles were flabby. There was no tenderness over the vertebræ, but on the right side of the neck, over the lower three cervical vertebræ, there was a distinct infiltration which was tender on pressure and which somewhat limited the movements of the neck. Over the right chest, just underneath the clavicle, there was slight infiltration which was attributed to the old abscess. The knee jerks were plus plus and equal; the ankle jerks were plus and equal; there was a double Babinski and Oppenheim. There was double ankle clonus; the right inexhaustible, the left exhaustible. The abdominal and epigastric reflexes were very sluggish; those of the upper extremities were plus, L > R. There was a diminution of the thermal, pain, and tactile sensations up to the level of the first dorsal. The eyes were negative excepting for a slight irregularity of the pupils. The patient's temperature was 98°; pulse, 68; respirations, 18; blood pressure, 140 mm. A blood examination showed 4,778,000 red blood cells, with 9,600 leucocytes. A differential count showed neutrophiles, 62; large lymphocytes, 15; small lymphocytes, 22; transitionals, 1. The morphology was negative, as were also two serum Wassermann tests. Uranalysis was negative; the von Pirquet test was negative. The patient was kept under observation for twenty-eight days, during which time there was a gradual progression of symptoms: areas which previously showed a sensory diminution became anesthetic, the abdominal and epigastric reflexes disappeared, and the left exhaustible clonus became inexhaustible. The cramp-like pains became more severe and frequent, requiring the use of morphia. Frequent catheterizations became necessary, and the bowels were evacuated only by means of enemata. An *x*-ray was taken by Dr. Cole, which showed a circumscribed shadow on the right side of the spinal column, opposite the sixth cervical vertebra, which was apparently just in front of the transverse process. The case was referred to Dr. Alfred S. Taylor, who did a hemilaminectomy on December 10. Four days after the operation, an examination revealed an exhaustible clonus, and pin pricks were felt acutely by the patient over the previously anesthetic areas. On December 18, the patient was able to move his legs voluntarily, and from this time on his condition gradually improved. On December 26, with some assistance, he was able to walk the length of the ward, and the bladder and rectal functions were restored. He had an occasional "cramp," but never required opiates.

Dr. Alfred S. Taylor, who performed the operation in this case, said there were one or two points in connection with it that perhaps should be brought out with a little more emphasis. Early in the course of this man's illness

he developed what was regarded as an abscess at the junction of the sternum and the second costal cartilage. This was opened, but after two or three months it still contained some old, chronic inflammatory material; it appeared as a distinct swelling, slightly tender, and was very suspicious of a gumma. Of course, the fact that the Wassermann reaction was negative rather militated against that theory, and the abscess was possibly of tubercular origin. The von Pirquet test, however, was also negative. Another suggestive point was the evidence of the presence of inflammatory material on both sides of the spine over the actual seat of the trouble. The transverse processes of the fifth, sixth, and seventh cervical vertebræ were more or less indistinct in outline on account of the presence of this material. Dr. Taylor said the operation he had done in this case was an exploratory right hemilaminectomy. There was nothing unusual observed in the laminæ themselves. When, however, the laminæ were removed and one came down on the dura, the latter seemed to fill the entire spinal canal. The cord itself was somewhat congested, so that it entirely filled the dural cavity, interfering with the flow of spinal fluid. The cervical canal, instead of widening as it ordinarily did, was distinctly narrowed. Apparently, there must have been a combination of a congential malformation, plus some inflammatory condition of the cord. In completing the operation, the dura was not sutured. The bone was not replaced and the muscles were sutured.

Dr. Hunt said that syphilis of the vertebral column was rare, but should always be considered in cases of spondylitis. The cervical region was most frequently involved in this group of cases, and the meninges or the cord might be compressed or directly involved by the syphilitic process at the same level. In the case reported by Drs. Taylor and Stephenson, a syphilitic periosteitis and osteitis with consecutive peripachymeningitis should be considered as a possible clinical diagnosis.

Dr. Clark said he did not think we were entirely justified in ascribing the condition in this case to syphilis, as that diagnosis was not borne out by the serological tests. While these spinal decompression operations often proved apparently beneficial, the speaker said he was inclined to believe these cases should be investigated a little closer and sifted out a little finer before an operation of this kind was recommended. Although a decompression operation was beneficial in a certain few cases, it was still a rather questionable procedure in cases where the diagnosis was obscure.

Dr. Larkin said that from the presentation of the case, as made by Drs. Taylor and Stephenson, he did not think a diagnosis was at all possible. A syphilitic osteitis or periosteitis, such as had been suggested, could easily have been demonstrated from its objective features. A specific inflammation of the meninges of the dura spinalis would certainly have showed some objective features to give rise to such phenomena as this man had presented.

Dr. Foster Kennedy said he did not agree with Dr. Larkin that a syphilitic pachymeningitis always presented such clear objective features that it could not well be mistaken for anything else. When one had cut down on the cord and found an inflammation of the dura mater, it was not always easy to say whether it was tuberculous or of specific origin. Replying to Dr. Clark, the speaker said he saw no objection to advising an exploratory operation in a case of this kind. The man had certain definite symptoms pointing to a certain area of the cord: he was obviously growing worse, and even if the operation had failed to produce any improvement in his condition it would still have been warranted.

Dr. S. P. Goodhart said he did not think conditions similar to this were so very uncommon, and he recalled a case in his practice, operated on by Dr. Taylor about two years ago, in which the condition was practically the same. The operation, as in this instance, consisted of a decompression. That patient was seen by Dr. Dana, who concurred in the diagnosis of suspected neoplasm. A decompression was done, both for relief of pressure and for exploration, and although no tumor was found, the patient improved very much. There was no other way in which she could possibly have obtained that relief. The cord at the site of operation showed congestion. The motor and sensory symptoms before operation pointed positively to a localized lesion at approximately the second dorsal segment. Decompression and exploration in these cases was justified and even imperative.

Dr. J. F. Terriberry said he understood that antisyphilitic treatment was not given a trial in this case, as it was taken for granted that the condition was not specific, based on the pathologist's report. Was that a safe and sound doctrine? Was it right to proceed surgically in a case of this kind before giving the patient the benefit of a thorough course of antisyphilitic treatment? The speaker said he recently saw a case with a condition of the ribs very similar to that described in this instance, and the lesion cleared up entirely under specific treatment.

Dr. Taylor, in closing, said he had not made the statement that the spinal lesion was specific; only, that the so-called abscess on the rib looked like an old gumma, but that the laboratory tests had barred out syphilis. The test of the serum and spinal fluid both gave negative results. Replying to Dr. Terriberry, he thought we were not justified in losing time by subjecting a patient in such a condition and one who showed no evidence of syphilis to a course of antisyphilitic treatment when that time could be used to better advantage. The bones of the spine did not show any evidence of disease; as far as could be made out, they were normal in appearance. Nothing abnormal was observed until he reached the dura, which might have been slightly thickened, but this was doubtful. The leptomeninges seemed thickened and congested, as was the entire exposed cord. The entire spinal canal was occupied by the congested cord, leaving no room for spinal fluid, and it seemed reasonable to suppose that we had to deal here with an old chronic inflammatory process, with resulting symptoms due to compression of the cord.

The Traumatic Neuroses; A Retrospect and a Forecast.—Dr. Pearce Bailey presented a paper on this subject, in which he said that considered retrospectively the traumatic neuroses fell naturally into three periods: First, the initial, organic period of Erichsen; second, the functional period, made possible by the work of Charcot; and, third, the modern, analytical period, which had encouraged the psychological dismemberment of hysteria. While these disorders existed before Erichsen's time, their history dated from the appearance of his book, which came stamped with the great authority of England's foremost surgeon. It had an enormous sale, ran through many editions, and its influence even to-day was not entirely eradicated. By publishing the amounts of money paid plaintiffs by corporations which had injured them it showed how important a railway injury might prove as a personal asset and brought to the attention of medical men and lawyers alike the devastating effects which railway and allied accidents might exert on the human nervous system. Under the heading of "spinal concussion," a term no one knew the exact meaning of, Erichsen brought together a great number of clinical conditions which had no relation to one another excepting in so far as any of them might appear in the victims of railway or other casualties.

As knowledge of the anatomy and physiology of the nervous system and the symptoms of its diseases progressed, some of the errors of Erichsen's work became apparent. It became evident that a fracture of the spine was the same whatever the accident that caused it, and that locomotor ataxia, developing in direct sequence to a railway collision, did not disprove that the man who developed it had syphilis, or that he would not have become ataxic without any accident. But while these frankly organic cases found their true place with advancing knowledge, it took much longer for the purely functional nature of imposing physical symptoms to be recognized, and when this happened, in Charcot's great days at the Salpêtrière, the traumatic neuroses entered upon the second or functional period of their history. For many years, during this period, the traumatic neuroses consisted of traumatic hysteria, such as Charcot described, and of traumatic neurasthenia. There were other neuroses advanced from time to time as characteristic of accidents, but these two were the chief and most important ones. A true traumatic neurosis, in which the question of fraudulent simulation can be excluded, may be regarded as a more or less subconscious expression on the part of the plaintiff of his wishes or of his fears, his mind having been thrown back to a more primitive state by the accident. With the high money premium put on personal injuries, it was easy to see in what way these wishes might point, but the desire for financial profit, while it was doubtless important, had, in the reader's opinion, been very much overestimated in the original genesis of this affection. It seemed to him in a very long experience that a desire for revenge against the person who had injured him was a very much more potent force in determining the changes in personality. He had yet to see a plaintiff who was not extremely bitter against the offending party.

Dr. Bailey said the study of the traumatic neuroses had always been hindered by the fact that it rarely was possible to get at all the conditions of the case, and they had rarely been studied from the analytical point of view

which had thrown so much light upon neuroses of other origins. If the hypothesis which he had set forth was correct, the explanation of every traumatic neurosis must be found in disturbances of consciousness: the accident affected consciousness more or less violently, and at once began to loosen restraint in the subconscious regions. The individual symptoms of traumatic neuroses, namely, the hemiplegia, the paraplegia, the blindness, etc., which had been regarded hitherto as the most important, seemed to him important only in so far as they gave a clue to mental motives; they were the clinical expression of fear or desire; their particular form was determined partly by the general makeup of the patient and partly by environmental conditions. Outlook: Statistical inquiries undertaken for the purpose of deciding what proportion of cases of traumatic neuroses recovered had always been extremely baffling. It had rarely been possible to secure accurate information of a sufficiently large number of injured persons for two years after the accident to make the results adequate. The writer's own experience with cases originated as traumatic hysteria had been that before the legal case was terminated, there was little or no improvement; that after the case, as such, was terminated, there was eventually disappearance of the physical symptoms, such as paralysis, etc., in almost every case. This recovery did not occur immediately, as claim agents maintained, and might be delayed several months or years.

Dr. Clark, after complimenting Dr. Bailey upon his excellent presentation of this subject, said he agreed with the writer's view in regard to the outlook in these cases of traumatic neuroses, and thought it was unfortunate that some psychoanalyses had not been made in order to learn the actual outcome of these cases after so-called recovery had taken place. Even an ordinary analysis of a large material after litigation had not been undertaken.

Dr. Steinach said he thought Dr. Bailey had taken a rather one-sided view of the subject. In the case he had shown tonight, for example, the injury had occurred over twenty years ago and there had been no thought of litigation. Some of these patients, at least, were not actuated by feelings of revenge or financial profit.

Dr. Maloney said the personal experience related by Dr. Bailey was very interesting, especially the fact that the sense of fear developed afterward. Quite a lot of data bearing on this very point had been collected through the Society for Psychical Research.

Dr. Goodhart said that Dr. Bailey, in regarding revenge as a potent factor in determining the changes in personality in many of these cases, really overlooked the essential point in the psychopathology of the situation, as he had endeavored to correlate it in his scheme. Revenge, as asserted in those cases, was purely a voluntary conscious reaction: the real activity of the subliminal consciousness expressed itself later in the development of a true fear neurosis, out of which the various forms of phobia might develop.

Mescaline and the Psychology of Optic Hallucinations.—Dr. W. J. M. A. Maloney and Dr. A. Knauer presented a paper on this subject, which was briefly discussed by Drs. Kennedy, Rosenbluth, and Onuf.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 24, 1913.

Dr. George Gray Ward, Jr., in the Chair.

Echinococcus Cyst of the Liver.—Dr. Hermann Grad reported this case. He stated that this condition was rare in America and that it was interesting to note the manner in which this tapeworm reached the human being. The disease was caused by the larvæ of a tiny cestode, the *Tænia echinococcus*, which infected the dog. The fertilized eggs were passed along with the excreta or the segments were covered with some mucus by which they adhered to the grass or other substances which herbivora ate. Thus the ova reached the alimentary canal of the host. Each ovum consisted of an embryo enclosed in a fibrous capsule, which latter was digested by the gastric juice, thus setting the embryo at liberty. This embryo was capable of boring its way into the walls of the stomach and of causing serious local injury to the tissues which it pierced, and it might thus reach the systemic circulation and be carried to any part of the body. As a rule they were stopped by the liver, having reached that organ by the portal circulation. The embryo having reached a stationary position in some solid organ began to develop into the characteristic bladder cysts, the so-called hydatid. These cysts might be found growing in the liver, respiratory organs, peritoneum, circulatory apparatus, brain, spinal cord, spleen, kidneys, and suprarenals, in the substance of muscles, subcutaneous tissues, medullary cavities of bone, in the orbit of the eye, in the breast, axilla, scrotum, ovaries or uterus. In Iceland, where the disease was very prevalent, the echinococcus growth was found in the liver in 69 per cent. of the cases. The lung was affected in about 1 per cent. of the cases and the peritoneum came next. These hydatids were also found in many animals. After describing the development of the embryo into bladder cysts, daughter cysts and brood capsules the writer called attention to the fact that these cysts might vary greatly in size and rapidity of growth, some even remaining stationary for years and yet retaining their vitality. As a rule the greatest growth was observed where the greatest space was afforded. When they grew from the under surface of the liver they attained a great size, as the intestines were easily displaced. A hydatid cyst might be found dead in any stage of development, or the contents might be found degenerated into a solid caseous mass, showing a morphous débris and hooklets under the microscope. Again a hydatid cyst might be converted into a circumscribed abscess. The process of degeneration rendered these parasites inert. An urticaria eruption often followed the tapping of an echinococcus cyst, more especially when the cyst was situated in the abdominal cavity. These rashes had been known to occur independently of operative interference and to be ushered in with an attack of giddiness and vomiting. Alarming symptoms had been observed to follow the tapping of the cyst, when there was reason to believe that the fluid had gained entrance into the blood stream. Cases of a fatal issue following a simple puncture of the cyst had nearly always been confined to punctures of the abdominal cavity, except in one case in which the tapping of a pulmonary hydatid caused death from flooding of the bronchi.

The case that Dr. Grad reported occurred in a young woman, 24 years of age, who had been married for one year and had one child. She had been ill for about three years and complained of pain in the upper abdomen, attacks of indigestion, a general feeling of illness and jaundice which had lasted for two years. A diagnosis of cholelithiasis had been made on a previous occasion and had been confirmed, according to the statement of the patient, by the *x*-rays, which showed the shadows of the stone. A careful physical examination again led to a diagnosis of cholelithiasis and operation was advised. Upon opening the peritoneal cavity they were surprised to find a tumorous mass situated under the dome of the diaphragm, which was adherent to the left kidney, the spleen, and the spinal column. Further examination showed the gallbladder to be normal and that the large masses were intimately connected with the left lobe of the liver. The adhesions were friable and easily severed. It was decided to enucleate the mass, although the diagnosis was not clear at this time. The trocar brought forth a small quantity of clear fluid, and in withdrawing the cannula a small echinococcus bladder protruded through the aperture, which gave a clue to the diagnosis. They proceeded to enucleate the mass, but in severing the growth from the liver structures a sudden and alarming hemorrhage set in which could only be controlled by suture of the liver tissue. The peritoneal tissue was unavoidably soiled with the cystic fluid. Hundreds of echinococcus bladders were evacuated. The patient stood the operation poorly and required an immediate intravenous injection of saline solution. A tank of oxygen was used, the gas bubbling through a 50 per cent. alcohol solution instead of through clear water. It was of great interest to see how this succeeded. It was used for three days and the patient finally made a complete recovery. The report of the pathologist showed that the tumor was an echinococcus cyst of the liver, irregular in size, with a ragged surface and was hemorrhagic. It held almost a quart of fluid. The wall was composed of dense hyaline membrane of several lamellæ. Several daughter cysts containing gelatinous white bladders like opaque daughter cysts with elastic walls were present. Microscopically the contents showed the characteristic scolices with rosettes of hooklets, cholesterine crystals, and droplets. The microscopical examination of a section showed the lobules of hepatic tissue surrounded with dilated bile ducts, the whole being infiltrated with pus cells and hemorrhage.

A Case of Multiple Neoplasm.—Dr. Porter Flewellen Chambers made this report which was read by Dr. Grad. The patient, a woman 42 years of age, was admitted to the Woman's Hospital on January 18, 1909. She had been married twenty years, had no children, but an indefinite history of a miscarriage. During the few

months previous to her admission to the hospital she had noticed that her left breast was sensitive and that a small mass was palpable, but there was no enlargement of the glands, no retraction of the nipple, and no shooting pains. On January 19, 1909, this mass was removed as well as the surrounding healthy breast tissue. From the frozen section the pathologist reported a condition of chronic mastitis. During the summer the patient again noticed a sensitiveness of the breast that had been operated upon and the pathologist disclosed the fact that a more careful examination of the specimen had pointed to a suspicion of malignancy. On November 30, 1909, a Halstead operation was performed on the left breast. On December 10 the patient developed a severe pain in the left side of the abdomen which lasted for four days. An examination disclosed a fibroid of the uterus and adnexal disease. The breast contained a few hard nodules which were scattered throughout the gland, but the muscles were apparently not involved. The axillary nodes were slightly enlarged and hardened. Carcinoma of the axillary glands was diagnosed. The patient was admitted to the hospital three weeks later, complaining of pain along the left border of the tongue and a puffiness of the supraclavicular region. She was referred to Roosevelt Hospital in order to receive Hodenpyle's injection intravenously, which greatly aggravated her nervous condition. She was readmitted to the hospital for the fourth time on July 25, 1910. On the following day an operation was done for the uterine fibroid; a urethral caruncle was removed, and also a salpingo-oophrectomy and an appendectomy were done. The pathologist's report on the uterine condition showed mural and subserous fibroids. A diagnosis of fibroid myomata, one fibroid degenerating, and chronic appendicitis, was made. A year and a half after this operation the patient was again operated upon for a tumorous mass in the right breast; the breast was removed and all suspicious masses enucleated. The pathologist's report on this specimen showed a mixed cell sarcoma, intraclavicular node, and scirrhous carcinoma of the breast. The patient was discharged from the hospital on December 23, 1912, and readmitted January 15, 1913. She had a tumorous mass of the top of her left shoulder and a similar mass in the abdominal wall; both masses were removed under local anesthesia. The pathologist reported that the specimen was a mass of dense, mostly parallel spindle-shaped elements, replacing the primary tissue completely. There were several lumina of blood vessels in the tissue, but no certain relationship with them could be ascertained. A diagnosis of spindle-celled sarcoma of metastatic origin was made. Her attending physician reported that general sarcomatosis of the skin supervened and she died on February 22, 1913.

Profuse Intraabdominal Hemorrhage without Evident Explanation.—Dr. LeRoy Broun reported this case. The patient, a woman, 45 years of age, had menstruated with a fair degree of regularity, the length of time being from five to six days. When a child she had had profound anemia and had flowed for only a day at a time and then suffered occasionally with great pain. The anemia persisted for fully fifteen years, during which time she could not go upstairs without suffering from cardiac attacks. When the patient was first seen in January 3, 1913, she was in a state of extreme collapse with every evidence of internal hemorrhage. There was a marked abdominal distention, especially below the umbilicus. There seemed to be a vague feeling as of a solid tumor on the right side, but it was not distinct on account of the fluid contents of the abdomen. Vaginal examination showed nothing; the hymen was unruptured. The history was that during menstruation she was suddenly seized with violent colic, which was so severe that she at once sent for her physician, who prescribed a uterine anodyne and stated that he would return. This he did in an hour and found that she had rapidly changed for the worse, and gave symptoms of profuse hemorrhage and severe shock. Dr. Broun saw the patient at this time and she was sent to the Woman's Hospital for immediate operation. On arriving at the hospital her condition seemed to improve and operation was delayed. Her condition steadily improved. One week after multiple fibroids of the uterus largely within the pelvis could be mapped out. The distended condition of the lower part of the abdomen had disappeared. The pulse had become full and normal. On January 9 an abdominal section was performed. Fully a pint and a half of thick blood was found in the abdomen; the amount primarily present was evidently much larger, the watery elements having been absorbed. The blood was present over the entire abdominal contents and was not in any way encystic; it was found in every space and up over the diaphragm. The blood was carefully removed and a search made for the original focus. At the posterior wall of the multiple fibroids of the uterus was an ecchymotic condition of the peritoneal covering of the uterus extending over an area of some two inches in scale. A supravaginal hysterectomy was done. The tubes and ovaries were left, there being no positive evidence of any hemorrhagic focus existing in the pelvis. An incision was made and the entire intestinal tract was submitted to examination with negative findings in every respect except in the mesentery of the appendix. In the location of the appendix was some exudative lymph. On manipulating the mesentery of the appendix a minute opening was found in the vein which passed through the mesentery to the appendix. The patient made an uninterrupted recovery, with the exception of some plastic peritonitis as a result of handling the intestines. This case was reported without any attempt at explanation, since any other than a theoretical one could not be offered. There was, however, an absolute absence of any indication of the hemorrhage having originated from a ruptured corpus luteum. The examination of the urine was negative. The blood pressure was 150.

Carcinoma of the Uterus with Parametric Tissue.—Dr. LeRoy Broun made this report. He said that he presented the specimen on account of its interest and because of the possibility of bringing out a discussion on the present manner of removing as much of the parametric tissue as possible. The patient was 49 years of age, and had had seven children, all with normal labors She presented herself on January 20 with a history of pelvic pain covering a period of four years. She had been having irregular uterine bleeding and her last period was on January 4. Examination showed a bad laceration of the posterior vaginal wall, and bleeding from the uterus was present. Preliminary curettage at the time of the operation gave what was evidently a malignant disease of the uterus situated above the internal os. The radical abdominal operation was performed. The patient's recovery was uninterrupted with the exception of the inability to voluntarily pass her urine for a period of at least three weeks. The pathologist's report showed that the cervical canal, far above the internal orifice, was taken up by friable foreign tissue, which excavated and infiltrated to some extent the cervical. The uterine musculature was hypertrophic and edematous. A vaginal cuff and a large piece of the parametrium were attached to the uterus. The growth had replaced the vaginal portions. There were signs of cauterization on the line of the vagina. The appendages did not show any particular changes. Sections showed strands and solid lobules of a carcinoma composed of regular cells of epithelial origin. Dr. Broun said that the parametric tissue could best be removed by exercising strong downward traction on the uterus, the ureters having been completely isolated. If the Bumm technique was completely followed out the chances of getting out a large amount of parametric tissue was materially added to after the vaginal tube had been cut across. If the Wertheim technique was followed a strong upward traction and the use of the parametric clamp greatly facilitated the removal of the tissue.

Carcinoma of the Appendix.—Dr. Emil Schwartz exhibited a series of slides of appendix carcinoma which showed a few unusual features. The first specimen had been removed by Dr. Pinkham and showed in the gross specimen a thickened tip and a dilated proximal portion. Considerable mucus escaped from the lumen. The serial sections showed that the entire mucous membrane had been destroyed. No traces of Lieberkuehn glands, or crypts, and no lymph follicles could be found. Instead of the normal submucosa there was a dense sclerotic, scarry layer upon which a straight line of high columnar epithelium in a secreting stage was resting. The section further down showed a wavy, high columnar epithelial layer, the cells being arranged in several layers one above another. The tip was solid and contained the plexiform strands of polyhedral cells which were found usually in this form of carcinomatous appendix. The chematic drawing which followed the demonstration of the slides just described illustrated the resemblance of the cells filling the bottom of the Leiberkuehn crypt with those forming the carcinoma. Lubarsch, who first described the so-called small carcinomata of the jejunum, a condition analogous to this form of carcinoma, also showed a similar drawing in order to prove the origin of the carcinoma cells from the Lieberkuehn glands.

Adenomas.—Dr. Schwartz said that this series of slides were remarkable on account of the proliferation of the cervical glands into the uterine musculature as far outward as the serosa peritonei. The musculature in the gross specimen measured about four centimeters in width.

The diffuse hypertrophy of the muscular wall, which resembled an actual tumor, distinguished the adenoma from the adenomyometritis section of Robert Meyer. In spite of this excessive glandular growth and the likeness to the adenoma, these diffuse adenomyomata had to be called benign. This condition was regarded by Recklinghausen as a tumor of the Wolfian body, like other pathological findings in the tube and tumors in the hilus of the ovary. At the present time most of the authors derived these glandular structures from the uterine mucosus glands, and the fact that the cervical glands presented different pictures from those adenomyomata in the region of the corpus uteri, spoke in favor of the latter opinion.

Kruchenberg Tumor.—Dr. Schwartz said that the slide of this tumor was not very satisfactory. The gross specimen presented generally enlarged ovary on one side and an oval ovarian tumor about the size of a cocoanut on the other side. The larger tumor contained a cystic cavity, the contents of which could not be ascertained, since the specimen had been in formalin for years. The sections showed an excessive hypertrophy of the stroma and between the dense strands were numerous large cells, partly single and partly in small plexuses, sometimes arranged like a tubular gland. In certain parts of the tumor were found remnants of ovarian structures. The specimen did not show clearly the characteristic signet ring cells which had been described by Kruchenberg and later by Marchand. Both authors called these secondary tumors, occurring always in both ovaries, fibrosarcoma mucocellulare carcinomatodes. This meant to say that the stroma, which were derived from the ovarian stroma had a sarcomatous character, while the epithelial structures were carcinomatous. The signet ring cells were probably stroma cells, with mucoid degeneration of the cell protoplasm. Their case did not show the clinical signs of carcinoma elsewhere in the body. Professor Schlottlander of Vienna had looked over the slides and had helped them in establishing the diagnosis of this comparatively rare condition.

The "Muscle Operation" for the Repair of Pelvic Floor Lacerations.—Dr. Austin Flint, Jr., said that the fact that so many operations were done for the repair of pelvic floor injuries was proof that the ideal operation had not yet been devised. The object of his paper was to bring before his hearers his present method of operating and to invite discussion and criticism to the end that faults might be discovered and improvements made. In the first place it was necessary to distinguish between operations done for simple lacerations and those done for prolapse, including rectocele and cystocele. It was also important to bear in mind that the vaginal outlet might be closed by this method more tightly than normal and to distinguish between operations done on women who might again become pregnant and those past the menopause. The operation he described was the result of what he took to be the best points in the technique of the various well-known operations. Up to four or five years ago Dr. Flint said that he had used the method of Dr. Studdiford of inserting a buried catgut suture in circular fashion, grasping the muscles on either side and bringing them together in the median line. He now believed that this procedure was faulty, in that the edges of the muscles were not dissected out or as expressed by Sturmdorf, mobilized. Dr. Sturmdorf had beautifully elucidated the principle of deflected pressure by levator interposition, exactly on the same principle that governed the radical cure of ordinary hernia. This principle was carried out in his operation, but the technique was not the same as that used by Dr. Sturmdorf. It might best be described as the Emmet operation, to which was added dissection and mobilization of the levator muscles, their coaptation in the median line by buried sutures and the additional coaptation of the perineal fascia and skin by buried external sutures. This was really a repair in layers. The first step was to outline a triangle by placing a double tenaculum on either side of the reflexed outlet as high as it was desirable to form the new perineum. The apex of the triangle was marked by a double hook or suture placed in the posterior vaginal wall exactly as was done by Emmet. The base of the triangle was then denuded by scissors directly across from the hook on one side to the one on the opposite side. This might be done, if desired, with a knife. The mucous membrane was then grasped by two pairs of forceps at the lower extremities of the sulci bounding the rectocele laterally. Special forceps for this purpose had been designed by Dr. William Ford, his associate, as it was found that the Tait forceps were apt to tear through. Having palpated the edges of the levator muscle, a curved blunt pointed scissors was passed, hugging the vaginal mucous membrane so that it could easily be pushed up in the form of a flap as high as the apex of the triangle and as high on the sides as the points previously marked. With a double hook the muscle itself was then grasped and with the gauze covered finger bluntly dissected anteriorly and posteriorly. At this point it was necessary to use care and gentleness, as the muscle was easily torn and was sometimes imbedded in scar tissue. It should be freed so that it could be brought to the median line without tension. The second step was to suture the muscles together. Kangaroo tendon was best for this purpose, using three sutures in an ordinary case and going anteriorly just far enough to bring the posterior vaginal wall in contact with the anterior. In women past the child-bearing period, especially in cases of cystocele or of procidentia, the muscles were brought together well in front, using four or five sutures if necessary. In young women who might become pregnant care must be used not to bring the muscles too far forward. The sutures were tied just firmly enough to bring the muscles together without tension and the finger in the vagina tested the size of the opening. The third step was to repair the mucous membrane. The triangular flap was trimmed with scissors and the tongue of mucous membrane in the center was drawn down to the outlet. Each sulcus was sewn over a continuous chromic catgut suture exactly as in the Emmet operation. This left only a small external wound, which was brought together so as to include the fascia below the levator muscles. The first suture was of silkworm gut and was passed like the crown suture of Emmet. The remaining sutures might be silkworm gut or chromic gut and might or might not include the already sutured muscles. It took about twenty minutes to perform the entire operation, depending upon the amount of scar tissue binding down the muscles. In cases of complete tears the essential steps were the same, though in his last four cases of complete tears he had made a rectal flap or apron of mucous membrane, dissecting it from above downward as recommended by Ristine, but carrying the original incision outward on the skin to a point just outside of the depression marking the ends of the torn sphincter ani muscle. When this flap was turned down it fell into the rectum and completely protected the sutures from contamination. The retracted ends of the sphincter muscle were picked up with hooks, pulled forward and brought together by buried sutures. The free borders of the levator might then be found, mobilized and sutured as in a simple tear. This technique seemed to be rational and surgical in its principles and gave ideal results, both immediate and remote.

Dr. Arnold Sturmdorf said that as a promoter of direct levator myorrhaphy in perineal repair, he could but express his gratification and appreciation of Dr. Flint's graphic corroboration of his former contention. He said that he must, however, maintain that the removal of the vaginal flap was unnecessary and even undesirable, inasmuch as the mucosa was merely relaxed, not superabundant and its removal converted the normally rugous vaginal channel into an abnormally smooth walled canal. The correct management of the elevated vaginal flap, adapting it correctly over the adjacent denuded surfaces according to the technique described in his publications, removed all appearance of superabundant tissue. He would also object to the use of scissors in mobilizing the levator bundles; the finger more readily isolated the normal lines of cleavage between the muscle and its surroundings, thus avoiding mutilation and injury to the branches of the internal pudic artery and in certain cases to the hemorrhoidal sinuses. These, however, were only questions of individual practice, the recognition of the levator function and its restoration being the main consideration.

The Value of More Accurate Diagnosis in Gynecology.—Dr. Edward W. Pinkham read this paper. He said that he had been making an inquiry into the relation of the diagnosis to the results in his cases for a period of five years. During that time he had been surprised to find how often he had corrected an anatomical deformity or removed a certain lesion without eliminating the symptom for which the patient sought relief. He had endeavored to find the reason for his failures. His first discovery was that histories and clinical data were not only too meager but entirely too general in character. This he thought was a common fault. It was one that could easily be corrected. As a result of his reflections on this subject he had made it a habit, after recording the patient's own version of her symptoms, to take each symptom in order and to elaborate it to the fullest extent. Since he had begun this practice his diagnosis had been more nearly correct than formerly and his operative results had proven the wisdom of his course. He believed that the crying

need of both hospital and private work was a more systematic and searching personal history, together with more general clinical data. By the latter he meant that as a matter of routine all the important organs, heart, lungs, stomach, intestines, etc., should be examined as well as the blood and urine. A test for indican was important and the thyroid and ductless glands should not be overlooked. A second discovery that he had made was that his conception of the cause of pain, the symptom most generally complained of, and for which relief was sought, was rather vague and without any clear pathological basis. The textbook teaching regarding the etiology of pain was very indefinite and writers made vague and unsatisfactory statements. He ventured the opinion that pain was usually caused by overdistention of an organ or structure, it might be by blood, serum, pus, or other substance. The chronic pain was due to a chronic infiltration or overdistention. Irritation and motion increased pain and increased the distention. This theory had enabled him to distinguish between the pain of an acute hyperemia of the ovary and that of a salpingitis or a varicosity and passive congestion of the pelvic plexuses and veins from chronic ovaritis. This had taught him that when pain was referred to a certain locality, that almost invariably the offending lesion was situated at that locality or in the immediate vicinity, thus excluding to a large extent the idea of reflex pain. The third discovery that the author had made in his examination of the records was that he had fallen into the habit, which he thought was more common among general practitioners than among specialists, of associating the pelvic organs with almost any symptom for which a woman sought relief. Dr. Pinkham said that since he had been applying these principles he was positive that fewer of his patients had wandered into the hands of other surgeons seeking the relief which he had failed to give.

A Comparative Study of Two Advanced Cases of Cancer of the Cervix Uteri.—Dr. Dougal Bissell read this paper. He said that he had reported these two cases because of the widespread demand, when this stage of the disease was encountered, for the removal of the uterus, its adnexa, and adjacent tissues. These cases were reported with the feeling that records of concrete cases were of value in determining not only the most satisfactory basis for generalization, but were helpful in determining the question of operability or inoperability in a given case. The first case was that of a woman 46 years of age, having a vaginal discharge, bloody, offensive, and somewhat irritating and an extensive erosion of the cervix and vaginal mucous membrane. There was a thickening of the parametric tissues with consequent fixation of the cervix. The diagnosis of cancer of the cervix was made and an operation performed. The patient recovered and remained in good health for eight months. Examination showed the vagina only one and one-half inch in depth with hard and thickened walls. The patient soon began to fall rapidly. Vomiting and anorexia were so persistent that it was decided to give relief by doing a gastroenterostomy, though it was appreciated that death was inevitable. She survived this operation only a few days. The post mortem showed pyonephrosis, hydronephrosis, carcinoma of the cervix uteri, and metastases in the diaphragm and mesenteric nodes. There was an atrophic left kidney with compensatory hypertrophy of the right kidney and multiple abscesses and fatty degeneration of the liver. The second patient was 47 years of age and menstruation had been normal until three months previous, since which time she had had a slight bloody discharge, not offensive. She had pain in the lower abdominal region and back, radiating down the hips, loss of weight, and marked anemia. There was a trace of albumin in the urine, but no casts. There was a growth from the right side of the cervix extending into the parametric tissue. The fundus was movable. A circular incision was made about the vaginal portion of the cervix and at a considerable distance from it. The vaginal mucous membrane was dissected from its adjacent tissue and an inch or more removed. The growth on the right side was so extensive that it was necessary to open the abdomen in order to intelligently complete the operation. The bladder was found firmly adherent to the anterior surface of the cervix, and a large portion of it had to be removed. The bladder wound opened completely on removing the gauze and the bladder and vagina formed a continuous tract so that the mouth of each ureter could be distinctly seen in the lateral angles. Repair was attempted after seven weeks. The pathologist reported that the specimen removed at the first operation was "squamous celled carcinoma of the cervix." The growth was very extensive, and quite typical. The pathologist further stated that the growth was one of the largest cervical cancers that he had ever seen successfully removed. The patient was discharged from the hospital on June 6, 1912, and died August 5 of the same year. The first case was one typical of a class possessing unquestionable evidence of advanced malignant lesion, yet a class to which radical operation was not infrequently applied. In the light of knowledge gained from personal experience it seemed to him beyond the hope of surgical cure. So with the idea of choking the rapidity of the growth and ameliorating some of the local symptoms, the cautery and caustics were applied. Out of the eleven months that she lived eight of them were spent in comparative comfort. He was of the opinion that radical operation would only have exposed the patient to greater risk of immediate death and would have offered no hope of ultimate recovery. A more radical operation could hardly have been performed than was done in the second case. Retrospectively it semed to him that the surgical result in this unpromising case was better than he had reason to hope, yet the disease was not checked. In fact, the operation only jeopardized the patient's life and offered grave chances of added complications, equally, if not more distressing, than were the original symptoms. In the early stages of cancer all surgeons were in accord in regarding the advisability of one of the several radical procedures now in vogue, but the combined experience of the surgical world had not yet determined the line of demarcation between operable and inoperable cases. In the experience of the writer when malignancy had practically destroyed the cervix and had involved the vaginal mucosa or adjacent tissues, metastases, with few exceptions, had begun to form and the disease was beyond the reach of the knife.

Malted Food in Treatment of Enteritis.—Solon Veras begins the treatment of a case of enteritis with a water diet, sometimes continuing with vegetable broth, and then very rapidly reached the malt soup stage. But instead of at once resorting to malt soup prepared with milk, he starts with malt soup prepared with pure water, employing 900 grams to a liter of water, instead of 600 grams of water and 300 grams of milk. The following day he gives malt soup prepared with milk, alternating each meal with malt soup without milk. Tolerance to milk becomes established and never offers any difficulty.—*British Journal of Diseases of Children.*

Ankle-Clonus Without Gross Disease of the Nervous System.—Wilder Tileston concludes that ankle-clonus indistinguishable from the genuine may be found more or less frequently in a variety of conditions, without accompanying organic nervous disease. These conditions are: (*a*) Acute infectious diseases, especially typhoid; (*b*) chronic infections associated with marked toxemia, especially tuberculosis of the lungs in the third stage; (*c*) uremia shortly before and during the acute uremic seizure; (*d*) epilepsy immediately after the convulsion; (*e*) intoxication from certain drugs, *e.g.* hyoscine, ether, and chloroform; (*f*) excessive fatigue; (*g*) exceptional cases of certain neuroses, viz., neurasthenia, hysteria, paralysis agitans; (*h*) psychoses in the stage of excitement; (*i*) chronic articular rheumatism. With the exception of joint disease, a toxic action on the nervous system may be assumed in all these states as the underlying factor in the production of clonus. This is obvious in the case of the infectious diseases and drug intoxications; in uremia, epilepsy, and undue fatigue the presence of toxic products of metabolism may be regarded as probable, though not yet demonstrated, and even in hysteria and neurasthenia the action of toxic products in severe cases cannot be excluded. In the case of articular rheumatism a constant spinal irritation from the inflamed joint tissues is the probable cause. In two autopsies on cases of phthisis, with clonus, no changes were found in the central nervous system. In the author's case, however, inflammatory exudate was demonstrated about the posterior median artery in the posterior septum of the bulb. Clonus due to toxic states usually may be distinguished from that of organic nervous disease by the absence of spasticity and of other signs pointing to organic disease, and particularly by the absence of the Babinski and Oppenheim toe signs. An exception to the above rule is encountered after the use of hyoscine in medicinal doses and immediately after the epileptic attack, in both of which instances the Babinski and Oppenheim signs may be positive. The occurrence of ankle-clonus is of prognostic value in uremia, preceding at times the acute seizure. Ankle-clonus usually disappears a few days before death, otherwise its disappearance usually indicates an improvement in the patient's condition.—*American Journal of the Medical Sciences.*

Books Received.

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MANUAL OF TROPICAL MEDICINE. By ALDO CASTELLANI, M.D., and ALBERT J. CHALMERS, M.D., F.R.C.S., D.P.H. Second edition. Cloth; price, $9 net; illustrated, 1,747 pages. William Wood & Company.

TEXT-BOOK OF ANATOMY AND PHYSIOLOGY FOR NURSES. By AMY E. POPE. Illustrated; cloth; price $1.75 net; 554 pages. G. P. Putnam's Sons, New York and London.

INDUSTRIAL POISONING. By Dr. J. RAMBOUSEK. Translated and Edited by THOMAS M. LEGGE, M.D., D.P.H. Illustrated; cloth; price $3.50 net; 300 pages. Longmans, Green & Company, New York.

GOUT, ITS ETIOLOGY, PATHOLOGY AND TREATMENT. By JAMES LINDSAY, M.D., M.R.C.P.; cloth; price $1.50; illustrated; 212 pages. Oxford University Press, London.

TUBERCULIN TREATMENT. By OLIVE RIVIERE, M.D., F.R.C.P., and EGBERT MORLAND, M.B. & B.Sc., M.D. Second Edition. Cloth; price $2.00; 247 pages. Oxford University Press, London.

A MANUAL OF VENEREAL DISEASES. By Various Authors. Second Edition. Revised and Largely Rewritten. Cloth; price $3.75; illustrated; 318 pages. Oxford University Press, London.

SKIN DISEASES IN GENERAL PRACTICE. By HALDIN DAVIS, M.B., B.Ch., B.A., F.R.C.S., M.R.C.P. Illustrated; cloth; price $3.75; 340 pages. Oxford University Press, London.

MANUAL OF OBSTETRICS. By JOHN OSBORN POLAK, M.Sc., M.D. Illustrated; leather; 468 pages. D. Appleton & Company, New York.

TWENTY-THIRD ANNUAL REPORT OF THE EYE, EAR, NOSE AND THROAT HOSPITAL OF NEW ORLEANS, LA., January 1, 1912, to December 31, 1912. Paper; 78 pages. Palfrey-Rodd-Pursell Co., Ltd., New Orleans.

JOHN BARLEYCORN. By JACK LONDON. Illustrated; cloth; 343 pages; price $1.30 net. The Century Company, New York.

OLD AGE. By ROBERT SAUNDBY, M.D.; cloth; price $2.10 net; 312 pages. Longmans, Green & Company, London.

MANUAL OF OPERATIVE SURGERY. By JOHN FAIRBAIRN BINNIE, A.M., C.M. Sixth Edition. Revised and enlarged; illustrated; cloth; price $7.00 net; 1251 pages. F. Blakiston's Son & Company, Philadelphia.

MECHANICAL TREATMENT OF ABDOMINAL HERNIA. By WILLIAM BURTON DEGARMO, M.D. Cloth; price $1.50; illustrated; 147 pages. J. B. Lippincott Company.

AGRICULTURAL BACTERIOLOGY. By F. LOHNIS, Ph.D. Illustrated; cloth; 136 pages. Charles Griffin & Company, Ltd., London; J. B. Lippincott Company, Philadelphia.

MARRIAGE AND GENETICS. By CHARLES A. L. REED, M.D., F.C.S. Cloth; price $1; 183 pages. The Galton Press, Cincinnati, Ohio.

BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG. By Prof. Dr. L. BRAUER. Volume 1, Part 3; paper; price 6 m.; illustrated. Curt Kabitzsch, Wurzburg.

PEDIATRICS. Edited by ISAAC A. ABT., M.D. Volume 5. The Practical Medicine Series. ORTHOPEDIC SURGERY. Edited by JOHN RIDLON, A.M., M.D., with the colaboration of CHARLES A. PARKER, M.D. Cloth; price $1.35; illustrated; 235 pages. The Year Book Publishers, Chicago.

PROCEEDINGS OF THE MENTAL HYGIENE CONFERENCE AND EXHIBIT, at the College of The City of New York, November 8-15, 1912. Paper; 224 pages. Published by the Committee on Mental Hygiene of the State Charities Aid Association, New York.

TRAITEMENT DE LA SYPHILIS. Par le Serum Organique du Dr. L. C. QUERY. Paper; price 2 f.; illustrated; 78 pages. Laboratoire de Serotherapie Specifique et de Microbiologie, Paris.

THERAPEUTIC CLINIQUE DES MALADIES DE L'ESTOMAC ET DES SYMPTOMES ASSOCIES. Paper; price 6 f.; 274 pages. Maloine, Editeur, Paris.

DIE UNTERSUCHUNG DER LUFTWEGE. By Dr. P. H. GERBER. Paper; illustrated; 45 pages; price 2 m. Curt Kabitzsch, Wurzburg.

PRACTICAL BACTERIOLOGY, BLOOD WORK AND ANIMAL PARASITOLOGY. By E. R. STITT, A.B., Ph.G., M.D. Third Edition. Revised and Enlarged; illustrated; cloth; price $1.50 net; 408 pages. P. Blakiston's Son & Company, Philadelphia.

Miscellany.

The "Senior Surgeon's" Troubles.—In "The White Linen Nurse," a story in which Eleanor Hallowell Abbott relates in witty vein how "Rae Malgregor undertook general heartwork for a family of two," the "Senior Surgeon" loses control of his automobile while on a trip into the country where he has been summoned to attend an urgent case. The nurse, who accompanies him, finally succeeds in extricating him from under the wreck of his car. These are a few of his reflections as, couched on the ground in a neighboring field, he watches the flames devour the remains of his high-priced automobile:

"The Senior Surgeon's nostrils were all puckered up with the stench of burning varnish. The Senior Surgeon's mind was full of the horrid thought that he'd forgotten to renew his automobile fire insurance, and that he had a sprained back, and that his rival colleague had told him he didn't know how to run an auto, anyway, and that the cook had given notice that morning, and that he had a sprained back, and that the moths had gnawed the knees out of his new dress-suit, and that the superintendent of nurses had had the audacity to send him a bunch of pink roses for his birthday, and that the boiler in the kitchen leaked, and that he had to go to Philadelphia the next day to read a paper on "Surgical Methods at the Battle of Waterloo," and he hadn't even begun the paper yet, and that he had a sprained back, and that the wall paper in his library hung in shreds and tatters, waiting for him to decide between a French fresco effect and an early English paneling, and that his little daughter was growing up in wanton ugliness under the care of coarse, indifferent hirelings, and that the laundry robbed him weekly of at least five socks, and that it would cost him fully seven thousand dollars to replace this car, and that he had a sprained back."

A Suggestion for the Doctor's Waiting Room.—The literature, which the busy physician provides for his waiting patients, reflects at once the physician's own taste and the character of his clientèle. A few high-class and recent magazines are far better than a host of cheap periodicals. The average layman is not slow to judge a physician by the character of reading matter which he provides for the patients. A further hint along this line may be of some service. The covers of magazines, after a day or two of use, are usually torn at the edges, badly crushed, and soiled. When the magazine is new, if the cover and the adjoining three or four advertising pages are pasted together, the result will be a firm and durable cover.

The Late Dr. Billings.—At the memorial meeting, held in honor of Dr. Billings, S. Weir Mitchell recalled how the latter, when asked about the number of degrees he had received started to count the LL.D.'s and B.C.L.'s, and then laughingly said: "Yes; that is my principal title to be considered a man of letters." Richard R. Bowker told of a visit paid by Billings to the private library of Oliver Wendell Holmes, who related how Dr. Billings made tracks for the most valuable books on the shelves. "Why, sir," said Holmes, "Dr. Billings is a bibliophile of such eminence that I regard him as a positive danger to the owner of a library if he is ever let loose in it alone."

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COLLICULITIS, OR DISEASE OF THE VERUMONTANUM.

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NEW YORK.

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In many of the text-books, not yet considered old, the verumontanum or colliculus is mentioned as a more or less vague and indefinite ridge or elevation on the floor of the posterior urethra; little or nothing is said about its physiology, except that it is thought to be the seat of sexual feeling, and about its histology and pathology, practically nothing. However, with the development and perfection of the posterior urethroscope, all of this has been changed. The pictures of the colliculus, both in the normal and pathological conditions, are indeed a revelation as showing the marked difference between the stereotyped text-book conception of an organ obtained on the dissecting table, and the organ itself as seen with the aid of artificial illumination and slight magnification. And it is a matter of further interest that some of the more recent text-books on genitourinary diseases still present that ancient picture of the colliculus, a picture that no one has ever seen through a urethroscope.

To describe the normal colliculus would be rather difficult, for there is no fixed type or form of the organ. As a matter of fact its appearance on examination depends in a great measure on the type of examining instrument used. Examine the colliculus with a simple straight or curved tube and compare the picture with that seen through one of the later types of instrument. The difference is very striking. With the simple tube the colliculus is seen (though sometimes it cannot be seen at all) as a small swelling, rather poorly illuminated and protruding into the posterior urethra like a small red pea (Fig. 1). A positive diagnosis based on such a picture is next to impossible. With the newer instruments,* however, the colliculus is seen as a distinct, well-lighted projection from the floor of the urethra into the urinary canal. Generally it

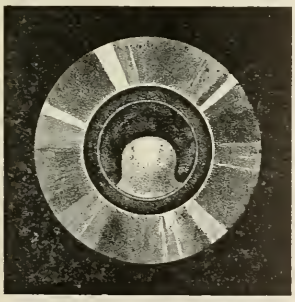

Fig. 1.—Colliculus seen with a simple straight or curved tube.

Fig. 2.—Dome-shaped colliculus, with utricle situated at the apex.

may be said to resemble an enlarged glans clitoris, or in some cases it resembles a small cherry or strawberry. Sometimes it assumes a domelike shape, with the opening of the utricle situated at the pointed or flattened summit (Fig. 2); often it resembles a cone, the walls rising and meeting sharply in a pointed peak (Fig. 3); occasionally the peak is flattened as if the apex were sawed off (Fig. 4); again it may assume a rounded bulbous shape, resembling a spherical door knob or an electric bulb (Fig. 5). Whatever its shape may be in the normal condition, the general outline remains pretty much the same in disease, except that the smooth walls may become turgid and roughened or replaced by corrugations, excrescences or cysts of distinctly inflammatory origin (Fig. 6).

As a rule the utricle is placed at the summit of the colliculus, flanked on either side by the ejaculatory ducts. There are exceptions to this rule, and they are found very often. The utricle may be seen on the anterior wall or even on the posterior wall, and the ejaculatory ducts may be observed near the summit or adjacent to the base. Not infrequently tortuous blood vessels may be seen, crossing the anterior wall from side to side, or mounting the anterior aspect, only to disappear in the mucous membrane of the urethral wall. The sloping of the walls of the colliculus attracts our attention by its variations. Generally the walls slope gradually and gracefully downward and laterally, forming a concave trough-like lateral sulcus, be-

*By far the best instrument for this purpose is the cystourethroscope, made by Wappler, of New York, and devised by Dr. Leo Buerger, while a member of the writer's staff, at the West Side German Dispensary and Hospital, N. Y.

yond which rises in an unbroken and continuous curve the lateral wall of the urethra (Fig. 5). On the other hand, the lateral sulcus may appear in the shape of a deep, narrow trench, created by the sharp junction of the apposing walls of the colliculus and the urethra. In these cases, we find the

Fig. 3.—Cone-shaped colliculus with utricle situated on the anterior aspect near the apex

prostatic ducts, from three to six or more in number, long and narrow, with the appearance of deep slits (Fig. 4). When these apparent slits are probed carefully it will be found that they look deeper than they really are; this is due, in all probability, to variations in the illumination and the development of shadows.

Though the organ is firmly fixed on its broad base, it is capable of considerable movement to and fro and from side to side. This is seen very beautifully when the irrigation fluid is turned on and off suddenly. With the water flowing at a brisk pace the colliculus will be seen to move perceptibly in response to the impulse of the stream and the lateral sulci become wider and more distinct as the fluid compels the outward bulging of the lateral urethral walls. And when the current is turned off suddenly it will rebound to its former position. In this manner, by turning the stream of water on and off suddenly and repeatedly, a much better view of the organ in its various aspects can be obtained than is otherwise possible.

We are not yet sufficiently acquainted with the colliculus and its pathology to state in detail all the ills to which it is subject. We may safely say, however, that the most common pathological condition of this organ with which we have to deal is the inflammatory process following or coincident with a gonococcus infection of the deep urethra and prostate. In the past, owing to our lack of facilities for the examination and study of the colliculus, we were justified in considering the prostate as the site of predilection for chronic gonococcus infection of the deep urethra. It would be manifestly improper, in view of our increased knowledge of the subject, to maintain this attitude today without considerable modification. Such a diagnosis cannot be made today without a careful examination of the colliculus by means of a posterior urethroscope of modern type. It must be a common experience, as it has been that of the writer, to find a distinct pathological lesion in the colliculus, while the treatment has been persistently and uselessly directed at the prostate or seminal vesicles, or both. The writer knows of a case in which the seminal vesicles were removed after the method of Fuller, with but little benefit. In this case two small cysts were found impinging on the anterior wall of the colliculus. When these were ruptured and their base cauterized with silver nitrate the relief was almost instantaneous. It is apparent that an examination of the deep urethra with the urethroscope would undoubtedly have spared the patient the ordeal of Fuller's heroic operation. In many of these cases dilatation of the posterior urethra, prostatic massage, irrigations and instillations have been given to the utmost limit of the patience of both the patient and the surgeon, all without the slightest benefit, and all due to the fact that the correct diagnosis was not made.

Consequently it becomes our duty as a matter of routine to examine the colliculus in every case of chronic urethritis, particularly those cases in which the usual treatment of the prostate and seminal vesicles has not relieved the patient. If this policy is adopted we will be surprised at the large number of cases with faulty diagnosis which will be revealed. I do not now recall anything more striking in this connection than the following case:

J. L.—Complained of a continuous sense of burning and heat in the perineum and radiating occasionally to the meatus. His physician had dilated his deep urethra up, to 45 French; he had used all the old and many of the new methods of treatment and finally decided that he was dealing with a case of sexual neurasthenia and that there was nothing further to be done with him. When I saw him the man was greatly worried about his condition, and he almost believed the physician who declared that he was a neurasthenic and that nothing would ever relieve him. On examination (March, 1910), I found a red, turgid colliculus, much larger than normal, and bleeding easily when touched with the instrument or cotton carrier. On its right wall was a large cyst, by far the largest I have ever seen (Fig. 7). It was fully one and a half inches in length and one-quarter inch in diameter, shaped like a sausage and twisted on itself like a bow-knot. On the left posterior wall, near the base, was a much smaller cyst, about the size of a bean. The cysts were first punctured giving forth a serum-like fluid, and as much as possible of their thin walls was removed through the fenestra of the urethroscope. After a number of local applications of silver nitrate (10 per cent.), the patient was relieved of his symptoms, which had lasted fully eight years.

It is evident that the colliculus must suffer involvement in practically every case of posterior gonococcal urethritis; this is particularly important to remember in connection with the frequency of involvement of the ejaculatory ducts and pros-

Fig. 4.—Colliculus with flat top utricle situated on the anterior aspect. Note ejaculatory ducts in the lateral sulcus

tatic sinuses. Hence we must not be surprised to find inflammatory conditions of the colliculus in cases of premature ejaculation, sexual impotence, sterility, and the male neuroses. Whether the inflammation of the colliculus is the cause of the disturbances in the sexual system, or merely the effect

of the genital disturbance, is still an interesting mooted question. Quite likely the colliculus is a far greater factor in the physiology of the sexual function than we are prone to believe, and it is not difficult to see that a gonococcus infection involving this organ must have an appreciable effect on

Fig. 5.—Doorknob, or bulb-shaped colliculus. Compare with Fig. 1. Note the slight magnification and greater illumination obtained with the cystourethroscope.

the entire genital economy. It is, therefore, imperative to suspect the presence of disease of the colliculus in every case of sexual disturbance, particularly when it has been preceded by a gonococcus inflammation or a history of excessive sexual abuse. A careful urethroscopic examination of the posterior urethra and the colliculus is, therefore, demanded in every case presenting sexual disturbances.

The urinary function is also involved to a greater or less degree when the colliculus is subject to inflammation. I have seen an instance of terminal hematuria with painful micturition, which lasted several months, and resisted every method of treatment, until the colliculus was examined and treatment directed to that organ. In this particular case there was a decidedly granular area on the anterior aspect of the colliculus just below the summit, which bled profusely when touched ever so slightly. However, under repeated local applications of adrenalin and silver nitrate through the posterior urethroscope, the bleeding and pain stopped and have not returned.

It is well to remember, even though this be a

Fig. 6.—Colliculus almost covered with small cysts. Utricle situated at the apex.

repetition, that the colliculus may be the seat of the inflammatory process, and the prostate as a whole may appear to be entirely normal; nevertheless, such a congested and inflamed colliculus may be responsible for a series of symptoms which cannot be differentiated from those associated with typical prostatitis, except by means of the urethroscope. As has already been intimated, inflammation of the colliculus is not always of gonococcus origin necessarily, any more than such is the case with chronic prostatitis; any continuous and persistent irritation involving the sexual function may be responsible for the development of the inflammatory process. Among these the principal causes are bad sexual habits, coitus interruptus or withdrawal, frequent and excessive masturbation, and persistent excitement without gratification. Fortunately, colliculitis due to any of these causes responds quite readily to local treatment applied through the urethroscope.

Defecation spermatorrhea, a very common complaint, is usually ascribed to the existence of a chronic inflammation of the prostate. In a case which I had the opportunity to study, I found no evidence of prostatitis, but the colliculus was enlarged, turgid and congested; the spermatorrhea made a rapid disappearance after a course of treatment of the colliculus without any treatment of the prostate.

Treatment of the colliculus consists almost entirely in the application of silver nitrate to the organ through the posterior urethroscope. I pre-

Fig. 7.—Unusually large cyst projecting from the anterior wall of the colliculus. A small cyst is seen on the posterior wall.

fer a 10 per cent. solution, applied with a cotton carrier; a 20 per cent. solution is often recommended, and I have known instances in which the pure silver stick has been employed. I believe there is no advantage to be obtained in the use of solutions of such great strengths, and that the reaction is sometimes too great to be of any service to the patient.

Similarly with tincture of iodine; while it may be effective in weak solution, it is altogether too irritant in full strength, and the reaction which follows such an application is often so great that patients justly refuse a second treatment. Bleeding, urinary strangury, and tenesmus, and even complete retention of urine have followed these strong applications of silver and iodine. The galvanocautery may be used with benefit, and the Oudin high-frequency current likewise. The latter is particularly indicated in the presence of cystic and papillomatous growths, and also for the "fulguration" of dilated ducts and glands. Applications should be made at rather infrequent intervals, as we must allow for the passing off of the reaction which always follows. An interval of from four to seven days appears to me the most satisfactory and beneficial.

113 East Nineteenth Street.

VENEREAL PROPHYLAXIS—PAST AND PRESENT*

By SURGEON ROBT. A. BACHMAN, U. S. N.,

U. S. S. "DELAWARE."

Syphilis probably existed in Europe before the discovery of America but it is quite probable also that the disease was not so prevalent and that the coincidence of its increased dissemination with the voyage of Columbus gave rise to the frequently accepted idea as to its American origin. In 1495 A. D. an epidemic of syphilis occurred in the French army which was fighting against the Kingdom of Naples and the disease spread all over Europe. Gonorrhea was up to the time that Ricord made the distinction, frequently considered the same and confused with syphilis. In fact, not until Neisser's discovery in 1879 was the line scientifically drawn. The same is true of chancroid, which was included in Ricord's classification made in the middle of the last century. Ducrey's discovery of the bacillus bearing his name helped further in the elucidation.

It will be seen from this that efforts to combat venereal diseases in the early ages were not in reality employed against any one disease but rather against venereal infection in general, against what was then thought to be syphilis. Thus the celebrated Venetian physician, Nikolaus Massa, in his book "De Morbo Gallico," recommended postcoital washings with white wine or vinegar in 1532. Frakoster indicated the use of lemon juice. Petronius used a mixture of wine of camphor and urine in 1564.

Rauchin sprung an innovation by advocating the application of plasters melted by warming, before intercourse. Professor Ettmueller of Leipzig, in 1690, mixed white wine and turpentine in the hopes that it would do some good. It would hardly be a popular mixture today. Palmarius believed in the efficiency of guaiac and wine. The general trend of opinion seems to have inclined towards wine and acids, foreshadowing the antiseptic value of alcohol which is still reflected in the widespread use of whiskey at the present time.

In 1733, Desault anticipated the rest of the world some 170 years by declaring that syphilis was caused by small invisible worms which were "deleteriously influenced" by the ingestion of mercury. He reasoned therefore that mercury applied locally in the shape of salves had a preventative action. Mahon in 1770 tried to introduce washings with alum. Warren in England spoke for astringents before coitus and alkaline injections afterwards, a procedure that received Hunter's recommendation. But Hunter also advised the use of warm solutions of bichloride of mercury in water. Malpert, too, believed in these solutions.

A secret prophylactic was brought out by Luna Calderon in 1812. He carried his secret to the grave and has an important place in the history of prophylaxis only because he was the first one to recognize the value of direct evidence in dealing with the subject. To this end he experimented on himself, making an inoculation which seemed to have proven his claim. The unprotected control developed a soft chancre whereas Calderon thought he was dealing with lues. This does not change the value of his experiment particularly as far as its lesson in the substantiation of claims goes.

*Read by invitation before the annual meeting of the Rhode Island State Medical Society, June 5, 1913.

Langlebert too, in 1851 made an experiment with potassium soap and oil of citron in which he inoculated a man and left a control unprotected. The result was a success but the development of a sore the day following, at the site of the control, makes it likely that the infection again was chancroidal.

In the era of antiseptics the list of substances used, and the men recommending them, is too great to permit of their classification. On the whole the choice is largely in favor of mercury bichloride and the other mercury salts. Finally at the end of the century the precursors of our modern methods begin to appear. It is very interesting to watch this gradual development, like a blindfolded child getting closer to the hidden object it seeks. Behrman advocates gray salve, Feibes the salicylate of mercury in mucoid solution, Grosse made up a combination of mercury oxycyanide and gelatin and glycerin, all these combinations being devised against syphilis.

Then further improvement began to be manifested. Richter produced his "salve candles" composed of gray ointment reinforced by ¼ of 1 per cent. resorcin. This comes pretty close in principle to the latest formulas in use now. Against gonorrhea especially, Uhl and Schulze favored a 1 per cent. formalin in wax salve, and Zemmer changed the ordinary methods entirely by making vaginal suppositories of small percentages of chinosol, urotropin, and benzoic acid in a saponaceous base, these to be used before coitus. It might be well to mention here too that Neisser advised the use of simple fatty inunctions before intercourse as a preventative.

All these efforts to reduce the occurrence of venereal diseases were attended by a considerable lack of statistical data and experimental support. Suddenly the entire aspect of the question changed when Metchnikoff announced his discovery that syphilis was communicable to apes and later that this infection could be prevented if a 33 1-3 per cent. salve were rubbed into the site of inoculation. His experiments not only included calomel but other mercury preparations such as the salicylate and ammoniate, but the results obtained with calomel proved the most satisfactory. Following this came his well known experiment upon the then medical student, Maisonneuve, which led the latter to say later, "it is indisputable that the employment of calomel salve by the individual will prevent the occurrence of syphilis." Contrary to the general belief in this country this announcement was not accepted in Europe without challenge. Neisser at first objected on purely theoretical grounds and later before the Congress of Dermatology at Berne he described some failures he had had in producing immunity in monkeys. Metchnikoff objected to this on the grounds that a 10 per cent. salve had been used, whereas he had recommended 33 1-3 per cent. This objection seems entirely valid and I have suggested in the *Journal of the American Medical Association* that this might easily account in part for the failures that have occurred in this country.

Gaucher, the eminent syphilologist of the St. Louis Hospital in Paris, stated his disbelief and reported two cases from his observation where infection followed in spite of the calomel salve used as per instructions. But Gaucher is a medical agnostic and does not believe in many things that are considered as of value by other authorities which is shown for example in his attitude towards sal-

varsan which he never administers. The question of determining a failure for a prophylaxis is hard indeed because so many things have to be considered, and I believe too that the most enthusiastic believers in venereal prophylaxis will not deny the possibility of an occasional failure. For instance, it is quite conceivable that a man after a prolonged coitus during which he has chafed himself sore to a considerable extent and absorption has taken place, should become infected, especially if the subsequent prophylactic inunction was delayed or not thoroughly carried out. Consistent laboratory efficiency is a proof, exactly observed, that can not be thrown aside for an occasional practical failure where the conditions are not subjected to the same scientific scrutiny.

Siebert made an exhaustive study of all chemicals that might have an antiluetic action. His work represents the latest information. He not only repeated the experiments of Metchnikoff but tried various modifications of the same. His first series were made with a virus attenuated by mixing it and the chemical to be tested. Potassium iodide and solutions of corrosive sublimate in greater than 1-10,000 strength proved of no value. Atoxyl, calomel and stronger solutions of mercury bichloride were effective. When the virus, which consisted of a paste made from the bone marrow, spleen, and liver of luetic apes, was left unattenuated and the test substance was applied to the vaccination, the results were slightly different. Two out of three attempts with corrosive sublimate 1-1000 failed after an hour's interval, four attempts with 10 per cent. calomel failed also. Four with 1-500 corrosive sublimate, two with 33 1-3 per cent calomel, three with 5 per cent. silver nitrate, and two, where the application was delayed 24 hours, using 1-500 corrosive sublimate in 20 per cent. glycerin, were all successful. The vaccinations were all done above the eyebrows of apes. Siebert also made further experiments using a combination which he considers better than calomel salve—a combination of starch, tragacanth and gelatin and corrosive sublimate in the strength of 1-500. This ointment applied no longer than fifteen minutes after, yielded one failure out of eleven inoculations. After Siebert, Schereschewsky reported seven inoculations which were treated with chinin salve and gave negative results. Controls left untreated on the opposite eyebrow developed primary lesions.

Siebert concludes that calomel salve is valuable but that the antiseptic power of calomel is reduced by being placed in a fatty base. He cites Koch to the effect that fats destroy the potency of carbolic acid and that his own experiments show this to be the case with calomel. His results with the starch-tragacanth-gelatin paste are not very convincing, especially in the light of Metchnikoff's later experiments where thirty inoculations gave thirty successful preventions.

In the United States the stimulus received from the work abroad was felt primarily, as would naturally be expected, in the branches of our military force. Individual efforts to protect enlisted men from the damages produced by venereal infection were begun about 1906. In the Army, Raymond was among the first to introduce a system of prophylaxis. He made up a package containing an eye dropper and argyrol solution which was intended to combat gonorrhea; later he added calomel ointment. The scheme was too complicated to be successful from a practical point of view. In the Navy the double method was adopted from the first. This method depended upon giving the admittedly exposed man upon his return to the ship the next morning, antigonococcic injections followed by inunctions of calomel ointment. This procedure was also carried out in the Army shortly after. Modified slightly with educational features added, it was officially adopted in the Navy in 1908 and in the Army in 1909.

A period of activity followed. Reports began to appear. Results mostly favorable, saw the light of print. Physicians in civil life began to take notice receiving the impression that the work in our two services had solved the problem. Then changes in formulas began to crop out, some dissatisfaction became manifested, the figures of the annual statistical reports of the Surgeons-General were compared and no diminution in the yearly admission rates could be seen. The explanation was that the increased interest in the subject had resulted in closer inspection of the men which in turn had resulted in a greater number of cases being brought to light that formerly had gone unreported. This was undoubtedly true and answered adverse criticism for a while but more yearly reports came out and still no decrease occurred. It was reasonable to suppose that after several years the number of cases brought to light each year over the year previous had to reach a limit and could not keep pace with the decrease that enthusiastic individual reports claimed for prophylaxis. The figures for the Army are as follows:

Gonorrhea—		
1905	118	per 1000
1906	105	per 1000
1907	107	per 1000
1908	123	per 1000
1909	125	per 1000
1910	102	per 1000
1911	94	per 1000
Chancroid—		
1905	20	per 1000
1906	26	per 1000
1907	34	per 1000
1908	28	per 1000
1909	25	per 1000
1910	26	per 1000
1911	25	per 1000
Syphilis—		
1905	30	per 1000
1906	27	per 1000
1907	25	per 1000
1908	23	per 1000
1909	26	per 1000
1910	26	per 1000
1911	44	per 1000
Total venereal—		
1905	178	per 1000
1906	158	per 1000
1907	167	per 1000
1908	174	per 1000
1909	177	per 1000
1910	155	per 1000
1911	163	per 1000

These figures seem to indicate that on the whole the dispensary system of prophylaxis is not a decided success. The gonorrhea rate shows a decrease in the last two years, but considering the amount of education and warning that has been given along with prophylaxis the reduction is certainly not very striking. It must also be remembered that in the last year a law was put in force

in the Army, similar to a law in the British Army, which deprives a man of pay during the time he is incapacitated from a venereal disease. This has been a powerful factor in restraining the men and making them take greater care in applying preventatives. The great increase in the syphilitic rate for 1911, the Surgeon General thinks is due to using the Wassermann test more frequently and admitting men to hospitals for treatment with salvarsan. Nevertheless the primary admission rate shows an increase also going from 3 per thousand to 4.

The Army also used tubes along with their dispensary and hospital systems, chiefly during the last two years. They are not considered as effective as the other methods by a majority of the medical officers, the trouble being that the men will not use them properly and cannot be checked later if infection has followed the use of a tube. These objections as far as they relate to the Navy I will discuss later.

The following are Naval statistics:

Gonorrhea—		
1906 (no prophyl.)	59	per 1000
1908	56	per 1000
1909	102	per 1000
1910	104	per 1000
1911	92	per 1000
Chancroid—		
1906	12	per 1000
1908	12	per 1000
1909	27	per 1000
1910	33	per 1000
1911	31	per 1000
Syphilis—		
1906	23	per 1000
1908	19	per 1000
1909	26	per 1000
1910	22	per 1000
1911	27	per 1000
Total—		
1906	87	per 1000
1908	88	per 1000
1909	155	per 1000
1910	160	per 1000
1911	150	per 1000

The venereal rate seems to be less in the Navy than in the Army probably because the opportunities for exposure are less. Gonorrhea showed a decrease for the first time last year. Chancroid seems to have remained about the same while syphilis has increased slightly up to date.

The opinion I stated last year * still holds good: "From these reports it seems fair to conclude that prophylaxis is possible but it takes a great deal of care and vigilance on part of the medical officer and the double method must be very rigorously applied in order to be effective. In civil life where strict routine and control of men are impossible it is impracticable."

Dunbar,† whose experience in the Bureau of Medicine and Surgery makes his opinion especially valuable, concludes as follows on the results of the double or dispensary system of prophylaxis: "That the incidence of gonorrheal rheumatism in 1911 indicates a higher rate than reported. That the reduction in the total rate to 150 in 1911 is inconclusive as to the efficacy of the method in use as equal or greater declines have occurred without it. That there is no reduction in the syphilitic rate. That the total damage from venereal disease in 1911 shows a slight reduction from that of the ten years, 1895 to 1905, but an increase over that for 1910. That the statistics fail to show any appreciable immunity from infection afforded by the use of drugs after a considerable time has elapsed since exposure to venereal contagium. It is well to recommend the application of antiseptics at the earliest possible opportunity after intercourse."

That seems to sum up the situation pretty well. Nor is it at all a wonder that it should be so. Had Metchnikoff merely made an announcement that calomel mixed with fat would prove antiluetic if used at convenience some indefinite time after contact, there could not have been more variance in composition and delay in application than there is at present. Few of the salves used in the Navy conform to the original formula and none of them are applied within an hour as is done in most of the laboratory experiments. Whether or not the effective time limit is one hour, or more than that, is hard to say in the absence of positive proof. Metchnikoff found that twenty hours afterwards calomel salve had no effect. The time limit for syphilis, however, is perhaps longer than that for gonorrhea. We have some direct evidence on this point from Wolbarst's case which I shall recount later. In those reports of the Army and Navy which describe individual instances the most marked diminution occurs usually in the syphilitic rate. But the best that can be said is that protection may or may not be afforded. Gonorrhea and chancroid are hardly preventable longer than a few hours after contact. The evidence is conclusive that very few infections can be aborted after eight hours have elapsed.

The next step in the progress of prophylaxis was made when the necessity for supplying an immediate preventative became apparent. Raymond had already tried to accomplish this, but his packet was too complicated. We have seen that some of the earlier experimenters incorporated other antiseptics with the mercurials. Maus, in the Army, combined thymol in 5 per cent. strength with Metchnikoff's salve and had some very encouraging results with it. He gave this formula up later and advocated the uncombined calomel salve as effective against all three venereal diseases. A series of experiments was made at the laboratory of the Army Medical School which proved the error of this supposition and demonstrated the value of a 3 per cent. phenol, 3 per cent. camphor, 25 per cent. lanolin and 44 per cent. lard ointment. The present Maus tube contains this formula.

Siebert tested the antiseptic value of 33 1-3 per cent. calomel salve with *Staphylococcus aureus* and found that it was very poor, being six to eighteen times as weak as corrosive sublimate under the same conditions in 4 per cent. strength. Henry, in the Navy, on the other hand found simple calomel ointment very efficacious in reducing the venereal rate on the U. S. S. Rainbow.

As a result of using fine, soft rubber catheters to irrigate the urethra with argyrol solution, in the double method of prophylaxis on board the U. S. S. *St. Louis*, in 1909; I tried later to place an ointment high up in the urethra for the same purpose by joining the tip of a catheter to a collapsible metal tube. The ointment used was Metchnikoff's, modified by the addition of 1 per cent tricresol. The latter was chosen as it seemed to be ideally suitable for the purpose. Post and Nicoll had proven that

*Medical Record, August 23, 1912.
†*Military Surgeon*, February, 1913.

it was the most potent of the phenol group. In 1 per cent. solution it is more powerful than phenol, chinosol, creolin, lysol, etc., killing not only the gonococcus but also the streptococcus, pneumococcus and bacillus of typhoid fever after a minute's exposure. Ducrey's bacillus of chancroid is considered no more resistant than these organisms; so, with its other qualities—freedom from disagreeable odor, color, irritation and ready miscibility—tricresol was given the choice over other antiseptics.

In this place I would also like to take time to pay tribute to Metchnikoff's genius. There is a tendency in this country to consider every variation of calomel salve as a brand-new discovery in the domain of venereal prophylaxis. Every man who adds a grain of carbolic acid to calomel salve thinks of it as his own particular system, forgetting that without Metchnikoff's work, not only in the proving of calomel salve, but also in establishing the communicability of syphilis to apes and thereby opening up the doors by which other experimenters in prophylaxis can arrive at definite, scientific ends, he would be no closer to the problem's solution than our friends whom I have mentioned in the first part of this paper. Nothing that any one has done could have been done without Metchnikoff's work and to him and him alone is all the honor due that may follow in the wake of the movement.

Tube prophylaxis is the only system that can ever give any marked beneficial results because it is the only one that provides for immediate application without which no success can be expected. Even the firmest believers in the dispensary method acknowledge that immediate application is the ideal way and object to it only on the grounds that enlisted men will not use it. In civil life this objection is at once removed. Here we are dealing most of the time with an individual who desires to be protected and only needs to be told what to do. In the services, my experience has taught me that sailors will use tubes providing that the advantages of tube prophylaxis are pointed out to them by such educational methods as personal instruction, photographs of failures by other means, explanations of the reason why medicaments must be applied early, etc.

Again it is urged that most exposures are made under the influence of liquor when the man is incapacitated from using the tube himself. Again, from my inquiries on the U. S. S. *Delaware,* I am of a different opinion. Many times this is the case of course and it would be better if all houses of prostitution and all private prostitutes were required by law to protect those with whom they have dealings. In some places a law has been proposed making houses of this sort legally liable for damages if a disease is caught there. I think this an excellent law, and it should be made to apply to individual prostitutes also. A regulation like that would not only do away practically with the entire evil of venereal infection but it would make it almost impossible for any form of prostitution to continue.

One objection that I would make to tube prophylaxis myself is that a number of tubes have seen the light of day which apparently make no effort to embody what is known to be necessary to provide protection. Thus one tube which I examined appeared to be nothing more than white vaseline; it bore the name of a Pittsburgh firm and purported to be used in the Navy. Other tubes have sprung up without any scientific reason for their existence and somehow they all claim to be used in the Navy. As a matter of fact the only tube to receive any official recognition in the Navy is the one I devised. The Maus and possibly one other tube have been used in the Army.

As the efficiency of calomel has been pretty well proven experimentally when applied soon after contact it remains to be inquired into if this salve can be so modified as to be effective against gonorrhea at the same time. In the laboratory Russell and Nichols tried the experiments mentioned above. Their procedure consisted of injecting the ointment to be tested into the urethras of men suffering from acute gonorrhea after the discharges had been diagnosed positive by stained smears and growths upon ascites agar. After injection, the ointment was allowed to remain in the urethra about fifteen minutes, then the mucous membrane was washed clean by urination and a drop of the residue expressed into the meatus. This drop was streaked over ascites agar, incubated, and suspicious looking colonies examined with Gram's stain. Their first experiments were with the tube used in the Army, containing: Calomel, 25; phenol, 3; camphor, 3; lanoline, 25; lard q. s., 100. It proved effective in seven out of eight instances. Next they tried a 30 per cent calomel in lanoline ointment, a 3 per cent phenol in lanoline ointment and some more of the Army tubes, the latter being designated as the *new Army* tube. These various ointments proved to be failures in eight out of eight cases.

I tried to repeat their work with Army tubes bought in the open market.* I could not find out if they were the old or the new Army tubes, but a leaflet referred to the experiments of Russell and Nichols so I concluded that they were made after the old Army formula which was found to be the most efficient. The results obtained were at a complete variance from theirs, however, all six cases yielding positive growths after injection of the ointment. The Navy tubes were tried in sixteen cases. The technique was changed a little, using a platinum loop scraping instead of expressing a drop of the urethral residue into the meatus. The sterilization was done at noon and the men saved their morning urine in order to be sure that the urethra should be well washed out. It was desired that the general germicidal power of the ointment should be tested, so all colonies, not only gonococcus, were noted and considered as failures for the tubes. Nine out of sixteen tubes prevented all growths.

Then another series was made, milking a drop of fluid into the meatus after urination, as in the Army experiments. At first glance it appears that using the platinum loop would obtain material perhaps deeper from the folds of the urethra, etc., but when you consider that all the contents of the glands of Littre and the lacunæ contribute towards the drop of fluid that presents at the meatus when the penis is milked, this becomes doubtful. Out of this second series of sixteen cases seven gave no growths. In all the tubes, however, the growths were much less than in the tubes which were streaked before the ointment was injected. Since these experiments the strength of tricresol in the ointment has been raised to 2 per cent to procure a wider margin of safety. These results are very interesting, but it must be borne in mind that rendering an acutely infected, purulent, gonorrheal urethra sterile, and

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preventing the growth of gonococci in a normal urethra, are two widely separated tasks and the results from the former must be judged only relatively in considering their value in the latter.

I know of no other laboratory work of this kind and the statistics from the practical application of the tube system are meager. The tubes in the army are used in conjunction with the dispensary and hospital systems and I have seen no records of their own, apart from the general venereal tables of the army. Recently a circular letter was sent to the medical officers of various battleships requesting whether any venereal diseases had followed the use of such navy tubes as they were able to account for. This yielded a record of 431 tubes without an infection. This together with a series of 492 on my own ship makes a total of 923 tubes used without an infection of any kind.

But after all the most interesting comparisons in venereal prophylaxis to observe are those unfortunately rare cases where, intentionally or unintentionally, the deadly parallel has been obtained. Some of these have already been published, but widely apart, and some have but recently come under my own notice. Those pertaining to syphilis I will give first.

In 1908 Wolbarst reported the following case. t appears that A. and a friend B. had spent the ight with a woman who, by her own admission, as suffering from active syphilis. Both men had opulated with the woman several times during ne night and the chances for infection were as good as they could possibly be. Early in the morning about six hours after his exposure A. came to Wolbarst, stated his predicament, and demanded that something be done for him as he expected to be married shortly. Wolbarst applied a 30 per cent. calomel ointment for five minutes over those places that seemed likely to be infected and gave him some of the ointment with instructions that it should be applied every four hours until used up. In the meantime B. had hurried away on a train for the West. The woman was examined and found to have opposing surfaces of the labia majora covered with papules, some as large as a cent, condylomata about the anus, and ulcerations in the mouth. Four months later A. was still free from any luetic manifestations while B. returned a month later with a hard chancre on the coronal sulcus and three weeks after that developed an unmistakable papular eruption.

At Michigan City, Blech reported the case of a sergeant who exposed himself to a woman having a chancre on the right labium. He was protected within an hour by calomel salve and escaped infection. Bonnet reports the case of three friends who had intercourse on the same day with a syphilitic woman. Two of them used gray salve and remained free from infection, being examined two months later. The other one after three weeks developed a chancre. Bonnet also reports a case of a French soldier who transmitted syphilis to his enamorata. Later, at the time of her secondaries, he wished to rid himself of her and managed to transfer his charge to a friend. This man had repeated intercourse with her and at about the time her manifestations were leaving her, the girl had relations with still two other men. All of these last three men used the regular calomel salve and had not developed lues at the time of an examination three months later.

As an example of the protection afforded in gonorrhea it is necessary to quote the series of exposures made in Newport in 1912. A fracture case in the Naval Hospital was given leave to go to the city and reported gonorrheal infection a few days later. The woman, an inmate of a brothel, was easily identified and slides taken from her vagina, cervix, and urethra all proved positive. Ten exposures to this woman were obtained, all using navy tubes as a protection. One of the ten returned and exposed himself several times afterward without this precaution. The nine protected contacts escaped while the one who went back was infected, making two, with the fracture case, who were unprotected.

Hospital Steward B. in the navy, who had assisted me in devising the navy tube, exposed himself on July 4. On July 7 another man cohabited with the same woman. The hospital steward used a tube within an hour after contact while the other man remained unprotected and was infected. The former did not develop any disease. This same steward had knowledge of three men who were all infected by the same woman, one of the men after he had taken the regular ship's prophylaxis. In order to prove his confidence in the tube he exposed himself, used the tube a half hour afterward and escaped infection. On the U. S. S. *Delaware,* three men had all night contacts with the same woman. Two of them used tubes between eight and nine hours later; the other did not protect himself at all. The three of them were infected. Still another had two contacts with this same woman in the space of an hour, employed a tube immediately after the last, and did not suffer any infection.

This last case is a good illustration of what I have constantly insisted upon, namely, that no prevention, whether in tubes or in the dispensary, is of sufficient value to make it worth while unless used immediately. I am glad to be able to say that the tendency in the navy is toward that opinion. The army is still inclined perhaps the other way. But I feel certain that as soon as some one will give the tubes a thorough trial to the exclusion of other methods, their superiority will be established beyond all doubt.

ANTITYPHOID VACCINATION.

By ALVAH H. DOTY, M.D.,

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WITHIN recent years the medical profession has been called upon to decide as to the value of various sera and vaccines prepared for the prevention and treatment of disease. While many of these have been found to be practically worthless others have been approved and are now in common use. As the laboratory supply of these agents is increasing it is not only proper but necessary that we should stop to consider to what extent their employment is justifiable.

Those who have had personal experience with this form of treatment and have carefully and disinterestedly studied the defects as well as the good it may accomplish are cognizant of the fact that it is the abuse rather than the use of a vaccine or serum which must be carefully guarded against, for the enthusiasm of the discoverer is naturally very infectious, and those who have no time or inclination to investigate the possible shortcomings of these

agents or how far they may be practically applied are quite apt to accept them with but little limitation. We know this takes place with every valuable and well-proven medicinal agent, for they are often improperly and too extensively prescribed. This condition is far more apt to occur in connection with a vaccine or serum, for the hope they extend is very great, as they usually apply to diseases which contribute largely to the general mortality; under these conditions the most extended consideration is given any means which offers protection to the public health.

My intention is not to minimize the value of this form of treatment within reasonable limits and in the hands of those who are equipped to administer it, but rather to inquire into its range of usefulness and to suggest that we carefully consider its defects as well as the protection it extends.

At the present time it is probable that the antityphoid vaccine is uppermost in the mind of the profession and through the publication of popular articles the public is more or less familiar with the literature of this subject. The statistics furnished by the Medical Department of the United States Army regarding the preventive effect of the antityphoid vaccine among the officers and men of this branch of the public service have been chiefly responsible for the very favorable reports relating to the subject. How far investigators at home or abroad may disagree with these conclusions is not the purpose of this article, beyond the statement that there are dissenters who question somewhat the value of the antityphoid vaccine and who also believe that under certain conditions it is not without very unfavorable constitutional effects. However, it must be said that nowhere has a more careful and exhaustive study been made of it than by the medical officers above referred to.

It has been stated that the antityphoid vaccine as a preventive measure is likely to be used as generally as the vaccine employed in the prevention of smallpox; this will hardly occur, for typhoid fever is caused by infection taken through the mouth and with proper care in the selection of food and drink and cleanliness the danger from this source may be largely averted. No such protection is available in smallpox, for this disease is contracted by personal contact and we may become infected through sources over which we have but little control, largely in the form of mild or unrecognized cases. Under these conditions we are justified in resorting to special means of protection which otherwise might not be called for. Antityphoid vaccination is a more formidable operation than vaccination against smallpox and it is more necessary that the one treated should be kept under careful observation: besides it must be more often repeated to secure the immunity which it confers. The frequency of this would alone involve serious opposition on the part of the public. One or two *successful* revaccinations in smallpox are believed, and very properly so, to confer all the immunity which may be secured in this direction; very frequently the immunity conferred by the primary vaccination lasts a lifetime. It is the custom, however, as a precautionary measure to be vaccinated every eight or ten years; even during the presence of smallpox this is secured with considerable difficulty on the part of the health authorities.

The use of antityphoid vaccine among soldiers and sailors presents a very different feature in connection with this treatment. The protection of these men against infectious disease is a responsibility which very properly rests with the medical officer in charge; furthermore, soldiers and sailors are employed for the protection of the public and must be prepared at any moment to deal with emergencies. In connection with this duty they are frequently transferred from one place to another and may often be exposed to sanitary conditions which are very bad, therefore unusual or more extended means of safeguarding their health is justifiable.

There are other emergencies in connection with outbreaks or anticipated outbreaks of typhoid fever and also other conditions where the vaccine may be useful. It has recently been employed as a preventive measure in hospitals. It would seem that if the typhoid stools and the receptacles which held them are at the same time disinfected with boiling water or steam as they should be, for there is no other safe or practical way of dealing with them, and if strict cleanliness on the part of the nurses and attendants and elsewhere is strictly enforced, there is no reason why secondary cases should occur except in some special instances which would not call for any change in the hospital regulations dealing with this disease. If antityphoid vaccine is used in these institutions great care must be taken lest it favors carelessness among nurses and other employees, for if it is depended upon I am quite sure that in some way relaxation will take place in the enforcement of the sanitary measures which are imperative in the care of typhoid fever.

During the past year the public in various parts of the country have been officially advised to secure the benefits of the antityphoid vaccine, particularly those who are going abroad or away from home. I do not believe a general recommendation of this kind is proper or wise, nor do I accept the statement that this means of prevention involves no risk, particularly to those who might present themselves for treatment if this agent were generally and indiscriminately employed, for it is generally conceded that any acute infectious or organic disease or impaired health contraindicates the use of this agent. I believe those in charge of the public health should deal in the most cautious and conservative way in approving or recommending a serum or vaccine for general use. Aside from the unpleasant results which may follow its employment in this direction it would extend a license or even a stimulus for the production of various agents of this kind, many of which would be not only worthless but would be in the hands of improper persons and would at least divert the public mind from the use of proper and effective preventive measures which in order to be successful must have the public's co-operation.

There are probably not many practical sanitarians who believe that the use of this vaccine will have any considerable effect in limiting the extension of typhoid fever throughout the world, except in the special condition already referred to, for the portion of the population which is most apt to transmit this disease will not generally accept this form of treatment. It has been particularly suggested that persons going abroad are appropriate subjects for this treatment in order that they may be relieved from any anxiety as to the danger of contracting typhoid fever while away. I know of no statistics of scientific value which have been presented and I am quite sure there is nothing in my own experience to indicate that those who travel under modern conditions and who know the value

of proper sanitary measures with which all should be familiar are any more prone to contract diseases while away than when they remain at home. Besides, it is quite probable that the carelessness in the way of sanitary precautions which would be likely to follow antityphoid vaccination might lead to risk which would not otherwise be assumed.

The prevention or elimination of certain diseases by the co-operation of the public in carrying out what may be called natural preventive measures is the hope of the practical sanitarian, for he knows that nothing but success can follow this course. During the past ten years rapid strides have been made in this direction chiefly through the education of the public in matters relating to general sanitation. The public is now familiar with the importance of cleanliness, pure food and drink, personal hygiene, and the inestimable value of maintaining our resisting power as a protection against disease. Among other things the public has been taught that typhoid fever, probably more than any other disease except cholera, may be prevented by complying with modern sanitary laws, and it is fast becoming impressed with this means of protection and insists upon being surrounded by proper sanitary conditions to an extent never before known. Proprietors of summer hotels are being called upon to furnish information regarding the sanitary condition of their buildings and from what source their milk and water supplies are obtained, and the diseases which are prevalent in their vicinity. These men now find that it is of commercial value for them to pay careful attention to these conditions. Country boarding-houses, which are almost always insanitary, are being much less patronized because the public has been cautioned against these places. In the city this interest in sanitary matters is also apparent in selèction of apartments, etc. Employers have become very active in the welfare of their employees and their protection against infectious diseases, particularly tuberculosis and typhoid fever, through modern sanitary measures. Never before has a point been reached where the sanitarian and the public have so effectively worked hand in hand in the preservation of the public health, and if this course is maintained there is but little doubt what the result will be so far as the elimination or diminution of certain forms of disease or the progress made in raising the standard of health in the individual is concerned, for it is the logical and proper means of securing this end.

I believe those who will give this subject careful consideration will be convinced that the employment of the antityphoid vaccine as a preventive measure should be strictly confined to conditions or emergencies where it is deemed justifiable to carry out special means of protection. Under these circumstances unpleasant results may be avoided and the public mind is not disturbed or its faith weakened in modern sanitary methods in which its cooperation is so urgently needed and which are so essential to the preservation of health.

62 West Fifty-eighth Street.

Effects of Ablation of the Parotid.—Lorenzo Neri in a preliminary communication presents the result of his experiments on the physiological and pathological effects of ablation of one or both parotids. He finds that removal of one parotid results in connective tissue hyperplasia of the remaining gland with a corresponding atrophy of its glandular parenchyma. Ablation of one or both glands causes hypertrophy of the thyroid.—*Giornale Internaziole delle Scienze Mediche.*

EXTRACT OF THE PITUITARY BODY OF THE OX IN THE TREATMENT OF RHEUMATIC ARTHRITIS.

A PRELIMINARY REPORT.

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During the past few months several kinds of joint rheumatism have been treated with pituitary extract at St. Charles Hospital, Port Jefferson, Long Island. The improvement in the patients is noteworthy. In consideration of such a short period of treatment and observation nothing more than a preliminary report can be made. No dissertation upon the etiology or classification of articular rheumatism is attempted here. The patient's disability is briefly described. In addition to receiving injections of pituitary extract all of the St. Charles Hospital cases have lived day and night in the open air, have had the regular hospital diet, and the same bathing and care as the other children.

Case I.—A girl three years of age was admitted to St. Charles Hospital November 25, 1912, H. No. 122. The family history is of no particular interest. She was a nursing baby and always in good health except for persistent enuresis and one attack of dysentery about nine months preceding the involvement of the first joint. When nineteen months old the mother noticed stiffness and evidence of pain in the left ankle and right knee. One month later the neck became stiff and painful. Both hips were next affected and in the summer of 1912 both shoulders, elbows, wrists, and all the fingers. The patient has had frequent exacerbations of severe pain and swelling around the joints.

Examination upon admission showed her to be in very poor general condition, weighing 27 pounds. She was brought to St. Charles in arms because of crying on any attempt at walking. The motions of all the joints of the extremities and the cervical spine were greatly restricted on account of pain. The interphalangeal joints of both hands were swollen, especially the thumbs. There was no fluctuation. The joints of the extremities were slightly flexed; the thighs were adducted. The muscular atrophy around the joints was noticeable. The lower regions of the spine seemed not to be affected. The larynx was slightly congested. The urine was normal, except for a slight increase of indican. The blood-pressure was 100. The blood examination demonstrated nothing of special interest. The *x*-ray showed coxa valga of both femora, but nothing abnormal in the other bones and joints.

Diagnosis.—Multiple arthritis (resembling Still's disease).

Treatment.—Under thoroughly aseptic precautions intramuscular injections of 1 c.c. of pituitrin were begun on December 3, 1912. At this time the patient was constipated and enuresis was present. On December 12 the dose was increased from 1 c.c. to 2 c.c. daily. On December 14 the patient had diarrhea and the laxative was stopped, and then beginning on the 20th the pituitrin was omitted for a week and the laxative resumed. At this time the patient was complaining of not feeling well and on the 25th, five days after stopping the pituitrin, she vomited, although the nausea had begun before this, and the indications seemed to be that the gastric symptoms were caused by the pituitrin. On December 26 the swelling in the fingers had diminished, the pain had lessened, and the general appearance was improved. On December 28, pituitrin in 2 c.c. doses was given every other day, and on January 22 it was stopped because the swelling of the thumbs and all pain had disappeared. February 14 there seemed to be a slight swelling of the thumbs and 2 c.c. of pituitrin was given on each of two days, and following this the dried gland was administered in doses of nine grains a day. The powder was continued until February 26, 1913, when it was noted that the swelling had increased; then 3 c.c.

of pituitrin was given intramuscularly in addition to the dried gland. Both were continued until March 6 when the patient began to vomit and the injections were discontinued, but the dried gland was administered until March 14. At this last date all swelling and pain had disappeared and the patient seemed cured. Altogether she had 80 c.c. of pituitrin and 231 grains of dried pituitary gland of the ox. Since taking the treatment the patient's bowels have been in normal condition, it rarely being necessary for her to take a cathartic. The enuresis has continued, but not so frequently as when the pituitrin was given.

The effect on the blood.—The leucocytes were decreased during treatment and increased when it was withdrawn. The percentage of the hemoglobin remained normal throughout. The large mononuclears increased during the treatment and diminished when it was stopped. The small mononuclears showed a tendency to decrease during the administration of pituitrin but this was not continuous; several months after it was stopped they increased. The polynuclears seemed to be permanently affected as they diminished with the pituitrin and remained so. There was a notable increase in the eosinophiles with the giving of pituitrin and they decreased on its withdrawal. The basophiles and transitionals were present during the treatment and absent afterwards.

This patient's general condition was improved and she gained three pounds in weight. She was relieved entirely of all pain at the end of thirty-one days and has remained free from it since. All swellings have disappeared and the functions of the joints are normal, except the hips, where abduction is limited due to muscular contraction.

Several doses started diarrhea which soon subsided; the bowels have become regular. There seemed to be an increased amount of urine during treatment. For the first few doses the indican and urea showed an increase but these soon were diminished to normal. The heart's muscle tone was improved and the blood-pressure raised to 120 mm. The only ill effects of the pituitrin were the nausea and vomiting, due probably to a cumulative action of the large doses.

This was our study case and the response to treatment was not as early as in the other cases we have treated. But this patient's disease seems to be arrested and she enjoys playing with the other children. She appears perfectly well except for a peculiar hip limp due to the coxa valga and the muscular contractions.

Case II.—The second patient, a boy, 12½ years of age, was admitted to St. Charles on May 1, 1913. H. No. 163. His family history was negative. The onset of his complaint occurred two years ago, when he had pains in his legs, soon becoming localized in the ankles and knees, which were swollen. One month later his neck and jaws were similarly affected. Previous to his admission, on account of the condition of the ankles he had not worn shoes for several weeks and he had been confined to a chair for one month. With great pain and difficulty he was able to walk about 100 feet. When examined on the above date the patient's general condition was poor and his weight was 60¼ pounds. His neck was almost rigid and very slight movements caused pain. He could separate his teeth only a finger's breadth. His ankles and knees were swollen and painful, also the metacarpophalangeal joint of each index finger. The hips, shoulders, elbows, and wrists were unaffected as well as dorsal and lumbar region of the spine. A systolic murmur could be heard in the third left intercostal space. The blood-pressure was 105 and the temperature 98.6° F. The urine was normal except for the presence of indican. The blood examination indicated nothing of interest.

Diagnosis.—Multiple arthritis.

On account of the volume of pituitrin required for intramuscular injection and the disagreeable gastric effects, we experimented and found that an extract could be made from the desiccated pituitary body of the ox, which is stronger and would serve our purpose. We could use one-third the quantity and secure a better physiological response; and at the same time a fresh preparation, which was well borne.

This patient was kept in bed for one week on account of his severe pains. He received 1 c.c. of the fresh fluid extract daily for one week, when he was encouraged to get out of bed and move around. One cubic centimeter was given to him every alternate day for two months, when the pain and swelling disappeared. At the beginning of the third month it was given every fourth day; but during this month the pain and swelling began to reappear in the same joints affected upon admission. He then received 1 c.c. of fluid extract daily for one week and every alternate day to the end of the third month, when he was discharged August 1, 1913, with the disease arrested. The treatment covered three months during which time fifty intramuscular injections of 1 c.c. of the fluid extract of pituitary were given; eight of 0.5 c.c. were tried but had to be abandoned. The total amount administered to this patient was 54 c.c.

A laxative was given to him at bedtime for one month, when the bowels became regular. Elixir of glycerophosphates and extract of red bone-marrow were given to him as a tonic. During the first two weeks of treatment his temperature showed an irregular elevation ranging as high as 101° F., but averaging 99.6° F.; after this the temperature was constantly normal.

Upon discharge the patient had gained 7¼ pounds and his general condition had been markedly improved. All pain had disappeared and the motions of all the joints were normal, except the upper cervical and temporomaxillary articulations. In all probability these joints were stiff on account of the muscular contractions. But he could walk two miles without fatigue or discomfort and he could roller-skate and row a boat well. The constipation was relieved; the bowels were in a normal condition. He had no nausea or other disagreeable symptoms; there was no increase in the amount of urine excreted. The heart murmur was still present, although the muscle sounds were improved. The blood-pressure remained elevated to 160 mm. Examination of the blood showed practically no change.

Case III.—A girl 9½ years of age was admitted to St. Charles Hospital, June 24, 1913, H. No. 160. Her family history is of no interest but the patient has had bronchitis and measles. Four years ago she had a painful and swollen left ankle, followed three weeks later by a like condition in the right ankle; gradually all joints became affected. Upon admission she was bed-ridden, had pains in the hips and knees, and disability of all the joints. Any attempt at active movement caused pain. She was emaciated, weighing 30 pounds.

When she was examined she was lying supine with all joints flexed. She was unable to change her position and any attempt at passive movement caused severe pains. The spine was held in flexion, as well as the joints of the extremities. The latter appeared enlarged and there was marked muscular atrophy about them. The right knee was subluxed. There was chronic congestion of the lungs and the liver extended 4½ inches below the costal margin in the right mammary line, and to the left of the midline as far as the left mammary line. The spleen was palpable. The abdomen was distended and the circumference at the umbilicus was 20 inches. The heart sounds were fair, the blood pressure was 90 mm., and there was 1 gm. of albumin per liter in the urine. She had a peculiar papular rash on the skin and some ulcers on the extremities. She also had external hemorrhoids and pruritus valvæ.

Diagnosis.—Multiple arthritis (Still's disease).

This patient has had 1 c.c. of fluid extract of pituitary per day for ten days, and 1 c.c. on alternating days for 18 doses, making 28 injections all told. She is still under treatment. At present the pains have been relieved and the motions in all the joints are improved. The patient can sit up and her general condition is better, although she has lost half a pound. The liver has receded 1¼ inches and the circumference of the abdomen has diminished 1¼ inches. The skin eruptions have healed somewhat and the lung congestion has greatly lessened. There is only ¼ gm. of albumin per liter in the urine and the pruritus vulvæ is cured.

The prognosis in this case has changed from fatal to favorable:

Case IV.—This patient is a boy 8½ years of age and was admitted to St. Charles Hospital on June 14, 1913, H. No. 187. The family history is negative except that a

brother became blind at the age of ten and died in six months. He has had measles and has had pneumonia twice. He has always had a poor appetite. Frequently he has complained of headaches. He had a desire to climb to heights in order to jump off, and many times he has bruised himself doing this. His pains began two years ago in both shoulders but there was no swelling. Two weeks later he had pains in both knees and they became enlarged. He walked to the hospital with plaster-of-paris bandages about both knees. The pains in the knees had been severe and constant when these bandages were not worn.

Upon examination it was found that his general condition was poor, weight 59¼ pounds; both knees were swollen and painful. No other joints were involved. No heat or fluctuation. The swellings in the knees felt doughy. The motions were limited chiefly on account of the pain. The right knee could not be extended fully, but could be flexed to a right angle; the left knee could be extended fully but it could not be flexed beyond a right angle. Any voluntary motion in these joints was slow and painful. In other respects his physical condition was normal; the blood-pressure was 115 mm.

Diagnosis.—Arthritis of the knees.

The treatment consisted in omitting all dressings and in giving the fluid extract of the pituitary intramuscularly. An injection of 1 c.c. daily was given seven times and then on alternating days 16 times.

His general condition has markedly improved and he has gained 1½ pounds. He is able to run and jump without pain. The swellings have disappeared and the knees look normal. There is no pain except on extreme flexion. The urine and the blood are normal. The blood-pressure is 170 mm.

Case V.—On June 30, 1913, a girl 6 years old was admitted to St. Charles Hospital, H. No. 162. The family history is negative except that her father was alcoholic. She was a nursing baby until seven months of age. Then she was fed modified milk. She was backward in her general development and did not walk until 18 months old. She has always looked pale and sickly and is said to have had heart trouble. She had measles and diphtheria. In January, 1912, the mother noticed that both ankles were swollen and painful. This lasted for a few weeks. In November of the same year there was a return of the pain and swelling in the ankles, and pains began in both sides of the neck. Gradually other joints became affected and finally all the joints were painful, except those of the hands, the jaws, and the shoulders. The back was stiff. The pains were increased by any attempt to bend the spine. In the spring of 1913 she complained of pains all over the body.

Upon examination June 30, 1913, her general appearance was poor, weighing 34 pounds. She was able to walk but the gait was careful and the entire vertebral column was stiff and held in a rounded attitude. Attempts to move the spinal joints caused pain, especially in the dorsolumbar region. The neck was very rigid. Both hips were in slight flexion and adduction, the adductors being contracted. No swelling was noticed. The teeth were in poor condition. A loud systolic murmur, heard over the apex of the heart, was transmitted to the left. Her urine was normal and the blood-pressure was 110 mm.

Diagnosis.—Multiple arthritis.

On August 14, 1913, the urine was still normal and the blood-pressure was 120 mm. This patient has had 25 injections of 1 c.c. daily, and these were followed by 7 of 1 c.c. given on alternating days. Her general condition has improved and she has gained 1¼ pounds. She plays and romps with the other children. The neck and hips have a normal range of motion but the motions are limited in the dorsolumbar region. She is doing well and is still under treatment.

Case VI.—This patient is a girl fourteen years of age and was admitted to St. Charles Hospital on July 15, 1913, H. No. 196. Her family history could not be obtained. She had erysipelas when ten years old, and has had frequent attacks of tonsillitis. One year ago she had pain in the back and neck and pain in the ankles, knees, hips and shoulders. Motion in all of the affected joints was restricted, especially in those of the back and neck. Four months ago the joints of the hands became affected and the hand could not be closed. These joints one month later became painful and swollen. Upon admission her general condition was poor; weight 65½ pounds. She walked with the smallest possible motion in the hips and knees. Rotation in the cervical region caused pain. The lateral movements of the other regions of the spine were much diminished and painful. The temporomaxillary joints were affected and swollen, the mouth not opening to its normal width. Any attempt to move the ankles, knees, hips, wrists, and shoulders to their full range caused severe pain. The fourth and fifth fingers of both hands were held in flexion, yet there was inability to flex completely all of the fingers. The digits tapered; the wrists were enlarged and fluctuation could be produced on their dorsal aspect. The right parotid gland was swollen. The abdominal and thoracic organs were normal. The urine and blood were normal. The blood-pressure was 100 mm. The tonsils were enlarged. The *x*-ray showed cloudiness on the spine of the tibia.

Diagnosis.—Multiple arthritis.

Twenty-five injections each of 1 c.c. of the fluid extract of the pituitary body were given by August 14. The patient's general condition has improved and her weight has increased 1¾ pounds. The pains in all the joints and the swellings have diminished. All motions have improved except those of the fifth and fourth fingers. The enlarged parotid gland has considerably lessened in size. The tonsils remained as they were upon first examination. There was no change in the urine or *x*-ray findings. The blood-pressure was raised to 135 mm.

The following five adult cases were from private practice and only brief outlines will be made of them:

Case VII.—A woman 63 years old had had pains in the neck, right elbow, knees, and hands for five years, accompanied with considerable disability. Upon examination on May 19, 1913, it was found that the cervical region, right elbow, knees, and all of the fingers were affected. The distal phalanges of the fingers were enlarged. *X*-ray showed exostoses at the interphalangeal joints.

Diagnosis.—Osteoarthritis.

This patient was treated until July 8, 1913, and had 19 injections of 1 c.c. of the fluid extract of the pituitary, given on alternating days. On this date the pains and stiffness in the neck and elbow had disappeared, but some tenderness remained in the fingers. All of the finger joints showed improvement. This patient received great relief but discontinued treatment of her own volition.

Case VIII.—Man 25 years old has had muscular pains in the back for more than one year. During that time he was unable to rise from the supine position without assistance from his arms. No joint involvement. He was examined on June 8, 1913. The back muscles were tender; no nodular formation was felt.

Diagnosis.—Muscular rheumatism.

The patient had six injections from June 30 to July 19, and he has had no further pain.

Case IX.—This patient is a woman 30 years of age, and for nine months has had pain and disability in the right shoulder. An examination was made on July 6, 1913, and there was pain in the right shoulder joint when extreme motions were attempted. No swelling was seen. She was unable to place her right hand to the back of her head. There was some grating felt within the joint and tenderness behind the articulation.

Diagnosis.—Monarticular rheumatism.

One injection of 1 c.c. of the fluid extract of the pituitary body was given on July 6, and another on July 7. After the second dose the motion was unrestricted and the pain had disappeared. The treatment was discontinued.

Case X.—This patient, a woman, 61 years of age, was seen on July 10, 1913. She gave a history of having been well until six months ago, when she began to have pain in her back and shoulders, and had severe pains down her right thigh along the sciatic nerve. Her suffering has been so intense that an opiate had been given every night for one month. At the time of examination, all motions of the back, especially in the dorsolumbar region, were restricted. Percussion on the spines of the lumbar vertebræ caused no pain; but the patient said that this would have been unbearable upon the previous day. There was no tenderness along the sciatic nerve, and flexion of the thighs with the legs extended caused no discomfort. The patellar reflexes were normal. The distal interphalangeal joints of the index and middle fingers of both hands were enlarged. The *x*-ray examination showed a peculiar exostosis on the lateral side of the body of the fourth lumbar vertebra.

Diagnosis.—Osteoarthritis.

On beginning treatment all opiates were omitted. Aspirin and pyramidon were administered until pituitary solution could be secured. From July 18 to 28 1 c.c. of the fluid extract of the pituitary was given daily; since then it has been administered every alternate day. She has worn

an ordinary tight-fitting corset throughout the course of treatment. The blood-pressure was elevated but she has had no disagreeable symptoms. Since her first injection she has had only one day of acute pain and her nights have been peaceful.

All of these cases showed improvement in the general condition; in the pains, swellings, and the motions of the joints affected, and in the effect on the bowels. The blood-pressure was elevated throughout the treatment, and had a tendency to remain so. There was a slight, irregular rise in temperature during the first week or ten days. Nothing significant was found in the blood and urine.

The adult patients were slightly nauseated and suffered head symptoms, such as giddiness, lightness, and headache.

The material used is made by putting 0.3 gram of the desiccated fresh pituitary body of the ox into 30 c.c. of sterile physiological salt solution. To this is added 0.3 gram of chloretone crystals, and it is allowed to stand for three hours. The mixture is then filtered through filter paper. The filtrate is boiled and kept in a sterilized bottle with a rubber cap on it. There is a tendency for this extract to deteriorate and it should not be used after it has been made three weeks.

Under thoroughly aseptic precautions the patients have had no sign of needle infection nor have they had much pain from the intramuscular injections.

One c.c. of the above preparation has been used in every case except the first one.

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THE COLON: ITS MALIGNANCIES.*

By JOHN F. ERDMANN, M.D.,

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During the year 1910 I published two papers in reference to Tumors of the Colon. The first published in the *New York Medical Journal*, January 29, 1910, with the title, "Malignant Growths of the Sigmoid and Rectum." The second, published in the *American Journal of Surgery*, September, 1910, with the title, "Surgery of the Large Intestine."

In these two papers I reported a series of tumors of all classes, benign and malignant, numbering 45. Since publishing the above papers I have operated upon 40 additional patients for malignancy of some portion of the colon: Two being sarcoma of the perirectal region and easily removed by the posterior incision, *i.e.*, perineal in one instance, and retroperitoneal, *i.e.*, transperitoneal in the other. The remaining 38 patients were involved in the following regions of the colon: Cecum, 3; sigmoid, 11; rectosigmoid, 13; rectum, 8; transverse colon, 3. In addition to the above I have four patients under observation, who are too far advanced for operation, and who have, with proper care, little or no evidence of obstruction, and manage to exist fairly well under mild anodyne treatment.

In the classification used above, by the sigmoid I mean the freely movable sigmoid, while in the rectosigmoid I mean those in which the tumor involves the upper rectum and terminal portion of the sigmoid, better clinically classified by the area immediately behind the rectovesical pouch in the male.

Under the rectal distribution all growths from the anus to the above area are included.

Furthermore, in considering the sigmoid in this paper, the later-day anatomical classification obtains, that is, the sigmoid extends down to the third sacral vertebra, or, in other words, includes that portion of the gut formerly known as the upper or intraperitoneal rectum.

It will be seen that 21 out of the 3 operative cases and four additional ones not operated upon involved the rectum and rectosigmoid, while but 11 involved the freely movable sigmoid. Three each were in the cecum and transverse colon.

The youngest patient in this series was 26; tumor involving the sigmoid, and invading the left broad ligament and ovary; with this condition there was a history of a pronounced specific infection.

Two were patients with adenocarcinoma and evidences of diverticulitis, in all probability a previous diverticulitis developing into carcinoma.

In each case, when seen by me, the condition was well advanced and diagnosis easy, except one, a woman, whom I saw with a large pelvic tumor, which upon operation proved to be a malignant papilloma of the left ovary about the size of a seventh month pregnancy, and upon removal of the growth, discovered a tumor of her sigmoid. Excision of the tumor, with section, proved it clinically to be an adenocarcinoma, implanted on a complicating, or, rather, a previously existing diverticulitis. Microscopic reports by Dr. Ewing upheld the clinical diagnosis.

To what must we ascribe our inability to detect these growths at an earlier period? Modesty on the part of some patients in revealing their ills of this region is a great factor. Refusals to allow examinations of the anal and genital organs, also on account of modesty. Our too readily eased conscience in not examining such patients and accepting their diagnosis or that of their family doctors, as to piles, fissures, etc.

Slurring the importance of a detailed and minute history by incomplete examination of the rectal region. Fastidiousness, in many instances, is a profound factor; the absence of a glove or cot for the examining finger is an argument of defense by many a practitioner for not having examined the rectum.

Reserve in giving a complete history on the part of the patient, who fears a diagnosis of cancer and prefers to mislead the physician, rather than suffer the mental anguish of such a diagnosis.

Diagnosis.—In the early onset the symptomatology is sparse, and so vague and indefinite that a diagnosis is rare and difficult. The earliest symptoms are borborygmus, cramp, colic, pains, mucous blood, and pus—singly or combined—in the movement, alternating, diarrhea and constipation, feeling of incomplete emptying of the bowels after a movement. Localization of pain, or rather soreness or uneasiness. Painful spot on pressure, evidence of a tumor upon palpation or inspection, and finally—in those above the rectosigmoidal zone, an obstruction.

Physical depression, some indigestion, so called and characterized by rumbling, belching, and sense of weight. A loss of weight, slow or rapid, barring such weight depreciating diseases as diabetes and Bright's would, with the above symptoms, be an almost positive factor in the diagnosis of malignancy of the colon.

The examination of the patient must consist of a careful history, abdominal palpation for tumor of the colonic zones and the region of the liver, this last region for metastases.

The anus is then to be investigated, first with the

*Read before the Bellevue Alumni Association, March 5, 1913.

finger, and in the absence of a reachable evidence, the proctoscope should be used. Should evidence of a tumor still be absent with such a history the x-ray, with bismuth injections, is most essential. Examination of the feces for occult blood, while proving nothing definite if positive, nevertheless makes a step onward in reaching a diagnosis.

On two occasions "malignancy somewhere in the colon" was diagnosticated by finding tumor cells and polyp-like tumors in the feces. Both of these were in the sigmoid, and in each instance in the convex border of the loop, well out of the reach of the proctoscope, and only "suspicions of stenosis" reported by the x-ray. Both of these patients are living after a primary resection with end-to-end anastomosis.

In some of these growth additional symptoms were given, as pain in the sciatic distribution, well marked in the calf of the leg and sacrococcygeal pain. Frequency of urination and hypogastric pain, in this instance due to the tumor pressing upon and adhering to the fundus of the bladder.

Treatment is one of palliation in those too far advanced to operate. Palliative treatment in those of the lower bowel consists of proper cartharsis, so to liquefy the stool as to allow of its discharge through the constricted area.

The cleansing of the bowel from below by bland and frequently used enemas or injections. Such diet as will not form excess waste material. Diet free from cellulose coverings, such as prunes, corn, beans, etc.

One obstruction operated upon by me was due to a piece of prune skin so covering the narrow opening as to completely block even fluids. Another was obstructed by one of the vertebra of a chicken's neck. This piece of bone was wedged in the opening, requiring some pressure from below in the removed section to displace it. Then we must consider palliative operations, those of curettage and cautery, to enlarge the channel. Recently I have had one patient under the use of high frequency by Dr. Joseph McCarthy, and am satisfied that the patient's growth was reduced to such a degree as to make the exit of feces far more easy and painless.

Anodynes and local anesthetics, beginning with the mildest and working up to the opiates, as a dernier resort.

Operative Treatment resolves itself into resection with various types of anastomoses or short circuiting. This latter, while not curative and only a makeshift surgical procedure, nevertheless must be considered in patients in whom the tumor is of such extent as to preclude excision. When a sidetracking or short circuiting can be done to prolong life it has been followed in numbers of patients by most satisfactory and surprising results; surprising results due very often to the fact that all malignancies clinically so diagnosed are not such microscopically or constitutionally, and one must also say that all microscopically malignant tumors are not proven so by time.

Again, short circuiting may be followed by such an improvement on the patient's part and also as to the conditions of the tumor and surrounding tissues as to allow of a later day satisfactory and successful removal.

Excisions.—While 50 per cent. of the fluids and 10 per cent. of the solids of the colon are absorbed by the gut proximal to the splenic flexure, conservatism in this section must not be practised at the expense of any recurrence. Wide excisions must be practised in the cecal and transverse colonic regions, owing to the lymphatic and vascular arrangement.

In growths of the cecum it is advisable to remove the distal 6 to 12 inches of the ileum, and all the ascending colon, while in the transverse colon one should go to either flexure and pay close attention also to the glands in the transverse mesocolon and pancreatic area.

If upon exposure of the abdomen metastases be found in the liver radical removal is contraindicated.

The removal of any part of the colon is easily accomplished if one but remembers that the outer plate of peritoneum making up the mesocolon, etc., is the hold fast, that the inner is long and freely movable covering the vessels of the mesentery which arise from or pass to the median line. Therefore incising the outer plate of the peritoneum, named above "the hold fast layer," will allow the intestine to be pushed towards the median line, or even out of the abdomen with great case. Free incisions of both peritoneal plates or coverings is necessary for freeing the sigmoid; one is startled with what ease an exceptionally bound down gut can be elevated when this procedure has been properly done.

The incision of these peritoneal coverings will also allow of the vessels of the mesentery to come fully into view so that they can readily be clamped or ligated when desired. Cutting the costocolic ligament in the splenic region will allow this angle to drop well down into the abdomen.

Anastomoses.—The ease, facility, and cleanliness with which lateral anastomosis can be done makes it a most desirable method. Nevertheless, end-to-end anastomosis is the ideal method. I believe the resection cases are better handled in complete obstruction in a two or three-stage operation and know that the mortality is less.

The preliminary colostomy or short circuiting not only gives one a relatively clean bowel to work upon, but one also in which the two ends have been made nearly equal in lumen and in wall thickening. The colostomy or short circuit gives one a free vent, while the anastomosis is repairing, thereby relieving the line of suture of considerable strain.

When complete obstruction is not present the bowel can be cleaned and so prepared that an immediate or ideal anastomosis can be done with great safety. So far I have found no occasion for doing the Mikulicz three-stage operation.

Operations in the rectosigmoid and rectum present many difficulties to the surgeon and patient alike.

Our failures in these operations, which, of necessity, are operations of magnitude, are due to sloughing of the sigmoid in the anemic area, found quite frequently as a result of impaired anastomosis between the lower sigmoid and superior hemorrhoidal vessels. This area cannot always be demonstrated at the time of operation and therefore sloughing occurs just about the time we are congratulating ourselves that the patient is making a beautiful recovery.

Another of the difficulties in tumors of this area of the colon is the inability to promise our patients anything but an artificial anus, with all its disagreeable aspects and a loss of control of the anus in numbers of the resections with anastomosis.

In operations in the lower sigmoid, or the rectosigmoidal region, it is necessary that the patient give his consent to the formation of a permanent colostomy, and this preferably in the abdominal wall, having also been given to understand that if

possible an anastomosis with preservation of the sphincter will be done.

All such operations to-day are approached in one of three ways, either the abdominal or anterior, the perineal or posterior, or the combined, the abdominoperineal. Such approaches are made usually with a preliminary artificial anus.

The artificial anus is made in the highest portion of the sigmoid, so that adhesions formed by suture of the gut to the peritoneum will not hinder the dragging down of sufficient sigmoid to make the anastomosis.

These colostomies serve a double purpose. While opening the abdominal wall for the colostomies, one explores for metastasis of the liver, etc., and observes the extent to which the disease involves the peritoneal cavity. By such findings one determines whether the patient's condition of malignancy is too far advanced to proceed with a radical operation with anastomosis and preservation of the sphincter, or whether one excises the entire lower segment, making a permanent colostomy by suturing the proximal portion in the abdominal wound, or refrains from any resection whatsoever, doing only a colostomy.

The second purpose of the artificial anus is that of cleansing the bowel from above the point of obstruction, so that we have clean and relatively normal tissue for anastomosis, and that during the repair of the suture line infection and strain by means of feces and gas be relieved. Should it be decided that resection with anastomisis be done the combined abdominal and perineal operation is advised.

In the lower segment growths, and particularly in fat subjects, the posterior operation will give the best means of approach and least shock, with usually the best area of exposure; but we must remember that in these operations, as in vaginal hysterectomies, one sees and feels only a fair amount of diseased tissue. It is striking to what extent the lymphatics in the sacral and pelvic fossa are involved. Recently I did an abdominal excision, in which the glands were so generally involved that dissection well beyond the pelvic brim was necessary.

In the abdominal resection cases it is advisable to make a posterior drain between the sphincter and the coccyx by a stab puncture, placing the drainage material posterior to the anastomosed area.

Peck's operation of telescoping the sigmoid through the anus after denuding the mucous membrane from the anal portion has been quite an addition to our surgery of this region.

The method of stitching in a tube to the line of anastomosis, as advised by Gibson, and then using the tube as a means of producing an intussusception, will be found of great benefit in selected cases.

I have lately been in the habit of placing a rectal tube with its point about two inches above the anastomosis and then fastening it in the sphincter by a silk worm gut stitch. This procedure allows of the discharge of gas and liquid feces from the proximal portion. The tube is retained from five to seven days, when an enema is given to liquify any feces above; the tube is left in a day or two longer, thereby being an advisable means of sewerage and irrigation.

The retaining of the sphincter is to me a most questionable procedure, especially in the mid-rectal and rectosigmoidal region. I do not feel that these growths are sufficiently localized to retain the sphincter and the inch and a half of rectum or anus necessary for such procedure.

If one is operating upon the breast, a zone of 2-4 inches away from the malignancy is not considered too great to be excised. Why should we attempt, therefore, to save a tissue within two inches or even four inches that is so richly supplied with vessels and lymphatics as in the lower colonic region?

While it is true that the comfort, etc., of a poorly operating sphincter far exceeds a colostomy with its features, nevertheless a colostomy, with years more of possible life, is preferable to such a sphincter with but a few months to a few years. The desire to retain a functionating sphincter or an imperfect sphincter is more than likely to bias, unfortunately, our judgment in the amount to be excised.

It is in this class of involvements that I am more and more inclined to do the abdominal excision of the growth, beginning well up in the sigmoid. The steps consist in ligating the superior hemorrhoidal and branches of the upper sigmoid arteries, dissecting off the peritoneum from each side of the mesosigmoid, enucleating all fat and glands with the gut in a mass. This latter can be done with ease by

FIG. 1.—Operating position; the table should be tipped instead of level as here shown.

blunt dissection with the hand until the vesicorectal pouch is reached. The peritoneum at this point is then cut across, the bladder pushed up and forward, and then the muscular attachments in the pelvic floor are cut or torn, requiring from one to two ligatures at the most. The sigmoid is now tied at its point for excision with two ligatures and cut between; the distal end is cauterized with carbolic and is dropped into the pelvis; the proximal portion previously tied or clamped is drawn upward out of the way, the peritoneum replaced as well as possible over the dropped distal portion, the proximal end is stitched in the abdominal wall for a permanent colostomy with a few stitches only.

The patient is then placed in the lithotomy position and the anus is circumscribed with a knife or scissors and dissected out completely. Through this perineal gap or opening the distal or excised portion is then drawn, drainage placed in, etc. The colostomy is kept closed by either the ligature or clamp procedure for a couple of days, providing that no great distention be present. By this time adhesions to the side wall are thorough and the clamp or ligature may be removed.

Those cases involving the anus, with or without

extension into the rectum, and those involving the rectum, we have but one way of approach, unless we desire to make an inguinal colostomy, and that is by the posterior route. The patient is placed in the elevated lithotomy or abdominal position.

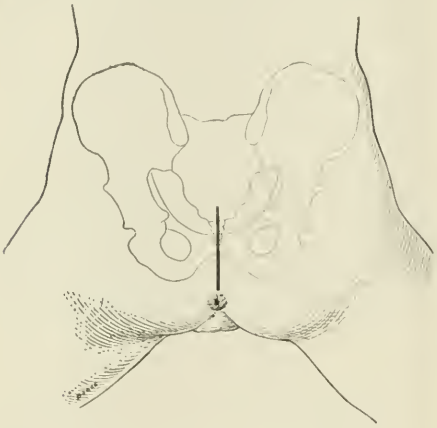

Fig. 2.—The line of incision.

For twelve years I have been using the abdominal position for all my lower rectal work. The patient is placed on his abdomen, his thighs flexed over the end of the table, the thighs separated so that the operator can stand between them, the table slightly elevated as for a Trendelenburg position (Fig. 1).

The incision is then made in the median line as high as the third sacral vertebra and down to the anus surrounding it (Fig. 2). This position will be found a most excellent one for exposure and rapid

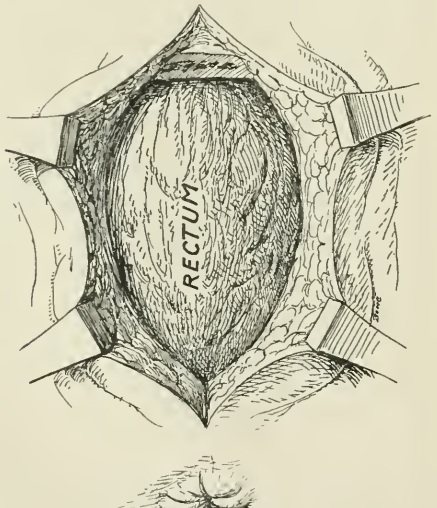

Fig. 3.—Exposure of the rectum.

delivery of the bowel. Excision of the lower sigmoid with anastomosis has been done by me with this position in many instances with great ease and freedom.

In reviewing the postoperative histories in these eighty-five patients I cannot say that I am satisfied or pleased. While true that one patient lived nine years, and that it is too early to judge the records during the past three years in the forty patients operated on in that time, it is also true that a great number have not had the relief that we wished for. That recurrences were too early in the majority of patients, or that metastasis, with death, followed far too soon.

Our greatest difficulty to-day is one of inability to diagnose early, or one of delayed diagnosis, and one without question of conservatism of function at the expense of too little removed tissue.

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STUTTERING AND ITS TREATMENT.

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Human speech is the result of mental stimuli and muscular movements which give expression to thought. In early infancy its rudimentary form is the exponent of an entirely natural condition due to those intimate relations between brain and muscle called congenital reflexes, and whose influences extend into adolescent and adult life to a greater or lesser degree. These forces are autokinetic, and demonstrations of their power in the genesis of speech are analogous to expressions of the face indicating joy or pain, or the taste of bitterness and acidity. In a higher degree crying, laughing, and involuntary exclamations are instances of the influence of natural reflexes.

These early efforts of infant speech arising from unconscious impulses are instigated by feelings and emotions which gradually become elevated into intelligent conceptions and real thoughts. Later, under the direction of training, mimicry, and other outside influences, the outward expression of these cognate impulses becomes intentional, orderly, systematic, and intelligible to others. If the early attempts to speak were left untrained the process would go on just the same, but the child would develop a language of its own as an outlet for its natural stimuli. An act of comprehensible speech requires merely a calling together of trained reflexes in a coordinated effort.

Speech as an expression of human thought is accomplished by means of gestures and the utterance of words and sentences. It is an outward delineation or series of pictures of what transpires in the mind. Words, sentences, and gestures are, therefore, pictorial symbols of ideas. Applying a medical term, speech is a symptom of the mental state, revealing to a nice degree whether it be keen and lively or dull and sluggish, normal or abnormal. Undeveloped, disturbed, or diseased mental conditions are portrayed quite as plainly as normal ones. Speech itself becomes pathological when mental conditions are such as to interfere with or prevent its production as a spontaneous and independent act. Under the term lalopathy are grouped the various forms of speech disturbances, some of which may be here enumerated and described.

Dysphasia.—As an autonomous process speech consists of two factors, namely, diction and articulation. Diction is an intellectual act by means of which words are chosen and grammatically arranged into sentences to give expression to thought. Inability to do this normally is termed dysphasia. Severe forms of dysphasia, such as occur in pathological conditions of the cortex, producing a motor inability to form words are called aphasias. If

added to this there exists an incapacity for the recollection of words or sounds as thought symbols, the derangement is known as amnesic aphasia. Such impairments of speech are logoneuroses.

Dysarthria.—Articulation is a motor act executed by the external organs of speech, assisted and controlled by the central and peripheral nervous mechanism through which the various movements take place, the product of which is the enunciation of sounds, syllables, and words. Disturbance of this function, or a lesion in articulaton, is spoken of as dysarthria, or anarthria. If in consequence of such a derangement a spasmodic state of speech is produced, the affection is a laloneurosis.

Dyslalia.—Defective speech produced by gross mechanical lesions in the articulating apparatus, such as harelip, cleft palate, imperfect dentition, or injury to the motor nerves, is designated dyslalia, in differentiation from the true or central dysarthroses due to organic brain lesion. Alalia is a condition of impaired articulation due to a partial or complete paralysis of the muscles of speech.

Common Forms of Lalopathy.—Stammering, stuttering, apthongia, spasmodic hesitation, and "nervous speech" belong to the domain of lalopathy. They are all either laloneuroses or logoneuroses, and may be both. Taking up the definitions and distinctions of stuttering (dysarthria syllabaris spasmodica) and stammering (dysarthria literalis) as the most important of the forms of lalopathy which we wish to consider, it is found that there is a diffent opinion held by many authors in America and England from that of the French and German scientists.

The Century Dictionary defines the terms by stating: "He who stammers has great difficulty in uttering anything; the result is, broken and inarticulate sounds that seem to stick in the mouth and sometimes completely suppress voice. He who stutters makes sounds that are not what he desires to make and the result is a quick repetition of some one sound that is initial in a word that the person desires to utter, as c-c-c-catch." Other English dictionaries give about the same definition, which thus classes both stuttering and stammering as disorders due to a muscular spasm. The inference is that stuttering is a mild form of stammering.

The French and German authorities place only stuttering in the spasomodic class. Stammering is used to describe all anomalous conditions where there is inability to enunciate certain sounds or letters correctly. Stammering, they maintain, is constant, while stuttering is intermittent.

A further comparative description of these disorders under the German system[1] will be interesting to some and may be made as follows. The stutterer can make all the separate sounds used in speech when isolated. The stammerer cannot pronounce his difficult sounds correctly at any time. It is only when the sounds are joined syllabically in the endeavor to produce words which contain thought, that the stutterer has difficulty, and not always even then. The stammerer will show the defect whenever and wherever certain sounds or letters occur. The stammerer is most likely to have trouble, which is constant, with such letters as *r, l, s, th,* and other double consonants; while for the stutterer these somewhat continuous sounds are generally easier than the explosive consonants.

In stammering the speech is defective because the movements of the organs are mechanically incorrect in regard to position. In stuttering the movements are correct as to position, but deficient as to time and force. In stammering the peculiar spasms, contortions, and gasping seen in stuttering are absent. The nervous embarrassment and confusion (lalophobia), followed by depression, which is a marked feature of stuttering, is not experienced in uncomplicated cases of stammering. The broken rhythm or lack of proportion between the vocal and phonetic processes, a sort of respiratory delay, which is prominent in stuttering, does not occur in stammering. The stutterer can always pronounce the words correctly in singing, but the stammerer cannot. The practice of melodic and rhythmical sounds and exercises exerts a beneficial influence on the stutterer's condition, but has no effect whatever on that of the stammerer. Stammering is frequently accompanied by and caused by organic defects, malformations and paralyses which are rarely seen in stuttering.

Causes of Stuttering.—It is often impossible to discover any cause for stuttering. In fact the cause may have long since passed away, but its effects remain in the form of a habit, either mental or physical, or both. Most cases depend probably upon an exaggerated irritability of the natural reflexes associated with the spontaneous production of speech. There can be no doubt but that *phylogenetic influences* play an important part in causing stuttering. Children inherit other mental and physical characteristics, and statistics support the statement that there are more persons who stutter that have had relatives which were similarly afflicted than any other class. The element of association and a sort of resultant psychical contagion in such cases must, of course, be taken into account, but other reasons point to consanguinity as the greater force. For instance, cousins who have not been associated, often stutter or have some nervous speech trouble. Grandchildren are frequently affected who have never seen the grandfather or grandmother who stuttered. The speech of nephews and nieces is likewise often impaired. Many cases of this sort of atavism have been seen which seemed to have skipped one or more generations.

Case I.—A man who lived to be eighty years of age was a stutterer from childhood. The cause of his impediment could not be ascertained. He had two sons, Robert and Henry. Robert, the elder by three years, was a stutterer from the age of three and a half years. The mother stated that he had no difficulty when he began to speak for about two years, when the impediment appeared rather suddenly. He grew to manhood a stutterer, married, and had two or three children none of whom was afflicted. One of these children, William by name, also married and had several children, two of whom began to stutter before they were five years of age. It had skipped the grandson William to show again in the great grandchildren. Henry, the younger son of the original stutterer, although constantly associated with his stuttering father and his stuttering brother Robert, did not contract the malady, but curiously enough, his son James became a severe stutterer. This son James, whose father Henry was skipped, was a grandson of the original. Another son of Henry who was not affected has one boy who, though now quite young, hesitates in his speech and shows decided symptoms of stuttering. Here again the hereditary influence is seen in the fourth generation after skipping the second and third in a direct line, although the uncle, James, of this young boy was a stutterer in the third generation.

The individuals referred to in this case were all native born, intelligent Americans, enjoyed good health otherwise, had no stigmata, no bad habits, were not "nervous" people, and occupied places in business and professional life rather above the average. The facts as here related were all investigated by the author, who saw all the persons mentioned.

and records them here as a rather remarkable example of the principle of heredity in causing stuttering.

The next two important causes which have been instrumental in producing stuttering are *imitation* and *fear*. Many young stutterers have become so from mimicing a stuttering companion in a spirit of fun or ridicule. If done unkindly, it surely brings its own punishment and the victim gets and perhaps deserves little sympathy from others. A more serious kind of imitation is that where it is done involuntarily, as is likely to be the case in the close association of home and school. There are many children whose sympathies are so easily awakened by beholding instances of suffering, whose mental conditions are so plastic that when they see another child struggling over a word, they themselves actually experience the same feeling through a sort of sympathetic contagion and soon show the same difficulty in attempting to speak under mental strain or embarrassment. It is a singular fact that bad habits of speech, the use of incorrect grammar, slang, profanity and other undesirable modes of expression are much easier learned and longer retained by humanity in general than are good habits and the language of refinement and culture.

Sudden fright in childhood is another very fruitful cause of stuttering. That portion of the medulla oblongata which regulates the functions of the respiratory and vocal apparatus, when severely shaken by some powerful psychical impression in childhood, such as abject fear, transmits a shock to the nervous system that is liable to excite incoordinate movements, especially of the speech muscles. This disorganization in the medulla may extend to the processes of neighboring nerve nuclei and call into action accessory spasmodic movements of the muscles of the face, eyes, tongue, and neck, and not infrequently those of the arms and legs. Among the many cases seen two deserve especial mention, in both of which there was excessive fear, although in one of the cases there was no real danger.

Case II.—A group of children were playing at a friend's house. In the course of their sports one of the older boys dressed himself in ragged clothing to resemble a tramp and appeared suddenly before the others wearing a hideous face or mask. On seeing this ugly and horrid image one of the little boys, a child of four years of age, uttered a piercing scream and as he started to run away with the others fell upon the floor. He became unconscious at once and remained in convulsions more or less constant for several hours. He had previously been a good talker for one of his age, but after this experience he lost the power of speech entirely and seemed in a semi-dazed condition for ten days or two weeks. When he did commence to speak again it was with difficulty that he could make himself understood. Pronounced stuttering soon appeared. He grew up a healthy child, but a confirmed stutterer.

Case III.—A very healthy, robust boy of eight years of age was taken during the summer vacation to the seashore with his parents. One day his father, to whom he was much attached, and some friends went fishing on the ocean in a small boat, leaving the boy at the hotel with his mother. When it was time for the father to return, the boy and his mother walked down to the beach to greet him. The surf was very high and strong, and as the boat containing the father approached the shore it was caught in the breakers and overturned. The boy on shore saw his father thrown into the water, heard his frenzied cries for help, saw him drawn under by the powerful and swift undertow, and realized that his father was in great danger of drowning. Fortunately, life savers were at hand and the father's body, more dead than alive, was brought on shore and resuscitated. When the boy saw his father disappear under the waves he fainted, but recovered in time to see the apparently dead body brought out of the water. Subsequently he watched with great anxiety the efforts at resuscitation which were finally successful. This terrifying spectacle and experience gave him a profound nervous shock and in the course of a few days, from a lad who had always spoken fluently, he began to stutter, and later developed a most severe type of mute, gutturotetanic stuttering.

Numerous other interesting cases could be cited where the nervous instability incidental to excessive fear had so unbalanced the harmonious relations which exist normally between the brain and the speech organs that disordered speech resulted.

Valuable information upon the morphological changes that the brain cells undergo in shock produced by fear has been acquired by the recent investigations and experiments of Crile. In an article on "The Kinetic Theory of Shock, etc.," published in the *Lancet* of July 5, 1913, he says: "According to my kinetic theory of shock, the essential lesions are in the brain cells, and are caused by the conversion of potential energy in the brain cells into kinetic energy at the expense of certain chemical compounds stored in the cells. It is a physical law that no energy can be lost, and every adequate stimulus must, therefore, receive its adequate response. Where, then, shall we look for the part which is exhausted under the strain of too great stimulation? Since we find that those animals which suffer most from shock are those with the most highly developed power of associaton memory, we should expect to find the greatest ultimate damage in the centre of the mechanism for this faculty. This damage may be sufficient to break down the cells at once, and we have a general exhaustion; or the cells have become so overcharged that slight additional stimuli will be sufficient to overbalance them and we see the after effects of nervous symptoms. The cells in the cortex of animals exhausted by fright or by physical trauma showed like changes, and these morphological changes, varied from slight alterations in the cell contents to complete deterioration.

"This theory assumes (1) that the environment of phylogeny (ancestral history) through adaptation predetermines the environmental reactions of the present; (2) that in each individual at a given time there is a limited amount of potential energy stored in each brain cell, that is, that the cell contents under stimulation are capable of a certain amount of chemical change, which will produce a relative amount of action—kinetic energy; (3) that the motor activity following each stimulus—traumatic or psychic-diminishes in some degree the amount of potential energy in the brain cells, that is, by some chemical change of the cell contents a certain amount of kinetic energy is produced and a certain amount of reserve power is lost; (4) that when the motor activity resulting from the change of the potential energy in the brain cell to kinetic energy takes the form of obvious work performed the phenomena expressing the depletion of the vital forces are termed physical exhaustion; (5) that when the expenditure of energy caused by emotional stimuli cannot take its normal course and produce motor activity, the condition reacts upon the cell itself. The stimulation is thus automatically increased and the resultant expenditure of potential energy is proportionately active.

"And here it may be noted that the final result of intense fear is the same as that of physical exhaustion or that following psychic strain, and that it is a primary and most far-reaching fact—namely,

that the animals (and persons) most capable of being shocked are those whose self-preservation is dependent upon some form of motor activity and in whom the presence of bodily danger is capable of producing the phenomenon of fear."

Assuming this postulate to be correct, it is easy to understand how fright and fear deplete and shatter the potential energy of the brain cells to such a degree that the intricate and orderly changes essential to an act of normal speech are impossible and which may keep it so until a confirmed habit is the ultimate result. This knowledge of how fear, psychic strain and mental shock affect the cell content throws a great deal of light upon one of the chief and invariable characteristics of stuttering. In stuttering the remembrance of former failures produces a constant dread and fear of future difficulty, which in most sufferers is a greater mental stram than the fear of a moderate degree of bodily harm would be. This application of Crile's theory, which is wholly tenable, explains to some extent why this chronic state of fear keeps the physical force and energy of the brain at such a low ebb that, notwithstanding a strong desire to speak and a clear intellectuality, the individual is incapable of doing that which all his other mental faculties tell him he should be able to do—actually anaphasia.

The other causes that have been mentioned as conducive to stuttering are probably about equal in frequency and importance. Harshness and fear of punishment at home and in school as a contributing factor, however, should be emphasized because it can be avoided. It is positively dangerous and unpardonable to speak harshly to a nervous child, and to punish when in a fit of temper as is too often done, involves the possibility of entailing upon the little one a lifelong burden of deranged speech that will seriously impair its usefulness and happiness in every station in life.

Inception of Stuttering.—Most instances of disordered speech begin in early childhood before the age of seven years. A few show the affection soon after beginning to speak, especially if there have been convulsions in earlier babyhood or where there is a hereditary predisposition present. Usually, however, there is a period of normal speech of from one to five years after the child has begun to form sentences. This being the case, coupled with the fact that at times all words are uttered plainly even after the child has begun to stutter, indicates that there is no malformation or organic defect in the speech organs themselves.

It is not until the mind has developed sufficiently for the child to take an interest in the affairs of life that the trouble manifests itself. Up to this time the workings of the natural reflexes have enabled it to repeat the sounds and words it has heard; but as soon as the individuality asserts itself, then a desire to express its own particular thoughts brings new factors into the creation and transmission of the speech impulses. Interest and eagerness to communicate ideas then throw such an amount of nervous excitement and force upon the tiny muscles of the undeveloped speech organs that they are overwhelmed. They cannot perform their normal functions at a rate of speed and precision proportionate to the amount and character of the stimuli received and hence confusion and disorder result.

It is nearly always the highly organized, sensitive child whose intellectual and emotional faculties develop earlier than the corresponding physical conditions that shows stuttering in early childhood. Soon this lack of control occurs every time an unusual mental emotion seeks an outlet in speech. Thus a spasm habit is formed, chiefly mental, but in some degree and in a connecting manner physical, which as often as it is repeated grows stronger, so that if mental aberrations be absent, a muscle habit remains.

It is a reasonable assumption that these frequent derangements change to some extent the chemical content if not the structure of the brain cell and through deterioration of cell, ganglion and fibre the amount and force of the transmission of kinetic energy through normal paths, especially when an almost constant dread and fear of failure is present. It is certain that in the habitual stutterer that portion of the brain concerned in the act of speech is more easily excited than in ordinary individuals.

With this state of abnormal sensitiveness and excitability of the cells in what may be called the ideational region of the brain, in the adult as well as in the child, it is not strange that during the orgination and transmission of the speech impulse to the motor centers and thence to the speech organs themselves that inhibition of the natural reflexes occur and control is lost. Evidently, the trouble is due to the character and influence of the thought impulse, and its origin is just where the mental processes take hold of the physical apparatus and where the mind and body interlace in the executive department of the speech economy.

Causation of Other Diseases.—There are, however, other diseased conditions of the body which stuttering is liable to bring on, which are of sufficient importance to consider briefly. Passing over with only a brief mention the deleterious effects of confirmed and protracted stuttering on the nervous system in the production of neurasthenia, hypochondria, and melancholia, it is a fact that the shallow and intermittent respiration peculiar to this habit fails to aerate the lungs properly and exposes the sufferers not only to lung diseases but to all other morbid conditions resultant upon insufficiently oxygenated and impure blood.

In further proof of this assertion, statistics from an industrial school in England[2] show that the breathing capacity in a group of stuttering boys (nine cases) of twelve and thirteen years of age, the average was 88 and 109 cubic inches respectively; whereas an examination of a like number of non-stutterers of the same age gave 166 cubic inches as the average. There is also no doubt but in consequence of the disturbances in the circulation of the blood in cases where there are frequent severe spasms and violent exertions to speak, a predisposition to apoplexy, valvular diseases of the heart, and aneurysms of the aorta and large blood vessels of the upper chest and neck is produced.

Prognosis.—The prognosis of untreated stuttering is variable. Much depends upon the age, health, and temperament of the individual, upon his associations and environment and upon the causes, form, duration, and degree of the affection. Occasionally light grades disappear spontaneously during late childhood and adolescent life. This has been noticed to be the case where children had been kept on an insufficient and innutritiious diet, that when given adequate and proper nourishment the infirmity disappeared. Experience does not prove, however, that a majority of children who are affected outgrow the difficulty.

Prognosis is said to be unfavorable under the following conditions, viz., when there is a heredi-

tary predisposition to the affection, or where there is great irritability of the congenital reflexes or weakness of coordination generally when the trouble is of a severe form and has lasted a long time; when spasms of the glottis and its muscles are a predominant feature; when the contractions extend to groups of muscles other than those involved in the immediate production of speech; when there is lack of ordinary intelligence or instability of thought and purpose, and when the patient is advanced in age.

Treatment.—The treatment of stuttering is attended with many difficulties. It is doubtful whether there is any treatment for confirmed cases which is entirely curative. Impediments of speech have existed as long as the history of mankind. Some of the best qualified psychologists and specialists of every age and generation have been interested in their cure. Itard stated in 1817 that the treatment of stuttering had made no progress in two thousand years. The results attained by the specialists of the present day and the recent literature upon the subject do not indicate that anything nearer a specific cure has been found.

It is probably better that the public should be told this by those who ought to know. It would prevent much misapprehension and disappointment because there are reasons for thinking that a belief exists among the uninformed that there is a sure cure in the methods of this or that person. The public generally should know that in spite of extravagant claims, there is a sense in which a cure of inveterate stuttering is never complete. A person who has once developed such a case, although he may be apparently cured and able to speak well is never quite the same as one who has never been afflicted in this way. Relapses, too, are common. Without constant care and the most favorable conditions, the malady is liable to recur to a greater or less degree.

This discouraging prognosis, however, should not be a cause for despondency or a do-nothing attitude. It would be a rash and unreliable promise that would hold out hopes of a positive cure in every case of stuttering, but because we cannot in every instance accomplish all that we wish, is no reason why we should stand idly by and do nothing. Because as yet we cannot cure every case of tuberculosis, nephritis, or gastritis we do not throw up our hands, so to speak, and cease our efforts to do what we can. It is well known that many cases of the above disease have been practically cured when the treatment has been begun early in the history of the affection and carried out wisely and persistently.

While the affliction of stuttering is not often a matter of life and death, yet that it is a dire misfortune no one will deny. To ignore and neglect the needy condition of persons afflicted in this way because we are not sure of making an absolute and permanent cure in every case is on a par with the proposition to neglect the sick because all do not get well under treatment. It is a fact that, even with our present knowledge and remedies, there are thousands of children and young people who have been and who can be educated and trained so that their impediments will give them very little trouble and will in time grow less and less, according to the care, application, and perseverance that they exercise. Even if the treatment of stuttering, as is often the case in other diseases, is attempted frequently by irresponsible persons, who seek to deceive with false promises, worthless remedies, and tricks, this should not deter reputable men from making persistent attempts to relieve this worthy class of innocent sufferers who absolutely need and should have the best efforts of able and conscientious physicians, teachers, and philanthropic persons.

Prophylactic Treatment.—The worst has now been said about what cannot be done or expected and the way has been cleared for a better understanding of what can and should be done. In the first place, prophylactic treatment is of the utmost importance. It necessarily must be commenced in early childhood. It probably would be more efficient if it could be begun with grandparents. Childhood is the time *par excellence* to ward off and even to cure stuttering.

It is an axiom in the proper supervision of the health of all children that their noses and throats should be examined by competent medical men for the purpose of correcting abnormal conditions in and about these organs. It cannot be said that the presence of adenoids and enlarged tonsils are a cause of stuttering or that their removal will cure it. There are thousands of children who have these obstructions who do not develop stuttering, but inasmuch as deficient and delayed respiration is one of the chief causes, an obstructed respiratory tract is directly contributory to a shallow and unhealthy manner of breathing.

Obstructions to the air current if they exist should be removed and the child trained to breathe through the nose. Not only should it be taught to inhale and exhale through the nostrils, but also to breathe slowly and deeply continuously as a matter of habit. Efforts should be made to expand the lower part of the lungs, which are covered by the inferior thoracic and waist muscles, and to induce free excursions of the diaphragm. This style of breathing will serve to quiet nervousness, insure better control and prove more healthful and helpful than clavicular or chest breathing.

A child for whom stuttering is feared should not be allowed to make attempts to speak under great excitement, nor when laughing or crying, and especially not during the paroxysms of whooping-cough, because at these times the natural rhythm and force of the respiratory function are deranged. For the same reasons, tickling a child is a dangerous practice.

Since stuttering is a neurosis, causes of nervous irritation should be removed as far as possible and kept away from a child who needs protection in this respect. Constant worrying or teasing, even in a friendly manner, is apt to foster a nervous excitability which is conducive to stuttering. Undue severity may be another contributuory cause which should be guarded against. There are some other physical conditions which help to make a child nervous, for which a physician's advice and service should be sought.

When the breathing and the nervous conditions have been made as good as they can be, it is important that every effort be made to keep the body in as sound and vigorous a condition as possible. Good food and nourishment at proper intervals, pure air in sleeping rooms, early retiring, a quiet darkened room in which to sleep, cleanliness of person especially of the mouth and teeth, moderate forms of play, exercise or work are all most useful in keeping the system in a condition to resist the onset of nervous speech troubles.

Not all of these measures perhaps would be needed in every case, but there is one other very useful prophylactic suggestion which will apply to all cases where stuttering is feared or where an effort is being made to check the habit. It is that of always exhibiting before the little one a model of perfect speech as an example for it to follow, both consciously and involuntarily. Children learn to talk largely from imitation and it is therefore very important that they should have a good form to copy.

In this connection much assistance can be given by maintaining an explanatory but persistent and strict supervision over the methods of producing sounds and words until habits of good articulation are firmly established. Exercises and experiences calculated to strengthen the character, broaden the will power, arouse the ambition in certain cases, and develop habits of application and perseverance will all be most useful in counteracting a predisposition to stuttering and even of correcting it in its earlier stages.

Curative Treatment.—Inasmuch as the causes of spasmodic seizures of speech are largely abnormalities or perversions of the mental state, it follows that proper treatment of such disorders should be mental, didactic, and pedagogic. Medical treatment, too, is frequently indicated, for, by reason of the deranged nerve function and the congested condition of the circulation common to all forms of spasms and convulsions, the general health is often affected. Minor surgical operations upon the tongue, pharynx, and nose for the purpose of correcting anomalies, are sometimes advisable.

Reference to the application of electricity is mentioned only to state that it has never proved to be of any permanent value. The same may be said of hypnotism. The sufferer may speak well while under the hypnotic spell, but its influence soon passes off and the subject feels weaker than before. The knowledge that other persons have a stronger will and that he has been made to act as an automaton is not an assuring factor in the development of an independent personal control, which is the *sine qua non* in untrammeled speech.

Psychoanalysis for the treatment of stuttering, of which a good deal has been written lately, is of little if any practical use. Recalling a stutterer's dreams may give a better idea of his waking thoughts and help to determine the motives and influences which control his conscious actions, but this information can usually be obtained in a more direct and positive manner by inspection and observation.

Mental treatment is of the greatest importance. It comprises so many things that it would be difficult to state what is not included. It takes up every phase of life that affects the feelings and emotions of the sufferer. Any and all measures which may be brought about by the physician, teacher, parent, or individual which will increase the mental poise and equilibrium are of incomparable value.

In accordance with the best treatment of other nervous disorders the mind should be led away from the stuttering *per se* and from the fact that efforts are being made to cure it, as one would treat a bodily disease. An effort should be made to think of it as a habit only, which will disappear as soon as new and better habits are installed in its place. This is best done by explaining and placing before the individual a model of perfect or normal speech, impressing upon him that he is a student of the great art of speech, and assuring him that if the rules and principles which underlie and govern normal speech are complied with, there will be no stuttering.

Among other influences which will affect the mental condition favorably may be mentioned the choosing of a pleasant environment and associations, habits of self-reliance, avoidance of and repelling depressive states of mind, resolutions to control excitement, interest, and eagerness to speak as much as possible, the development of an independent and courageous manner, and all other acts of the mind which will go to strengthen the mental stability and increase self-confidence. Any means which will help to build up and restore confidence in general will be of the greatest aid in removing the defect. The education and development of the directing powers of the mind in controlling the acts of any other group of muscles will be of assistance in gaining control over the refractory muscles of speech. For this purpose, the practice of light calisthenic and mild athletic exercises will be found very beneficial.

The *didactic and pedagogic treatment* consists in going over the technique of speech from its very simplest forms to that of the complicated utterances of the natural and perfect product. It is by this means that the coordination of the three principal physical factors of speech, namely, respiration, vocalization, and articulation are brought under control and harmonized. It has been stated already that the stutterer fails to perform the mechanical acts requisite to correct speech, especially in regard to proper time and force. The didactic method points out to him where and why he has done so. By it he is taught how and why sounds are made which eventually form words and sentences. Daily drill in graded exercises is to be carried out and to be persevered in until perfect enunciation is reached and correct habits of speech are firmly established.

In this way the physical factors of speech are properly trained, the mental component reeducated and developed and their functions so harmonized that the incoordination which caused the spasm is lost and speech becomes normal. The combined mental and didactic forms of treatment serve to impart a logical compactness and continuity to the expression of thought and thus aid in preserving the natural rhythm and force of speech, which is always broken up and destroyed by the intermittent and badly modulated style of the stutterer. General directions only can be given, for each case has its own peculiar situation and need, which should be studied carefully and such remedies adopted as appear most suitable and useful according to the circumstances.

In correcting speech disorders the oft repeated maxim of "doing the things in detail which belong to good speech in general will produce good speech" is a good one to keep always in mind. The modus operandi will sometimes tax the wisdom, ingenuity, and patience to the utmost, but abundant rewards await the resolute and tireless worker.

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1. "Ziemssen's Practice of Medicine." Not an exact quotation.

2. *Lancet*, No. 4334. 1906, CLXXI, 702.

62 West Fortieth Street.

AN UNUSUAL CASE OF APPENDICITIS (RETROCECAL) ASSOCIATED WITH RARE ANATOMICAL ANOMALIES.

BY VINCENT ANTHONY CAPENTA, M.D.,

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Miss A. C. consulted me April 26 on account of a "stone in the kidney." She related that this was the fourth attack that she had experienced in the last year. Her family history is of no interest in this case. The only points of importance in her personal history were typhoid fever about ten years ago and a miscarriage with probably some pelvic peritonitis about two years ago.

Physical examination—Female, age 28, of excellent skeletal development. Temperature 100°, pulse 90, respiration 30. The face of the patient had the appearance of a prolonged toxemia, the facies peritonitica was lacking, abdomen was not at all distended, nor did the patient complain of abdominal distress. He did, however, complain of a pain in the lumbar region corresponding to the location of the right kidney.

On palpation of the right iliac region pain was elicited. There was no rigidity of the rectus muscle nor was any muscular reaction caused by the pressure. I assumed this to be a case of retrocecal appendicitis and differentiated it from renal colic by the following cardinal differential diagnostic considerations; I noted the absence of pain radiating down the course of the ureter and the absence of retraction of the right vaginal labium. The temperature curve as observed for three days was also against the diagnosis of renal colic as it evidenced the presence of pus, and as no pus was demonstrated in the urine I felt safe in assuming that the pathological lesion was located elsewhere than in the kidney.

The hematological examination revealed a leucocyte count of 14,500 and the differential examination revealed 82 per cent. polymorphonuclear neutrophiles with few eosinophiles. There was a marked iodophilia which I maintain is always very reliable evidence of absorption of bacterial toxins; I therefore felt safe in advancing a diagnosis of retrocecal appendicitis.

Operation, May 29, Deaconess Hospital. Abdomen was opened by gridiron incision and, as expected, nothing pathological anterior to the cecum was found. To my astonishment the cecum was found enveloped in a peritoneal membrane extending from above the iliocecal juncture to the end of the cecum, forming a well marked mesentery to the cecum; this membrane being strongly fixed to the posterior wall of the iliocecal fossa.

The membrane was opened and gradually dissected from the underlying cecum on both sides of the gut and to the line where it resembled a mesenteric attachment. The folds of this false mesentery were opened and the appendix was then exposed. It was a very large appendix firmly adhered to the cecum.

In this funnel-shaped envelope there was only a very small amount of pus. The appendix was dissected loose from the cecum and removed and the membrane was removed from its attachment at the posterior abdominal wall.

In my opinion this membrane enveloping and forming a false mesentery to the cecum was formed of a pair of peritoneal folds probably of fetal origin. I feel quite certain that this was not a case of membranous pericolitis, nor could these large peritoneal folds forming a distinct mesentery to the cecum be considered as the peritoneal folds described by Jonnesco and Treves.

I believe that we have in this case a rare anatomical anomaly. I refer the reader to the masterly description of the cecum by Piersol in his "Anatomy." He brings out very plainly that the cecum has no mesentery at all and describes very minutely the peritoneal folds of Jonnesco and Treves. Whether the large peritoneal folds described in this case are persistent fetal structures or the result of disease I am unable to determine. I have made a fair search of the literature and have failed to find a similar case.

Is Tobacco a Drug?—An interesting case of splitting hairs has arisen in Ireland in the administration of the National Insurance Act, as to whether tobacco is a drug, a necessity, or a luxury, all three views being taken by different authorities. It appears that the superintending medical officer of the Dublin district recommended that a consumptive patient coming under the provisions of the act be given tobacco for smoking, to comfort him in his last days, offering to pay for the weed himself, but the insurance committee decided that the tobacco was necessary to the patient's treatment and sent in the bill to the insurance commissioners. Two weeks later the local authorities received a lengthy communication demanding an explanation for their action in charging the government with a shilling's worth of tobacco. Their reply was that tobacco was recognized as a drug in the British Codex under the title nicotiana tabacum and that it had been prescribed by a registered practitioner. Thereupon the commissioners consulted learned King's counsellors and they are still wrestling with the subject. Meanwhile the patient is dead, the tobacco has been smoked and the expense of the disputation has already reached a hundred times the cost of the original tin of shag.—*American Druggist.*

A Reaction to Differentiate Human from Cow's Milk.—Bauer states that if there be added to two or three cubic centimeters of human or cow's milk one drop of a one-fourth of one per cent. watery solution of nileblue sulphate (Grübler), both specimens will be stained blue—but greenish blue in the case of cow's milk and violet blue in the case of human milk. If to either specimen there be added five times the volume of ether, and if the mixture be vigorously shaken, it will be noted that the cow's milk retains its blue color, while the human milk is decolorized.—*Monatsschrift für Kinderheilkunde.*

Treatment of Diphtheria Bacillus Carriers.—J. D. Rolleston treated ten chronic diphtheria bacillus carriers by spraying and swabbing the throat or nose with a bouillon culture of *Staphylococcus pyogenes aureus.* In six faucial cases the findings became negative within two to seven days after starting the treatment. In the two nasal cases the treatment was ineffective. In all but two cases a mild form of sore throat was produced, but no complication ensued.—*British Journal of Children's Diseases.*

The Relation of Appendicitis to Diverticulitis.—M. Guibé concludes from his observations that the simultaneous occurrence of appendicitis and diverticulitis is not infrequent. This association may be a mere coincidence or there may be a causal relation between the two conditions. Sometimes the appendicitis results from the diverticulitis, but more commonly the affection of the appendix provokes a secondary infection of Meckel's diverticulum.—*La Presse Médicale.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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MIXED INFECTION IN TYPHOID FEVER.

IN the early stages of the development of the so-called germ-theory of disease the whole matter was accepted by its subscribers as being comparatively simple. A certain kind of microorganism gained access to the body and was able to produce certain changes which we have come to know as disease. In the course of time facts have accumulated which have sufficed to alter these early views to a certain extent. We know that certain bacteria are able in themselves to produce certain diseases, but have learned that many of the changes found in these diseases may be due to a subsequent infection with some other organism which is frequently totally different from the primary infecting agent. The difficulties in the way of determining the truth in these cases are frequently tremendous, but some observations have been repeated with enough accuracy and persistency to have acquired a firm position. The cavity formation in tuberculosis is probably due to a secondary infection. A chronic urethritis may be kept going by the presence of some of the pus cocci, though originally due to the gonococcus. Many of the complications and sequelæ of scarlet fever are due to a streptococcus which is in all probability a secondary infection. The importance of mixed infection is quite universally recognized, though all the instances in which it occurs have not been demonstrated.

The belief has always been held, however, that typhoid fever is the result of infection with the *Bacillus typhosus,* and that all the pathological changes which are so characteristic of this disease are examples of the work of this organism. Recent bacteriological investigation has yielded what seems to be good evidence for the contention that in this condition also mixed infection is of great importance. J. Loris Molikoff, working under the direction of Metchnikoff (*Annales de l'Institut Pasteur*, 1913, xxvii, 541) conceived the idea that the great variations in the severity of this disease might be due to other factors than the virulence of the typhoid bacillus and took up the study of the anaërobic flora of the intestine in a large number of cases of typhoid. Using the usual methods he isolated the *B. perfringens* of Welch, the *B. III* of Rodella, and a third microorganism hitherto undescribed, which he calls the *B. satellitis.* Some of the characteristics of these organisms are interesting. In very severe cases presenting intestinal complications the strain of the *B. perfringens* isolated killed a guinea-pig in from twelve to eighteen hours, while the strains obtained from the mild cases were for the most part without effect upon this animal. The author is rather of the opinion that the virulent type constitutes a distinct variety of the perfringens. The *B. III* of Rodella is probably without significance. The *B. satellitis* as described seems to occupy a position between that of the perfringens and that of the *B. sporogenes* of Metchnikoff. In guinea-pigs killed by inoculation with this organism the Peyer's patches were swollen and ulcerated, and the lymphoid tissue in general seemed to be markedly affected. The author found this organism in nearly every case of typhoid examined, and failed to find it in the stools of fifty normal individuals. He injected guinea-pigs with various mixtures of *B. typhosus, B. perfringens,* and *B. satellitis* singly and with one or both of the others, and notes especially that though in every case the Peyer's patches were swollen, ulceration occurred only when the last-named organism was injected. As a result of his work he is inclined to divide typhoid fever into two distinct processes. One of these, a septicemia, is due to the *B. typhosus,* while the other is necrotic in type, is marked in that portion of the intestine which is most completely deprived of air, and is probably caused by the *B. satellitis.* The matter is, of course, far from settled, but so far the experiments seem to support his contentions. The most alarming complications of typhoid fever are due to this ulcerating action, and if its cause can be found to lie in a secondary infection, which in turn may be forced to yield to treatment, the outlook is good for a very marked reduction in the mortality in this disease in the not too distant future.

ARTERIOSCLEROSIS FROM A NEW VIEWPOINT.

MANY theories have been advanced to explain the origin of arteriosclerosis and all of these have fitted in more or less with known clinical and pathological data. The experimental production of arteriosclerosis by means of injections of nicotine and suprarenal extract has seemed to explain at any rate a certain percentage of the cases of this condition, but has thrown no light upon the actual chemistry or mechanism of this sequence. A novel explanation has recently been offered by G. Lemoine, who occupies the chair of clinical medicine in Lille. This hypothesis, based upon the results of laboratory experiments, is reported in the *Gazette des Praticiens,* September 1, 1913.

Lemoine has on a number of occasions advanced the theory that the lipoids rich in cholesterin have the power of diminishing the toxicity of various substances that are known to cause atheroma and arteriosclerosis. According to this view, if suprarenal extract, nicotine, or alcohol is introduced into the blood, the organism mobilizes its reserves of lipoids in order that these may be sent into the blood to neutralize the toxic substances. Being but slightly soluble, cholestrein, after having fulfilled

its antitoxic function, is deposited upon the arterial wall in the form of plaques of atheroma. Lemoine has already shown that the injection of lipoids into animals that have already received an injection of suprarenal extract causes a marked diminution in the toxicity of the latter. Later experiments demonstrated that the same result can be obtained if nicotine is used as the toxic agent. The animals experimented upon were guinea-pigs. The oxalate of nicotine was employed, as being the least toxic of the salts of this substance. The minimum lethal dose of the former was found to be 7½ milligrams for each 100 grams of the animal's weight. If in conjunction with this lethal dose there was injected into the guinea-pig a dose of 5 milligrams of lipoids extracted from the bodily organs death did not result. Lipoids extracted from the lung were particularly efficacious in neutralizing the toxicity of nicotine. These experiments give an apparently conclusive demonstration of the antitoxic action of the lipoids. According to Lemoine, these bodies counteract the slow intoxication associated with the habitual use of tobacco. If this use is excessive a relatively large amount of lipoids is summoned to the blood stream. After having fulfilled their antitoxic function these substances are then deposited as atheromatous patches on the arterial wall.

This conception of the morbid physiology of arteriosclerosis is certainly an ingenious one, and must be seriously considered in view of the experimental foundations upon which it is established. It is fully in accord with the newer teachings concerning the important rôle played by the hormones in the protective mechanisms of the body. Moreover, this theory is pregnant with therapeutic indications. It emphasizes particularly the importance of prophylaxis—the avoidance of those toxic agents that are known to produce arteriosclerosis. Lemoine believes that among these agents may be included iodide of potassium, a drug that has actually been used for a long time as the sovereign remedy in combating arteriosclerosis. Thévenot of Lyons has succeeded in producing in animals an arterial atheroma by means of the prolonged administration of potassium iodide. The use of this drug in arteriosclerosis is therefore looked upon by Lemoine as a therapeutic heresy. On the other hand he regards as rational only the use of a substance which when introduced into the organism is capable of dissolving cholesterin. Such substance he believes he has found in the phosphatids in the colloidal state, the clinical use of which seems to have given promising results.

SANITATION AND TYPHOID VACCINATION.

During the past month there has been a local epidemic of typhoid fever in this city, upward of 300 cases, largely among children, having occurred in a limited district on the East Side. An outbreak of this sort naturally attracts the attention of the public by the peculiarity of its restriction to a comparatively small area, and from the point of view of the practical sanitarian, by reason of this very fact, it offers a unique opportunity to prove to the public the value of an exhaustive scientific investigation in identifying the cause of the outbreak and explaining why it is so strictly localized. Success in this would not only demonstrate the value of such an investigation, but would also make it easier to prevent outbreaks of the kind in the future. Failure to make such an investigation or an abandonment of the search before the cause of the epidemic is positively determined would tend to weaken the faith of the public in sanitary measures as a means of prevention of infectious diseases. For this and other reasons it is regrettable that Health Commissioner Lederle should at this time have made a public statement advocating antityphoid vaccination; for, although such an idea was probably farthest from his thoughts, it will be interpreted by many as a sort of throwing up the sponge and a confession that sanitary measures are inadequate to protect a community from infectious disease.

Antityphoid inoculation is undoubtedly protective, its efficacy has been amply demonstrated in the British Army and our own, but it is an emergency measure, and it would be a calamity were the public led to believe that typhoid fever could thereby be eradicated and that sanitation had failed or was superfluous. In comparing antityphoid inoculation with vaccination against smallpox there is danger of straining the analogy, for the two measures differ greatly. The immunity conferred by vaccination is of indefinite duration and the operation itself when properly done is without danger; but the recently issued report of the British Army commission shows that the immunity following typhoid inoculation lasts for two or three years only, and furthermore there seems to be some foundation for the apprehension that typhoid inoculation may light up an incipient tuberculosis or weaken the natural resistance to that disease. These disadvantages ought not to count against the employment of the measure in an emergency, as in the case of hospital physicians and nurses or when large bodies of troops are in camp in a new country where strict sanitary rules cannot be enforced. A traveler going to countries where modern ideas of sanitation are ignored, might also be advised to submit to an inoculation.

The arguments against the universal practice of antityphoid vaccination are well put by Dr. Doty in an article in this issue of the Medical Record. The author speaks with the authority of a practical sanitarian, but possibly with the bias of one as well, for we think he would restrict a little too narrowly the use of antityphoid vaccination. In a hospital, for example, where there are many typhoid patients the risk of direct infection for the nurses is very great and absolute safety for them lies only in preventive inoculation. However, one need not accept all his arguments to be convinced of the unwisdom of the advocacy of a general typhoid inoculation, especially of children, in a community such as this, where there is every reason to expect that a continuance of the measures now in force will in time, in a short time, make the city practically typhoid free.

TRUE OZENA AND THE BACTERIUM PEREZ.

The difficulty in distinguishing between the various types of ozena and fetid rhinitis has always been caused by the absence of distinctive characteristics. For while bacterial life evidently is responsible for the various decompositions which give rise to the odors, the germs have commonly been regarded as saprophytes. Supposing that certain congenital and acquired deformities or diseases of the nose pave the way for the accumulation of crusts which decompose, any treatment which might prevent the crusting or even destroy the activity of the saprophytes could be regarded as curative. In the remote past attempts have been made to isolate a germ to be held responsible for the very beginning of ozena as an entity. And with the dawn of serotherapy it was sought to prepare antisera for this malady. Such efforts in the minds of some good judges have been formed on and pronounced a reproach to serotherapy. In the meantime Perez of Buenos Ayres has pursued the even tenor of a research based on the assumption that ozena is a specific disease. For twelve years he has labored continuously in this direction. He now claims that ozena is an infectious and transmissible disease, due to a germ styled by him *Coccobacillus fœtidus nasi*. This gives in culture the characteristic ozena odor. In order to make sure of the validity of his finds Perez carried out many researches in the Paltauf Institute for Serotherapy at Vienna.

At a meeting last June of the K. k. Gesellschaft der Aerzte zu Wien (*Berliner klinische Wochenschrift*, September 1), Hofer announces his work corroboratory of Perez's claims. Injection of a bacteriotoxin containing the bacterium into experiment animals caused an inflammation of the inferior turbinal bones, from the secretion of which the bacillus of Perez could be recovered. This experiment showed the remarkable rhinotropic action of the injection. The presence of the Perez bacillus in the blood could also be shown by agglutination tests. The inflammation of the lower turbinals leads clearly to atrophy, showing that ordinary atrophic rhinitis may be due to this microorganism.

Syphilis Hereditaria Tarda.

Late inherited syphilis is one of the rarer affections of childhood. Presenting mostly the same manifestations as tertiary syphilis at any stage of life, it suggests a number of important speculations. The question arises as to whether the condition is a strictly late syphilitic process, with a definite period of latency, or whether it is the gummatous stage of an already manifest syphilis of the infantile period. This subject is handled in an illuminating manner by George Alsberg in the opening article of the *Festschrift* dedicated to Adolf Baginsky, which constitutes Vols. 60 and 61 of the *Archiv für Kinderheilkunde*. Alsberg is inclined to question the existence of a syphilis hereditaria tarda, in view of the fact that cases of this condition usually show one or more of the characteristic manifestations of early syphilis, such as the rhagades about the mouth, and the lighter color and folded condition of the labial borders. The important studies of Hochsinger are cited in confirmation of this view. This observer alludes to the non-eruptive forms of congenital syphilis, and to the diagnostic significance of the rhagades about the mouth, and of cranial deformities. The more intense the infection the greater are the probabilities of relapses, and of the development of tertiary lesions, such as those of the bony system. The later the period of childhood the more do the cutaneous manifestations retire to the background, and the more prominent become lesions of the bones, hyperplasias of the lymphoid tissues, and nervous manifestations.

Vaccinola.

A distinction has not generally been made between primary and secondary vaccination, which latter includes auto- and heterovaccination. Yet in each case the germ has passed, perhaps through some subtle change. In the old days of arm-to-arm vaccination, whether immediate or delayed, this possibility was but little thought of. It was well known that inoculation variola was milder than epidemic variola, and that varioloid was milder than inoculation variola. Similar distinctions may well obtain between natural and artificial primary vaccina, generalized vaccina, and auto- and hetero-infection as regards human beings. At a recent session of the Medical Society of the Poliklinik at Nürnberg (*Muenchener medizinische Wochenschrift*, September 2) Kraus reports cases of auto- and heterovaccination under the designation vaccinola. A woman whose child had recently been vaccinated sustained an inoculation on both lids of one eye. The resulting lesions were so severe that a diagnosis without a history would have been most difficult. He also mentions the case of a child, who after vaccination, developed secondary lesions upon both lids of one eye.

News of the Week.

Health of the Canal Zone.—For the month of July, 1913, the annual average death rate from all causes among employees was 7.66 per thousand, representing a total of 37 deaths, of which 26 were due to disease and 11 to violence. This is the lowest rate on record for the month since 1904. The annual average death rate per thousand in the cities of Panama and Colon and the Canal Zone, including employees and civil population, was 24.86, which is 1 point higher than for the same month of last year. The chief causes of death were as follows: Dysentery, 2; lobar pneumonia, 5; malaria, 2; tuberculosis, 7; typhoid fever, 1. There were no cases of yellow fever, smallpox, or plague. The report includes a striking diagram showing the decline in the number of cases of malaria among employees during the first half of each year from 1906 to 1913. In 1906 the morbidity from malaria for the six months from January to July was 46.9 per cent.; in 1907, 25.6 per cent.; 1908, 11 per cent.; 1909, 12.5 per cent.; 1910, 10.5 per cent.; 1911, 12.7 per cent.; 1912, 6.6 per cent.; 1913, 4.5 per cent.

City Death Rate.—For the week ending September 20, the death rate in New York City was 13.20 per thousand, representing a total of 1,359 deaths, whereas for the corresponding week of 1912 the rate was only 11.72, and the total number of deaths 1,162. The increase was generally distributed; the

number of deaths from influenza, bronchitis, pneumonia, pulmonary tuberculosis, and heart and kidney diseases all being greater than last year.

The N. Y. State Board of Medical Examiners held their annual meeting in the Education Building at Albany, Wednesday, September 24. Dr. Henry B. Minton of Brooklyn was elected President; Dr. William H. Park of New York City was elected Vice-President. The Board adopted a new set of rules. Hereafter appeals for the review of rejected papers shall be in writing and shall be sent to the Secretary of the Board within thirty days after receiving notice of failure to pass; and between any examination in which a candidate fails, and a succeeding one which he takes, he must faithfully pursue his studies for at least six months longer and furnish satisfactory evidence thereof to the Board of Medical Examiners.

Cost of Sick Aliens.—The Commissioners of Accounts, who have been investigating the public hospitals of New York City, in a recent report to the Mayor state that the city spends $70,000 a year for the hospital treatment of indigent aliens admitted to this country only because of lax methods of physical examinations at Ellis Island. It is recommended that this expense be shifted to the Federal Government. The report states that during the last three years 9,879 aliens were treated at Bellevue and Allied Hospitals free of charge, and that the average cost for each patient was $21.10, making a total of $208,466.90 expended for this purpose during those years.

College of Physicians and Surgeons.—The 160th year of the College of Physicians and Surgeons, Columbia University, New York, was opened on September 24 with formal exercises in the College hall, at which Prof. George E. Brewer spoke on "Standards of Success in the Practice of Medicine." In all 317 students have been enrolled, the first year class numbering 100; the second, 68; the third, 80; the fourth, 64; and the special students, 5.

Typhoid Epidemic.—The epidemic of typhoid fever on the East Side of New York City has continued without much sign of abatement, and up to September 27 271 cases had been reported. Of these, Bellevue Hospital was caring for considerably more than a hundred, and Beth Israel Hospital for at least 25. At the former place it was said that the nursing force would need additions as the present staff was much overworked. Several deaths have occurred among the hospital patients.

Course in Sex Hygiene.—A new course in sex hygience for teachers has been arranged at the School of Pedagogy of New York University. Ten one-hour lectures will be given on alternate Saturdays, beginning on October 19, and the lecturers will be Dr. Edward L. Keyes, Jr., Dr. Rosalie Slaughter Morton, Dr. Thomas M. Balliet, and George W. Hunter. The aim of the course will be to give teachers a knowledge of the facts and principles constituting the matter of such instruction. The method of teaching will form the special topic of a similar course to be given next year, and will be treated only incidentally in the present course.

Bureau of Eugenics.—Dr. Joseph J. Craven of the Board of Health of Jersey City, N. J., has been assigned the task of organizing a Bureau of Eugenics for the board. It is planned to issue a pamphlet on the latest scientific methods of rearing children, which will be widely circulated among the mothers of the city.

Immigration Totals.—More immigrants arrived in the United States in the fiscal year ending June 30, 1913, than in any preceding year with one exception. The total number was 1,197,092, while during the year ending June 30, 1907, 1,285,349 aliens were received. In only five years since 1820 have more than a million immigrants reached this country. The 1913 total comprised 808,144 males and 389,748 females. Of those debarred 15,062 were males and 4,276 females. South Italy sent 231,613 immigrants during the year; Germany, 80,865; France, 20,052; England, 55,522; Ireland, 37,023; and Japan, 8,302.

Medical Milk Commissions and Certified Milk.—The first bulletin in the new departmental series of the United States Department of Agriculture is a contribution from the Bureau of Animal Industry entitled Medical Milk Commissions and Certified Milk and is a revision of a previous bulletin on the same subject. The bulletin describes the origin and meaning of "certified milk." The word "certified" has been registered in the United States Patent Office and may only be used by a duly organized medical milk commission. About 125 dairies are engaged in producing certified milk and the daily production is 25,000 gallons, an increase of 300 per cent. in five years. However, only about one-half of one per cent. of the total milk supply of the country is certified. The bulletin also describes the equipment and methods necessary for the production of certified milk and points out that expensive equipment is not a necessity so much as careful and unremitting attention to details. An appendix to the bulletin gives the standards for the production and distribution of certified milk as adopted by the American Association of American Milk Commissions at its 1912 meeting.

Milk Stations' Report.—The twenty-second year of the infant milk stations founded and maintained in New York by Mr. Nathan Straus was completed on September 26. From the eighteen depots in Manhattan the output during the year was 2,193,210 bottles of pasteurized milk, while 1,545,419 glasses of milk were served in the parks and on the recreation piers. During the entire twenty-two years 35,000,000 bottles of milk and 18,000,000 glasses have been supplied.

Personals.—Dr. Walter Mendelson of New York has been elected by the alumni of Columbia University to fill the vacancy caused by the death of Mr. J. Pierpont Morgan in the Board of Trustees of the University. The election will be confirmed by the trustees at their next meeting. Dr. Mendelson was graduated from the College of Physicians and Surgeons in 1879, and has for several years served as president of the Association of the Alumni of the College.

Dr. Hideyo Noguchi of the Rockefeller Institute, New York, on September 23 presented the results of his researches on the etiology of rabies before the German Congress for Nature Study in Vienna.

Dr. Walter Bensel retired on October 1 from the office of Sanitary Superintendent of the Board of Health, New York, after twenty-one years' service in the department. He was appointed sanitary superintendent on July 1, 1907.

Dr. Richard P. Strong and his party have returned to Boston after a four months' trip through Central America, Peru, and Ecuador, where material was collected for the new department of tropical medicine in the Harvard Medical School. Besides Prof. Strong the party comprised Prof. E. E. Tyzzer, Director of the Harvard Cancer Commission, Dr. Charles Brues, instructor in economic en-

tomology, and Dr. W. W. Sellards, instructor in medicine at Johns Hopkins University.

Dr. Lucius W. Hotchkiss of this city was severely injured in an automobile accident on the Morristown turnpike in New Jersey on Sunday last. He has been cared for at the Memorial Hospital in Montclair, and it is a pleasure to learn that it is expected he will be able to return to his home in a few days.

New York Neurological Society.—The next regular meeting of this Society will take place at the Academy of Medicine on Tuesday evening, October 7. Clinical cases will be presented by Drs. Karpas, Climenko, and others, and there will be a discussion on the intraspinous method for the treatment of metasyphilis (paresis) by Dr. W. Hough, Clinical Pathologist of the Government State Hospital for the Insane, Washington, D. C.; Dr. J. A. Fordyce, of New York; Dr. Henry Cotton, of Trenton State Hospital; Dr. Homer Swift, Dr. A. W. N. Ellis, and others.

Society of Sanitary and Moral Prophylaxis.—A regular meeting of this society will be held on Thursday evening, October 9, at the Academy of Medicine, at 8.30 o'clock. The paper of the evening, "Are Sanitary and Moral Prophylaxis Natural Allies?" will be read by Dr. Richard C. Cabot of Boston, Mass.

Safety Congress.—The Second Safety Congress of the National Council for Industrial Safety was opened at the Hotel McAlpin, New York, on September 23. Plans for the establishment of a Museum of Safety were discussed, and moving pictures portraying various street accidents were exhibited. These are to be used in the Chicago schools as an example of the right and wrong way of crossing streets, getting off and on of street cars, etc. The subjects for discussion during the congress include fire escapes and exits, organized safety, the Pennsylvania Department of Labor and Industry, and fire drills and fire protection.

Congress of Hydrology.—The IX International Congress of Hydrology, Climatology, and Geology will be held in Madrid, Spain, on October 15 to 22, 1913. Dr. Guy Hinsdale of Hot Springs, Va., has been appointed a member of the Central Committee, representing the United States.

Gifts to Charities.—By the will of the late Bernard Wolbarst of New York the sum of $1,000 is bequeathed to Beth Israel Hospital of this city.

By the will of the late Elizabeth Dorsey of Philadelphia, who died at Colorado Springs, Col., bequests are made as follows: $1,000 to the Woman's Hospital of Philadelphia, $500 to the Germantown Hospital, $2,000 to the Adirondack Cottage Sanitarium at Saranac Lake, N. Y., and $1,000 to the endowment fund of the Colorado Cottage.

The Massachusetts General Hospital of Boston receives $30,000, and the Boston Children's Hospital $25,000 by the will of the late Miss Harriet O. Cruft of that city.

By the will of the late Julia Garrett of Philadelphia bequests are made as follows: $50,000 to the Orthopedic Hospital and Infirmary for Nervous Diseases, to endow the William Evans Garrett Memorial Ward, $25,000 to the Pennsylvania Epileptic Hospital and Colony Farm at Oakbourne, $10,000 to the Bryn Mawr Hospital, as a memorial to William E. Garrett, Jr., and $10,000 to the Episcopal Hospital.

By the will of the late Fanny R. Dickson of Philadelphia the sum of $5,000 is bequeathed to the trustees of the University of Pennsylvania for the maintenance of a bed already established in the orthopedic department of the University Hospital.

By the will of the late Margaret H. Frederick of Philadelphia the sum of $5,000 is bequeathed to the Hahnemann Hospital and the sum of $250 to the Ladies' Aid Society of the Presbyterian Hospital.

By the will of the late Cornelius A. Lane of Philadelphia the sum of $5,000 is bequeathed to St. Vincent's Home and Maternity Hospital, $500 to St. Joseph's Hospital, $500 to St. Mary's Hospital, and $500 to St. Agnes' Hospital.

The American Public Health Association which met at Colorado Springs on September 9 elected the following officers: *President*, Dr. W. C. Woodward, Washington, D. C.; *Secretary*, Dr. Professor Solskar M. Gunn of the Massachusetts Institute of Technology, Boston, Mass.; *Treasurer*, Dr. Livingston Strand of New York; *Chairman* of the Sociological Section, Dr. Larence Vieller of New York; *Vice-Chairman*, Dr. Hoyt E. Dearholt of Minneapolis.

Medical Society of the State of Pennsylvania.—At the annual meeting just held at Philadelphia the following officers were elected for the ensuing year: *President*, Dr. E. B. Heckel, Pittsburgh; *First Vice-President*, Dr. H. D. Jump, Philadelphia; *Second Vice-President*, Dr. J. B. Amberson, Pittsburgh; *Third Vice-President*, Dr. J. H. Wilson, Philadelphia; *Fourth Vice-President*, Dr. J. H. B. Murray, Washington; *Secretary*, Dr. C. L. Stevens, Athens; *Assistant Secretary*, Dr. W. H. Cameron, Pittsburgh; *Treasurer*, Dr. G. W. Wagner, Johnstown; *Trustees for Three Years*, Dr. W. L. Estes, South Bethlehem; Dr. T. B. Appel, Lancaster, and Dr. H. W. Goss, Sunbury; *Delegates to the American Medical Association*, Dr. Adolph Koenig, Pittsburgh; Dr. J. M. Baldy, Philadelphia; Dr. A. R. Allen, Carlisle; Dr. L. B. Kline, Catawissa, and Dr. Herbert B. Gibbey, Wilkes-Barre.

Federation of State Medical Boards.—At the Executive Committee meeting of the Federation of State Medical Boards of the United States held at the Hotel Manhattan, September 2, 1913, Dr. James A. Duncan, formerly of the Ohio Board, Dr. Albert de Bey, formerly of Iowa Board, and Dr. Charles A. Tisdale, formerly of the California Board, were nominated for Honorary Fellowship in the Federation. The next annual session of the Federation was called for Wednesday, February 25, 1914, at Chicago, Ill.

Abington (Pa.) Hospital.—As a memorial to his wife, the late Stella M. Elkins, Mr. George W. Elkins of Ogontz, Pa., has agreed to assume the entire obligation of erecting a new hospital at Abington, Pa., the cornerstone of which was laid on September 25. The sum of $30,000 has already been collected, and this will be used as the nucleus of an endowment fund. Mr. Elkins' gift will amount to about $100,000. The hospital will be built of red brick, with marble trimmings, and it will be 107 x 100 feet in size, with a capacity of 60 beds.

Obituary Notes.—Dr. Roland D. Jones of New York, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1881, died suddenly while in his automobile, on September 25, from heart disease, aged 57 years.

Dr. T. H. Frey of Beaumont, Tex., a graduate of the Memphis Medical College in 1884, died September 6, aged 48 years.

Dr. L. W. Smith of Sacul, Texas, was found

dead in his room in a hotel in Houston, Texas, on September 10.

Dr. Charles E. Campbell of New York City, a graduate of the New York Homeopathic Medical College in 1894, died after an operation at his summer home on Block Island on September 12, aged 72 years.

Dr. Charles John Martin Willich of Brooklyn, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1893, died at his home from cancer of the throat, on September 23, aged 61 years.

Dr. Albert Thornton Birdsall of Brooklyn, N. Y., a graduate of the University of Minnesota, College of Medicine and Surgery, Minneapolis, in 1896, instructor in surgery at the New York Post-Graduate Hospital, consulting surgeon at the Brooklyn Tuberculosis Clinic, and a member of the New York State and Kings County Medical Society, the Brooklyn Pathological Society, and the Association of Tuberculosis Clinics, died at his home from pneumonia, on September 24, aged 43 years.

Dr. Joshua W. Hering of Westminster, Md., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1855, a member of the Maryland State and Carroll County Medical Societies, and until recently a member of the State Public Service Commission, died at his home on September 23, aged 80 years.

Dr. Orren Burnham Sanders of Boston, Mass., a graduate of the Boston University School of Medicine in 1879 and a member of the New England Branch of the American Urological Society and the Massachusetts State and Suffolk County Medical Societies, died at his home on September 25 from injuries received in an automobile accident at Quincy a few days before.

Dr. William Johnston Beattie of Littleton, N. H., a graduate of the Bellevue Hospital Medical College, New York, in 1889, president of the Littleton Hospital, and a member of the New Hampshire State and Grafton County Medical Societies, was struck by a passing automobile in the street near his home and instantly killed, on September 26, at the age of 48 years.

Obituary.

REGINALD HEBER FITZ, M.D., LL.D.

BOSTON.

Dr. Reginald H. Fitz, whose death following an operation on the stomach occurred on Tuesday of this week, was born in Chelsea, May 5, 1843. He was a graduate of Harvard in both arts and medicine, receiving his A.B. in 1864 and M.D. in 1868. His Alma Mater conferred upon him the honorary degree of LL.D. in 1905. He began his teaching relations with the Harvard Medical School in 1870 when he was appointed instructor in pathological anatomy; in 1873 he became assistant professor, and in 1878 full professor of pathology; in 1892 he was appointed Hersey professor of the theory and practice of physic, and retired in 1908 when he was made emeritus professor. Dr. Fitz was an original thinker and made many valuable contributions to medical science, his work on appendicitis and on the pathology of the pancreas being especially noteworthy. He was joint author with Dr. H. C. Wood of a treatise on "The Practice of Medicine," published in 1897.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRITISH ASSOCIATION—SIR OLIVER LODGE'S PRESIDENTIAL ADDRESS—EPIDEMIC IN A CHILDREN'S WARD TRACED TO A DUST HEAP—TOWN DUST PROBLEM—SANITARY INSPECTORS' CONFERENCE—SIR J. CRICHTON-BROWNE'S PRESIDENTIAL ADDRESS—A DOCTOR ACCUSED OF CRUELTY—A CHRISTIAN SCIENCE VICTIM.

London, September 12, 1913

The eighty-third annual meeting of the British Association, our chief scientific organization, is being held. It was opened on Wednesday at Birmingham, and correspondents say that so far it is a very successful meeting. The presidential address, which we look forward to usually as the most important utterance, was delivered by Sir Oliver Lodge. As might be expected from so eminent a physicist, it consisted of a mixture of physics and metaphysics. The first part was concerned with the problems of continuity and discontinuity. The president declared himself an upholder of ultimate continuity and a firm believer in the ether of space, for although the present generation has been educated into that idea, there has been in late years a tendency toward reviving the other doctrine. Matter has long been atomic in the same sense that anthropology is atomic. The unit of matter is the atom as the unit of humanity is the individual. Both can be counted, as can the sands on the shore or the hairs of the head. The only difficulty is they are so numerous. So are the atoms in a drop of water, they outnumber the drops of an ocean, and in the briefest time of stating their number, fifty millions or so may have evaporated. All things with natural units can be counted. To apply number to a continuum you must first cut it up into artificial units. Biology has long had units, cells nuclei, and some discontinuity in boundaries and cell walls.

The study of the ether belongs to physics alone and is the largest fundamental ingredient in the cosmos. "Matter it is not," said Sir Oliver, "but material it is." It is the great engine of continuity, and it may be more, for without it there could hardly be a material universe at all. Some critics called him a vitalist—a term he never used. In a sense he was—but not if it meant an appeal to a vital force against the laws of chemistry and physics. Those laws must be supplemented but by no means superseded. In science there was no appeal to occult qualities. To say a thing was an act of God and say no more left it unexplained. As an ultimate statement it might be not only true but universal in its application. But there were always proximate explanations which might be looked for and with patience be found, as lightning, earthquakes, and other things had been reduced to natural causes. No ultimate explanation was ever attained by science. Before all the actions of living things could be explained some causes not yet admitted must be postulated. A live thing obeyed the laws of physics, like everything else, but it initiated processes and produced results which could not have occurred without it—from a bird's nest to a honeycomb, from a deal box to a warship.

There was plenty of chemistry and physics about a vital action, but for a complete understanding of it something beyond was needed. He would risk the assertion that Life introduced something incal-

culable and purposeful amid the laws of physics—so supplementing them, otherwise leaving them as they were. Scientists were rightly hostile to superstition, but possibly that word was occasionally wrongly applied. To a superficial observer a scientific act might seem superstitious. To combat malaria Sir Ronald Ross did not erect an altar; no, he oiled a pond as a libation to the genii. What could be more ludicrous? It was not reasonable to say a thing eluded investigation because we did not knock up against it. The ether made no appeal to our senses so some began to deny its existence. Our organs of sense are adapted to the observation of matter and nothing else appeals directly to us. So there could be no terrestrial manifestation of life without matter. Hence some said they discerned in matter the promise and potency of life. Naturally enough of all terrestrial manifestations. How else could it manifests itself? Materialism was appropriate to the material world but everything beyond belonged to another region and could not be explained in terms of physics or chemistry and so some denied its existence, but such philosophizing was unjustifiable and really bad metaphysics. Going further, the president, summarizing the result on his own mind of thirty years' experience of psychical research, begun without predilection—indeed with the usual hostile prejudice he stated the conviction of himself and coworkers that occurrences now regarded as occult can be examined and reduced to order by methods of science carefully and persistently applied and that already facts so examined have convinced him that memory and affection are not limited to that association with matter by which they can alone manifest themselves here and now, and that personality persists beyond bodily death. Discarnate intelligence, under certain conditions, may interact with us on the material side, thus indirectly coming within scientific ken; we may gradually attain some understanding of a larger, perhaps ethereal existence, and of the conditions regulating intercourse across the chasm. The universe is larger than we have any conception of and no one method of search can exhaust its treasures. Genuine religion has its roots deep down in the heart of humanity and in the reality of things. It is not surprising that our methods do not grasp it; the actions of the Deity make no appeal to any special sense, only a universal appeal, and our methods are incompetent to detect complete uniformity. We are deaf and blind therefore to the grandeur around us unless we have insight enough to appreciate the whole—to recognize in the fabric of existence, flowing steadily from the loom in an infinite progress towards perfection, the ever-growing garment of a transcendent God.

An outbreak of typhoid fever in the children's ward of the Southwark Infirmary was at first a puzzle to the medical superintendent. But his suspisions fell on a dust heap which was established close by. How long it has been there seems to be unknown, but according to credible testimony a long time, and it belongs to the Camberwell Borough Council, though by what right does not appear. Howbeit the medical superintendent believes the epidemic is due to emanations from this heap and the wonder is that it should so long have been tolerated in the district—and above all close to the infirmary. On September 1 twenty-eight cases with six deaths were reported. By the 8th the figures had increased to thirty-four and eight.

This outbreak has stirred the apathy of Londoners who are accustomed to pride themselves on their sanitary arrangements and are now asking how the county council could have tolerated the presence of such a source of infection or what the Medical Officer of Health was about to overlook it. Of course it is a common axiom that in all cities the disposal of the refuse from the streets, houses, shops, and other premises is one of the most difficult problems for the authorities. In London the bulk of the accumulations to be dealt with is so enormous that notwithstanding all efforts to utilize some of it a great expense is incurred in removing the waste, said to be over a million tons in weight a year. About half, for the most part from the streets, is sent into the country to which may probably be added most of that disposed of by contract—some 100,000 tons. Many have supposed that the remainder was disposed of by the destructors of which much has been heard; but the last returns only give about 370,000 tons dealt with in that way, while 320,000 were sent away in barges and 180,000 by rail. Sifting was applied to 43,000 tons and the process resulted in 487 tons that could be used in the foundations of streets. There remain 46,000 tons disposed of in shoots—but where these may be located does not appear. It is to be hoped none of them are in such dangerous positions as that chosen by the Camberwell Borough Council. A very curious circumstance is the remarkable difference in the cost of getting rid of the refuse in different localities—a difference ranging between 6 shillings and 10 pence per ton.

The Local Government Board is being subjected to much indiscriminate criticism in this matter but its powers are not so extensive as is commonly supposed. It can call the attention of the boroughs to such nuisances but cannot enforce its views upon them. Twenty years ago Dr. Parsons investigated for that Board the whole subject of refuse disposal and in his report one of the suggestions was that the Local Government Board might be entrusted by Parliament with compulsory powers in this direction. This and other suggestions in that report seem to have been neglected. But it is only right to add that the boroughs have always been ready to give full consideration to any communication from the Local Government Board.

On Tuesday Sir J. Crichton-Browne delivered the Presidential address at the conference of the Sanitary Inspectors' Association. The dust problem furnished him with a timely text of which he made the most. After mentioning the infinitesimal atmospheric natural dust to which we owe the blueness of the sky, clouds of all kinds, he said it is not to this we trace disease but to the dust produced by human agency. Our modern civilization he described as one vast grind, attrition being almost synonymous with progress. The dusts generated are responsible for no little sickness and death in spite of great improvements in ventilation of factories and workshops. Turning to municipal or town dust he said it was most to be feared as a carrier of pathogenic germs and microbes of many kinds which can resist drying and may be wafted about with the particles. So catarrh, influenza, hay fever, etc., may be disseminated. Tuberculosis, too, is similarly spread in the dust of the dried sputum. In all dust the danger of implantation of germs, fresh or dried, is enhanced if associated with corrosive, chemical, or mechanically wounding elements. Sharp particles of mineral matter may plow up a way in the tissues through which pathogenic germs

may enter. Even tetanus might be caused by road dust carrying it to some superficial wound, for the organism lives in the alimentary canal of the horse and so is found in the manure of street refuse as well as in the soil of gardens and other places. The antitoxin is efficacious if used immediately and in these days of dust-scattering motors the president suggested that a tube of antitoxin might well form part of the furniture of a car so that in case of accident it might instantly be applied to any dust-impregnated wound in which tetanus germs might be present.

A doctor who took invalids into his house has been tried on a charge of cruelty to one who was said to be insane but was by some practitioners declared not to be certifiable. Discharged nurses gave evidence that the defendant had beaten a patient—a young girl—with a slipper and he admitted he had given her two slaps. Much evidence on both sides was offered and there seems to have been great excitement over the trial; for on the jury declaring the Crown had not proved the case there was loud cheering—so much that the judge ordered the court to be cleared and pronounced the scene disgraceful. When the doctor, who was thereupon discharged, left the court he was seized by a number of young men and carried shoulder-high as they sang "he's a jolly good fellow."

A man has been charged with manslaughter for causing the death of his daughter, aged 7, by not procuring medical aid. His defence was that he left the case to a Christian Science woman. The judge ruled that to convict the neglect must be wilful to be an offence. If the man knew the child was dying of diphtheria he deserved punishment—scientist or not. If he were too stupid to see she was dangerously ill they did not convict of criminality for pure stupidity. The jury found him not guilty and the judge advised him for the future when he was in doubt to send for a doctor.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 18, 1913.

1. The Workmen's Compensation Act from the Legal Standpoint. J. C. Johnston.
2. The Workmen's Compensation Act as Viewed by a Member of the Industrial Accident Board. D. M. Holman.
3. The Workmen's Compensation Act as It Affects the Physician. R. M. Merrick.
4. Notes of the First Annual Conference on the Medical and Social Work of the Psychopathic Hospital, Boston, Mass. W. Channing, H. H. Baker, G. E. Eversole, V. V. Anderson, Mary C. Jarrett, W. P. Lucas, A. W. Stearns, D. Gregg, H. M. Adler, B. H. Ragle, J. G. Blake, A. Myerson and E. E. Southard.

1. **The Workmen's Compensation Act of Massachusetts.**—J. C. Johnston discusses certain aspects of this act. He states that this and similar laws are an embodiment of the social trend of modern times as well as a clear expression of the social interest in the individual. In considering the operation and effect of a workmen's compensation act there are two factors which may be considered permanent and which must necessarily control its development. There will be constant economic pressure to lower the cost of insurance, which the community has ultimately to bear in the increased charges for the products of labor. Inasmuch as the act is designed primarily to protect the workman there will be a constant effort to secure for him the largest possible share of the premiums that are collected from the public. The continual interplay of these two forces will tend necessarily to reduce to a minimum the cost of operation, in which one must include charges for medical and hospital service. The report of the Wisconsin Employer's Mutual Liability Insurance Company shows during the year 1912 the payment of $9,588.81 for compensation and $16,385.87 for medical and surgical aid, including hospital care, or, in other words, out of $45,974.68 disbursed, the doctors have received 35 per cent. plus of the total amount. The report of the Massachusetts Employers' Mutual Insurance Company, covering six months' experience under the Massachusetts Act, shows expenditures of $11,413.72 for medical and hospital services, with unpaid estimated liabilities on this account of $26,527.98, as compared with a total of $48,734.51 paid or payable on account of benefits. In other words, the cost of medical service was slightly more than three-fourths of the amounts received in benefits by the workingman. To put it in another way, the doctors have received 43 per cent. plus of a total of $86,674.21.

2. **The Workmen's Compensation Act of Massachusetts.**—D. M. Holman states that this law is elective both for employer and for employees. An employer can choose to come in under the act or to stay out. If he elects to give his workmen the benefit of the act he takes out an insurance policy. If he chooses not to come in under the act he does nothing, but if an employee of his is injured the employer stands liable in heavy damages, the sole requirement being that the injured workman prove negligence on the part of his employer, superintendent, or agent, or defect in the ways and machinery. His three main defenses are stripped from him. An employee can also exercise his choice to come in and rely on the Workmen's Compensation Act or stay out and claim his common law rights, but if he pursues the latter course he must prove that he was in the exercise of due care, that the accident did not arise out of the negligence of a fellow workman, and that he had not assumed the risk.

New York Medical Journal.

September 20, 1913.

1. Preoperative Caution to Avoid Postoperative Calamities. H. A. Wilson.
2. The Position of the Stomach in Children in Relation to Posture. J. W. Sever.
3. The Climate of San Diego, California, Region, with Relation to Renal Diseases. P. M. Carrington.
4. The Differentiation Between Moronism and Ignorance. H. A. Knox.
5. The Uses and Limitations of Paraffin in the Treatment of Ozena. J. Auerbach.
6. Traumatic Periostitis of the Lumbosacral Spine. C. E. Coon.
7. Retropharyngeal Abscess. W. C. Billings and J. G. Wilson.
8. Cylinder Showers, Their Significance. B. G. R. Williams.

1. **Preoperative Caution.**—H. A. Wilson emphasizes the dangers and uncertainties of the immediate and remote results of operations. Evidence is accumulating that operations are not always approached with careful preliminary study. As a matter of fact, the whole responsibility for careful preoperative diagnosis should not be thrown upon the surgeon. The internist should assume his proper place before and after operation. He should take part in the preparation of the patient, and in determining the latter's ability to withstand the shock of the operative procedure; he should occupy a prominent position in judging of the diagnostic significance of the various laboratory reports; and he should be in close association with the surgeon after the operation. The prevailing custom in the better hospitals of having numerous consultations of surgeons with internists and specialists, together with elaborate laboratory studies, must inevitably result in safeguarding the best interests of the patients. George W. Guthrie is quoted to the effect that seventy-five per cent. of the patients that formerly went to the Mayo brothers, expecting to be operated upon, were sent away without operation. This is because these surgeons often find, by means of an elaborate system of preliminary study, at the hands of numerous skilled investigators, that there are often better ways of curing

the patient than by operation. The physician should not be too hasty in subjecting a patient to the surgical procedure and yet should discriminate in the avoidance of fatal postponement. When an operation is finally decided upon he should take pains to assure himself of the ability of the surgeon whom he recommends; because, when he suggests and cooperates with a surgeon he thereby tacitly assumes proportionate responsibility for the results.

2. **The Position of the Stomach in Children.**—J. W. Sever finds as the result of the study of eighty-three cases of averagely developed children that the average position of the stomach is a much lower one than has been previously suspected, and that to find a stomach at or well below the crests of the ilium is not at all unusual. Only one of these children had symptoms which were due to a dilated colon, which condition caused chronic constipation, and not to a stomach which showed a moderate ptosis. The children were otherwise perfectly well as far as their digestive apparatus was concerned. The author believes that ideas as to the shape of the child's stomach should be changed. In his series it was generally large and either horizontal or of the sink drain type. The ideal so-called cow's horn stomach was rare. He does not believe that posture in children, apart from the erect position of human beings in general, has nearly as much to do with ptosis as has formerly been believed. The child's stomach is lower than is generally supposed, and to find a stomach low in a child does not, therefore, mean that there is a pathological ptosis. Poor posture should be corrected and impaired general health built up, but neither is a cause of ptosis in children, nor is a low stomach necessarily a weak link in the chain of a child's development.

3. **The Climate of San Diego, Cal., with Relation to Renal Diseases.**—By P. M. Carrington. (See MEDICAL RECORD, August 2, 1913, page 227.)

5. **The Uses of Paraffin in Ozena.**—J. Auerbach presents a paper on the study of thirty-two cases of genuine ozena. His primary object was to note the effect of paraffin injected subcutaneously or subperichondrially into the nasal chambers; such injections have been done by European workers, who have reported brilliant results from their use. The author concludes from his experience that in the injection of hard paraffin of high melting point the danger of embolism is eliminated. The results so far obtained even in severe cases afford encouragement for the further use of paraffin injections in ozena. It is impossible to speak of a "cure," even in those cases which show a disappearance of the disagreeable symptoms. There is no influence anatomically on the atrophied structures. Functionally the results are all that can be desired, though all cases eventually require reinjection.

7. **Retropharyngeal Abscess.**—W. C. Billings and G. Wilson report an unusual case of this condition in an adult, which case illustrates the following three points: (1) The signs of retropharyngeal abscess may quickly disappear, the pus being dissipated in the loose fascia, and finding its way to some point distant from the original seat of fluctuation within the course of a few hours. (2) Immediate evacuation is necessary the moment the diagnosis is made, as a few hours' delay may make such a change in the picture that the diagnosis becomes doubtful. (3) The extreme gravity of the condition and the danger of complications should be borne in mind. Besides these three main points there are other minor points that are worthy of note. Chief of these is the fact that infection in the authors' case was from a sore throat that was in all probability due to syphilis. Owing to the failure of the Wassermann reaction and the inability to get a good history through lack of interpreters, this point could not be definitely decided, yet the probabilities remained in favor of syphilis. Another point which has been often emphasized before is that retropharyngeal abscess is especially liable to be complicated with pneumonia. Finally, the case will serve to emphasize the fact that the disease is not confined to childhood, and that owing to the anatomical arrangement of the parts it is especially liable to give rise to the most serious consequences. The arrangement of the muscles, fascia, and the lymph glands of this region is such that one may have infection occurring in any one of the following manners: (1) Infection from the middle ear, via the canal for the tensor tympani muscle. (2) Sphenoidal sinus infection. (3) Necrosis of the cervical vertebræ. (4) Direct injury to the pharynx itself. (5) Extension from lymphatic gland involvement; the lymph-nodes lying between the anterior surface of the vertebral column and the pharyngeal aponeurosis being especially liable to involvement. (6) Thrombosis or embolism arising in connection with septic processes.

Journal of the American Medical Association.

September 20, 1913.

1. The Added Responsibility of the Surgeon When Called to Treat Surgical Lesions in Their Earlier Stages. J. C. Bloodgood.
2. The Mechanics of Production of Certain Fractures; Greenstick Fractures, Buckling Fractures, Flexion and Torsion Fractures. E. Rixford.
3. Roentgenoscopy of the Liver and Biliary Passages with Special Reference to Gallstones. J. T. Case.
4. Roentgenographic Study of the Normal Kidney, Its Pelvis and Ureter. S. B. Childs and W. M. Spitzer.
5. The External Bone Clamp Versus the Internal Bone Plate in the Operative Treatment of Fractures. L. Freeman.
6. A Study of the Use of Ice and Other Means of Preserving Food in Homes. J. R. Williams.
7. Clinical Observations in Essential Hematuria. W. F. Braasch.
8. The Value and Limitations of Functional Renal Tests. J. T. Geraghty and L. G. Rowntree.
9. The Public Health Aspect of Leprosy in the United States. R. Blue.
10. Clinical Aspect of Leprosy. E. Boeckmann.
11. The Dermatological Aspects of Leprosy. I. Dyer.
12. Morbidity Reports; Their Purpose and Present Status. J. W. Trask.
13. Postoperative Renal Infection. H. D. Furniss.
14. Two and One-Half Years' Experience with Salvarsan and Neosalvarsan. W. T. Corlett.
15. A Simple Tourniquet. E. D. Austin.
16. Golf-Ball Burn of Eye. H. E. Thomason.

1. **The Surgeon and Early Surgical Lesions.**—By J. C. Bloodgood. (See MEDICAL RECORD, July 5, 1913, page 37.)

2. **The Mechanics of Production of Certain Fractures.**—By E. Rixford. (See MEDICAL RECORD, July 5, 1913, page 36.)

3. **Roentgenoscopy of the Liver and Biliary Passages.**—By J. T. Case. (See MEDICAL RECORD, July 5, 1913, page 38.)

4. **Roentgenography of the Normal Kidney.**—S. B. Childs and W. N. Spitzer conclude from their study of this subject that pyelography is not only justifiable, but also necessary; however, none but the trained urologist should attempt it. Unless the lower border of the pelvis is concave the authors consider it abnormal. A pelvic content of over 15 c.c. should be viewed with suspicion and investigated further before its normality is accepted. Movement of the kidney of from 1 to 3.5 cm. over and above the physiological (respiratory) movement is normal. The ureteral catheter as a rule enters the upper oblique calyx and follows the roof of the kidney pelvis to do so, in a normal case. Angulations, curves, and kinks of the ureter are found in normal persons. Stereoscopic plates are not only necessary, but imperative, to demonstrate intrapelvic and extrapelvic conditions, and the course and kinks of the ureter. Length of ureter can be calculated only from the plate, and is of importance. Pain, shock, and subsequent rise of temperature are caused by rapid distention of the kidney pelvis rather than by any particular drug or percentage of drug that is used, and are unavoidable, if one properly fills the pelvis for diagnosis, although none of these disagreeable

sequelæ need be produced to an extreme degree or cause much disturbance, and can be obviated to a great degree. As the shape of the ureter is due to its laxity or tenseness, either of which conditions may be normal, and as its caliber varies considerably in normal subjects, and as it is still further altered by peristalsis, care should be exercised in drawing conclusions that pathological conditions exist because of apparent abnormalities of shape and course, or because of curves, kinks, and angulations, or apparent constrictions.

5. **External Bone Clamp versus Internal Bone Plate.**—By L. Freeman. (See MEDICAL RECORD, July 5, 1913, page 36.)

6. **Refrigerator Problems.**—J. R. Williams presents a series of data from which he draws the following conclusions: (1) The temperatures of cellars or living rooms in dwelling houses are not sufficiently low during the warm months of the year to protect milk and other perishable foods from rapid bacterial decomposition. Therefore, an efficient refrigerator in the home is a necessity. (2) Most of the refrigerators in common use are almost worthless and grossly uneconomical. (3) There is a large field for the manufacturer who will make a properly insulated and efficient box which can be sold at a moderate price. (4) If more economical methods of ice manufacture and distribution were employed, the cost of ice to the consumer could be materially lowered. (5) If to this saving were added that which would result from proper ice-box construction, refrigeration vastly superior to that now found in the average home could be had for at least one-fourth the present cost.

7. **Essential Hematuria.**—W. F. Braasch defines essential hematuria as a type unexplained by any of the definitely established renal conditions causing hemorrhagic urine. He presents an analysis of the cases observed at the Mayo clinic up to June 1, 1913, for which no clinical evidence of renal insufficiency, organic change of the renal parenchyma, or of renal infection was observed. Twenty-six of the patients in which this clinical diagnosis was made were operated on and fifty-one were not operated on. Three-quarters of the patients were males, which proportion accords with the general incidence of renal infection, and only sixteen of the seventy-seven were under forty years of age. Pain was severe in only five cases and then was evidently due to blood clots clogging the ureter. In 61 per cent. of the cases operated upon the duration of symptoms was over a year, in 8 per cent. over five years, and in 19 per cent. fifteen years or more. In the cases not operated upon the hematuria was of shorter duration. Evidence of central nervous lesion or marked neurosis was absent in all. The roentgenographs showed nothing abnormal. The surgical results were fairly brilliant. Eight patients reported recovery following a nephrotomy operation. Nephrotomy is not regarded as a certain method of cure, but nephrectomy gave comparatively excellent results; fourteen of the sixteen cases reported themselves in excellent health more than two years after operation. It would seem advisable as a rule to treat essential hematuria conservatively and exhaust every means of diagnosis before exploration is undertaken. This is justifiable, however, when one or two spells of hematuria have occurred, and is indicated if the patient has become incapacitated or a neoplasm is suspected. The author's experience does not support the nephritic etiology of the condition. Whatever the cause may be, hematuria apparently does not tend to shorten life, at least to any great extent. An occasional moderate hematuria without other symptoms should not necessarily require any active treatment.

9. **Public Health Aspects of Leprosy in the United States.**—By R. Blue. (See MEDICAL RECORD, July 5, 1913, page 43.)

10. **Clinical Aspects of Leprosy.**—By E Boeckmann. (See MEDICAL RECORD, July 5, 1913, page 43.)

11. **Dermatological Aspects of Leprosy.**—By I. Dyer. (See MEDICAL RECORD, July 5, 1913, page 43.)

12. **Morbidity Reports.**—J. W. Trask notes that the present purpose of morbidity reports is: (1) To show the occurrence of cases of infectious diseases which may be foci of spread; (2) to show the occurrence, distribution, and spread of certain diseases, more or less unknown, because of the possible value of this information; (3) to ascertain the cause or means of spread, as in pellagra and cancer; (4) to make proper treatment possible and prevent disease; and (5) to show the existence and location of conditions capable of causing illness or injury, as in the industrial diseases. He gives an account of the morbidity reports in England and Russia. These reports appear to be thoroughly carried out. He reviews the legislation in this regard in the different States, and gives a list of the notifiable diseases and the States in which they are notifiable by law. Smallpox is notifiable in forty-four States, diphtheria in forty, and scarlet fever in thirty-nine. Of the less commonly notifiable diseases cancer is notifiable in New York, and Chagres fever in Alabama. Venereal diseases are notifiable in California, Utah, and Vermont, but the name of the patient need not be given, and syphilis is notifiable in Porto Rico. Cases of mental deficiency, including epilepsy, are notifiable in New Jersey. Eight States have enacted laws requiring the notification of occupational diseases. The completeness of the reports in different States and cities may be estimated with some degree of accuracy by comparing the number of cases reported with the number of deaths due to the same cause, bearing in mind, however, that one's knowledge is still somewhat imperfect as to the fatality rate of certain of these disorders.

13. **Postoperative Renal Infection.**—By H. D. Furniss. (See MEDICAL RECORD, July 5, 1913, page 44.)

The Lancet.

September 13, 1913.

1. Continuity. Sir Oliver Lodge.
2. Mind and Motive: Some Notes on Criminal Lunacy. D. Nicolson.
3. Treatment of Brain Tumor. C. A. Ballance.
4. Rupture of Spleen: Splenectomy; Recovery. R. Scheult.
5. Anesthesia in Acute Inflammations of the Mouth and Pharynx. T. B. Layton.
6. Avoidance of Sudden Death from the Induction of an Artificial Pneumothorax. C. Lillingston.
7. Degeneration of the Nucleus Lentiformis, Associated with Cirrhosis of the Liver. A. T. Henrici.
8. Did Napoleon Bonaparte Suffer from Hypopituitarism (Dystrophia Adisposo-Genitalis) at the Close of His Life? L. Guthrie.
9. Suggested International Test for Disinfectants. S. Rideal.

1. **Continuity.**—Sir Oliver Lodge believes that occurrences now regarded as occult can be examined and reduced to order by the methods of science carefully and persistently applied, and that already the facts so examined have convinced him that memory and affection are not limited to that association with matter by which alone they can manifest themselves here and now, and that personality persists beyond bodily death. The evidence to the author's mind goes to prove that discarnate intelligence, under certain conditions, may interact with the individual on the material side, thus indirectly coming within his scientific ken; and that gradually one may hope to attain some understanding of the nature of a larger, perhaps ethereal, existence, and of the conditions regulating intercourse across the chasm. A body of responsible investigators has even now landed on the treacherous but promising shores of a new continent.

3. **Treatment of Brain Tumor.**—C. A. Ballance details the method of choice to be followed with rare exceptions in an infiltrating tumor of the brain. There is no doubt in his mind that decompression, not excision, is the right course to adopt. Decompression relieves the symptoms which depend on increased intracranial pressure.

The patient is not, as a rule, *in extremis* from the local effects of the tumor, but from the acute syndrome which supervenes, and is made comfortable and safe by a decompressive operation. By a decompression the author means a large craniectomy, best made over the site of tumor. An osteoplastic flap is a mistake. A cranial defect is essential; a cerebral protrusion, as Cushing says, is desirable. The cranial defect must be large and the dura must be opened, otherwise the intracranial pressure will not be relieved. Occasionally when a glioma is of small size and is situated at one pole of the brain the surgeon may be tempted to remove it. The results are the same as in tumors of other parts of the body. Recurrence and nonrecurrence seem to baffle prognosis. When operating for cancer, say of the breast or tongue, the surgeon may in the one case have the best reasons to hope for a cure, in the other he may anticipate an early recurrence. In each case he may be wrong; where all seemed well the growth may recur early and kill the patient, while the case which seemed discouraging may prove a great success. So it is in those rare instances in which a malignant growth in the brain can be apparently completely removed.

4. **Rupture of the Spleen; Splenectomy; Recovery.**—R. Seheult reports a case of traumatic rupture of the spleen in a boy aged thirteen years. In spite of the extent and gravity of the lesion there was an absence of urgent symptoms even after the lapse of forty-eight hours. It is remarkable that death did not ensue from hemorrhage, considering the fact that the patient was removed from place to place over a considerable distance before his admission to hospital. The condition of the pulse —viz., its irregularity, sudden variations, and slowness at various times—was an interesting feature in this case. The absence of postoperative sequelæ reported in other cases is also noteworthy. On looking up the literature at his disposal the author finds it is stated that removal of the spleen was practised for the first time by Zuccarelli (Saccharelli) in 1554; if so, it would appear that the operation fell at once into disfavor, for there is no record of its repetition until more than three centuries later, when Péan, of Paris, successfully extirpated a cystic spleen in 1867. Since that time the operation has been performed for various conditions and has become a well-established surgical procedure. Up to a few years ago, however, the mortality rate was high; in 1887 it seemed to have been as high as 73 per cent.; Cecil in 1894 estimated it at 51.6 per cent. Since that date there have been decided improvements in the results, due largely to the abandonment of the operation for splenic leucemia and other unfavorable conditions which proved almost invariably fatal. In 1906 B. B. Davis was able to place the mortality at 18 per cent. As regards the removal of the spleen for rupture Reigner recorded in 1893 the first successful case. In 1902 Berger had collected from the literature 69 cases of this nature, with 29 deaths—a mortality of 42 per cent. In 1906 Horz had obtained the reports of 35 additional cases, with a mortality of 29 per cent. Splenectomy consecutive to wounds of the organ has, therefore, been attended with a fair measure of success; in any case, it is beyond doubt the most rational and hopeful treatment, especially when it is borne in mind that the mortality in the unoperated cases has been computed to be more than twice that of the cases in which splenectomy has been performed.

7. **Lenticular Degeneration and Cirrhosis of the Liver.**—A. T. Henrici reports a case of this condition which was first described recently by Kinnier Wilson. The association of cirrhosis of the liver with degeneration of the nucleus lentiformis in this disease is so constant as to leave no doubt in the author's mind that there is an important relationship between them. Concerning this relationship two hypotheses present themselves: first, that the same substance which produces the liver changes also affects the lenticular nucleus; and second, that there is elaborated in the diseased liver some toxic body which has a peculiar affinity for the tissues of the corpus striatum. In the author's case there was a marked history of alcoholism, and the liver definitely showed an early stage of Laennec's cirrhosis. If it be granted that the lesions of the lenticular nuclei as here described are an early stage of the process described by Wilson, it would appear that the disease may be associated with other types of cirrhosis having a more definite etiology.

British Medical Journal.

September 13, 1913.

1. Mind and Motive: Some Notes on Criminal Lunacy. D. Nicolson.
2. Malingering. Sir John Collie.
3. Report on Urinary Antiseptics. A. Jordan.

3. **Urinary Antiseptics.**—A. Jordan concludes from his researches that the acidity of the urine is readily increased to an extent of more than double the normal by acid sodium phosphate, and to a considerably less extent by benzoates. With large doses of citrates it is easily rendered alkaline. Putrefaction of the urine and the growth of the staphylococcus is aided by alkalinity and delayed by acidity in proportion to the amount thereof. The reverse is the case with *B. coli*, but only to a small extent; its growth in both acid and alkaline urines is quite luxuriant. Hexamethylenetetramine is not itself antiseptic, but acts by producing formaldehyde in the urine. This only takes place in acid urine, and the drug is inert in alkaline urine. The degree of antiseptic power is proportionate to the acidity, and where this is normal or lighter the drug is far the most efficient of all the urinary antiseptics. Sandalwood oil is a bad general antiseptic, but appears to have a specific action on the staphylococcus which may apply to cocci generally. It is of some use in alkaline urine. Benzoic and salicylic acids are very similar in action. Both are fairly efficient antiseptics in the urine, but are of very little use in alkaline urine. Boric acid is an efficient antiseptic. Its action is unaffected by alkalinity, so that it is the most efficient drug in alkaline urine. Uva ursi is quite a good antiseptic. Its action is certainly not due chiefly to the arbutin it contains. The following are legitimate practical deductions: The use of urotropin (together with acid sodium phosphate, which should always be given with it) as a prophylactic before any operation or procedure where the urine may become infected is of the utmost value, since if the urine is clean and highly acid, and sufficient urotropin is given in small doses to keep it continually present, the urine will not support the life of any organism, and becomes indeed a powerfully antiseptic fluid. Urotropin should only be given where the urine is or can be made acid, otherwise it is inert. It should never be given with potassium citrate in *B. coli* infections. If it is desired to try the effect of making the urine alkaline in these conditions one should use boric acid and uva ursi infusion.

Berliner klinische Wochenschrift.

September 8, 1913.

Pathological Phenomena in Fossil Animals.—Hennig insists upon the great importance of paleontological pathology, which is at present hardly recognized as a science, and we can deal only with the special case. Of special significance is the part played by abnormal conditions in the variation of species. Abnormities are in human anatomy not necessarily pathological. Virchow would never admit that the skulls of prehistoric men were anything but the vestigies of ordinary idiot brains. Here we see pathology invoked to explain variation. The cave bear ap-

peared to have been subject to arthritis deformans and it seems a fair inference that the Neanderthal man, his contemporary, shared the same affection. The most likely origin for the latter is the cold, dark, and damp cave life. Some cave bears have shown the most destructive and varied lesions of bone and cartilages which affected most of the osseous framework. The bones of the giant saurians showed similar alterations. Anomalies of horns are so common as to be regarded as nonpathological. A favorite subject of fossil pathology is the mammoth, for aside from the vast number of preserved skeletons, no less than twenty-two mummies have been preserved. All fossil and modern elephants are said to exhibit a dental anomaly known as tortuous molars. Caries of the teeth was practically nonexistent in fossil animals, until we reach the fishes. A group known as the pyknodons seems to have been subject to some affection in causing exposed pulp cavities, with lodgement therein of food particles. This bears a resemblance to human caries. While any masticating animal can wear its teeth down to the pulp cavities, there is no suggestion of caries. It is, however, true that while aboriginal man and the latest mammals are practically exempt from caries, exceptions are sometimes present, enough to suggest that modern caries among white men is a gradual evolution of the same state in savages, fossil men, and animals. In time we shall have a science of evolutionary pathology.

Spinalgia.—This term is used by Zuelzer in connection with the neuralgias. His paper he terms an entirely practical one; to include theoretical and fundamental considerations would be to include a great variety of subjects. Thus in Bechterew's disease or spondylitis rhizomelie, we see associated common neuralgias. From the same point visceral and other neuralgias are set up by adhesions in the anterior aspect of the vertebral column. Congestions in the spinal meninges cause radiating neuralgic pains, as seen, for example, in bronchial tuberculosis. The pains caused by certain visceral affections, as aneurysms, tumors, etc., also come under the head of spinalgia. To indicate three types of spinal neuralgia which often lead to confusion in diagnosis, we may cite bronchial gland tuberculosis, "insufficiency" of the vertebræ, and acute rheumatism of the vertebral column. The latter occurs bilaterally. It is not denied that these affections can be closely mimicked in hysteria, neurasthenia, and traumatic neurosis.

Deutsche medizinische Wochenschrift.

August 28, 1913.

Attempted Criminal Abortion in a Nonpregnant Woman.—Zweifel mentions the frequency of this act and the frequency with which it escapes detection. Still the literature is remarkably scanty. The mistake as to preceding abortion is at times made in the clinic, when the obstetrician dilates the cervix and seeks to extract an ovum which never existed. The author's own case was as follows: Domestic, aged 24. Four years beforehand she had given birth to a child. Recently her menses hitherto regular, lasted but one day, and on the following month were absent, it was thought, but a few days later she began to flow profusely. There were no evidences of pregnancy, and the profuse bleeding was set down to artificial abortion. A tear was present in the cervix which readily admitted a probe into the corpus. Pregnancy was excluded by an examination of the uterine mucosa. Hemorrhage was arrested by a tampon. There was no doubt that after her one-day menstruation she had gone to a physician who had advised the usual mild measures until the time of the next period, when an attempt was made by the patient or some one else to terminate gestation with instruments. Four days later she began to flow.

Measles in a Child Complicating Typhoid.—Jastrowitz discusses the occurrence of such cases of which an example may be cited. The child, aged 3½ years, had been ailing for some days. A brother at the same time had a persistent diarrhea. The patient eventually developed bronchitis, which, with the history of fever, suggested a possible miliary tuberculosis. However, the rapid supervention of rhinitis, coryza, and exanthem showed that measles at least was present. After the rash had subsided there was no sign of defervescence at first. Then there were two days of low (subnormal) temperature and euphoria. Suddenly the temperature shot up, a continued fever running to about 40° C. daily. A bronchopneumonia came in evidence, disappearing by crisis after several days. The crisis was accompanied by diarrhea containing pus and typhoid bacilli. With the skin entirely clear of measles a fine typhoid exanthem could be made out. The spleen was found to be enlarged. The diarrhea of a brother has already been mentioned and sooner or later every member of the family could be shown to have typhoid in some form.

Radical Operation for Primary Carcinoma of the Lung.—Rotter states that there have been seventeen completely controlled cases of amputation of the lung for cancer and other maladies. There were 11 recoveries, as follows: 2 cases of tuberculosis, 7 cases of bronchiectasis, and 2 cases of tumor (one being Rotter's). There were six deaths, two being "vagus" deaths, 1 from collapse, 1 from acute pneumothorax and collapse, 1 from mediastinal emphysema, 1 from sepsis from necrosis of stump of hilus. The author's case was cancer in the right lower lobe and he had to remove not only the latter intact but other lung tissue. Patient was a man of 51, and the lesion began with severe pains *in situ*. The intervention was naturally of the most formidable kind and the radiogram taken afterward shows a great concavity at the interior half of the thorax. Vicarious emphysema has developed in the sound lung. In the mutilated lung respiration is aided even during repose of the auxiliary cervix muscles. After living 10 months patient succumbed to suffocation due to a complication of conditions. Small metastases of cancer were seen.

A Case of Phlebitis Without Thrombosis of the Sigmoid Sinus.—A. Cheatle reports the case of a child, aged 1 year and 11 months, who was admitted to the hospital on March 11, 1913, acutely ill with a mastoid abscess and a temperature of 103° F. At the operation on the same day it was found that the sigmoid sinus had been exposed by the disease. The sinus wall did not appear to be granulating, but felt and looked quite smooth, and appeared firm. The next afternoon, as the child was not relieved, and the temperature in the morning was 104.2° F. (without a rigor), the sinus was very thoroughly exposed; it appeared pale and "lumpy," and felt firm. On incising it no blood escaped. The jugular vein, which was collapsed and not thrombosed down to the combined facial and lingual, was then tied and divided. The sinus being thoroughly opened, it was then found that the firm feeling was due to great thickening of the wall, and that the lumen was exceedingly small and contained a little fluid blood without any thrombus. No flow of blood could be obtained even when a curette was passed nearly up to the torcular. No bacteriological examination of the sinus blood was made, as cessation of breathing occurred and the operation had to be finished in a hurry. The child was rather ill for four days, but after that recovery was quick and uneventful. The condition appeared to have been one of inflammation of the sinus wall, and the author thinks it is a question whether free exposure alone would not have sufficed.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

Compulsory Insurance in Germany.—Within the last year a new law governing compulsory insurance has been introduced in Germany. Heretofore compulsory insurance against sickness, invalidity, and old age extended solely to manual workers earning less than $500 a year, no similar provision having been made for the ever-growing army of brain workers employed in commerce and industry and whose salary exceeded this limit. Under the new law every employee whose work is not of a purely mechanical nature and whose salary is under $1,250 a year is compelled to insure under the new regulations providing for the creation of a special branch of insurance for the benefit of higher grade employees. This applies to every employee in business, factories, professions, such as teachers, actors, pharmaceutical assistants, etc., of both sexes, one-sixth of which will be females, also officers of the mercantile marine. The payments take the form of a fixed contribution payable each month, one-half of which has to be paid by the employer, over and above the employee's salary, and the other half has to be deducted by the employer from the employee's salary. The employer is required to see that every employee is duly insured. The total monthly contribution ranges from 40 cents to $6.65 according to the salary earned. Thus an annual salary from $750 to $1,000 entitles the monthly payment of $5, one-half the employer pays and the other half he deducts from the wage of the employee. In return for these contributions the insured employees will be entitled to claim a pension on reaching the age of sixty-five, or before if incapacitated for work, while in the case of death, the widow and children will receive an annual allowance. During the first ten years, or five years in the case of female employees, no benefits are payable, but after this period the insured can claim a pension which wil amount to one-quarter of the total contributions paid by and on behalf of the insured during that time. For instance, a clerk has been working for ten years at an annual salary of $800, and the total contributions paid during that time amount to $600, one-quarter of which, or $150, will represent the claimant's annual pension. For every year after the first ten, the pension will increase by one-eighth of the total contributions paid in after the first ten years, in addition to the quarter of the contributions paid during the ten years. Thus the clerk earning $800 would after twenty-five years' employment be entitled to a pension of $262.50 and after fifty years of $450. The pension payable to the widow, or to the widower if the deceased wife by her earnings supported him, will amount to two-fifths of the pension received by the deceased husband, or to which he would have been entitled at the time of his death. Each child in addition will receive an allowance equal to one-fifth of the widow's pension until the age of eighteen. The widow's pension will be paid up to her remarriage, at which time she will receive a lump sum equal to three years' pension in final settlement. Further, an employee who has been continuously incapacitated through illness for a period of twenty-six weeks, will be entitled to an allowance during his convalescence after this time and if special course of tratment is indicated in his case, likely to restore his working capacity, the insurance allowance must be used to defray the whole cost of such treatment, and during his absence from home his dependents will be entitled to receive a daily allowance amounting to three-twentieths of the last paid monthly contribution. The government has placed practically the whole administration of the scheme in the hands of both parties directly interested, these are the employer and employee, as the government does not contribute a cent. The emperor appoints only the director and the office clerks attached to the headquarters in Berlin, the administration, however, will rest in elected bodies consisting of an equal number of elected representatives of employers and employees. The central administration will rest in the hands of the director and two elected representatives of the employers and employees each, assisted by a board of twelve representatives of each party. There will be, also, local boards composed of an equal number of elected representatives of both parties, and disputes will be settled by specially constituted arbitration boards, and, if necessary, by a supreme board of arbitration attached to the headquarters in Berlin. The law forbids the employer to place any difficulties in the way of an employee elected for service on one of the boards, or in the performance of duties connected with the board, and of attending meetings. It is officially estimated that the entire cost of this new branch of insurance will amount to $37,500,000, half of which will have to be contributed by each party, so that as far as German employers are concerned, it will mean an extra annual charge to the cost of production of $18,750,000, and in manufacturing circles in Germany fears have been entertained that this fresh burden together with an extension in workmen's insurance and the rise in foodstuffs, might prove prejudicial to German exports in the fight for foreign markets against countries not possessing similar charges to be met by manufacturers. The principal point in the German government's reply to these fears was that the new measure would prove of great benefit to every business in that it would now permit an employer to rejuvenate his staff without having his older employees unprovided for, and in the end every business in consequence would prove more profitable owing to its increased productiveness.—George P. Forrester, F. C. S., in the *American Druggist and Pharmaceutical Record.*

Uric Acid Mistaken for Sugar.—The danger of diagnosing glycosuria in the absence of sugar, when uric acid is abundant in a urine, needs special mention. Uric acid has considerable power of reducing Fehling's solution. It seldom gives the copious brick-red or orange-yellow precipitate that is characteristic of abundance of sugar, but it may give just enough reduction or change of color to make it doubtful whether sugar is present or not. More than a few proposers for life insurance have suffered unfairly on this account; no such partial reduction should be regarded as due to sugar until the presence of glucose has been confirmed by other means, particularly the phenylhydrazine and the fermentation tests.—Herbert French, in the "Index of Differential Diagnosis."

Deutsche Verein für Versicherungs-Wissenschaft.—This body held its annual meeting in December. The subject for general discussion was "War and Insurance," under the following heads: insurance contracts and war; war mortality (statistics); war mortality (medical); injuries of war and insurance; transport insurance and war; fire insurance and war; social insurance and war.

Book Reviews.

Der klinische Blutdruck, besonders bei Veränderungen des Herzens, der Nieren und der Nebennieren. Von Olaf Scheel. Mit drei Tafeln and 12 figuren im text. Kristiania, 1912.

The experiments forming the basis of this book were performed in the clinics of the University of Christiania between the years 1907 and 1910. Three main topics are considered: 1. Blood pressure, its history, practical worth, etc. 2. Relation of the blood pressure to the size and function of the heart, normal heart and kidneys, valvular disease, nephritis and hypertrophy of the heart, amount of blood, diastolic pressure, etc. 3. Various influences upon blood pressure, mistakes, temporary changes, age, sex, respiration, body weight, hematemesis, diet, etc., nephritis hypertony, febrile disease; many items concerning the adrenals, as for instance edema of the adrenal, blood pressure in edema of the adrenal, amyloid adrenals, hyperfunction, pathological adrenalenemia, adrenal arteriosclerosis, and hypertrophy. The many detailed charts give a vast amount of data. The conclusion arrived at among others is that in the normal heart and kidneys there is a definite relation between blood pressure and weight of the heart. Further, that in valvular disease the relation as found between blood pressure and the functionating part of the left ventricle which aids the arterial system is such that the pressure is higher in aortic insufficiency and lower in mitral stenosis. In nephritis and hypertrophy of the heart the relation between the peripheral resistance and the size of the heart is disturbed, namely, the resistance has developed more than the weight of the heart. The balance between blood pressure and heart's weight in the nephritides is based on different niveaus than is normally the case. The bibliography includes the works treating of the subjects in the book. The very latest literature on the subject does not come under consideration.

The Bradshaw Lecture on the Diagnosis and Treatment of Incipient Pulmonary Tuberculosis. By David Bridge Lees, M.D., F.R.C.P. Price $1.25. London: H. K. Lewis, 1913.

In these lectures dedicated to the memory of Sir William Wood Bradshaw the author sets forth and elaborates on three statements of which perhaps only two can be considered somewhat novel and well worth a careful perusal and study. The first is that "the existence of an incipient pulmonary tuberculosis can be easily demonstrated by careful percussion (provided that during the examination of the front of the chest the patient is in the recumbent position with relaxed muscles) long before any bacteriological evidence is obtainable, and while the auscultatory evidence is still insufficient for a diagnosis." In the second statement the author emphasizes what has long been considered a maxim by all conscientious diagnosticians, namely, "that a negative bacteriological report is often fatally deceptive, and that to wait for the demonstration of bacilli in the sputum is like postponing the diagnosis of cancer until the glands are involved." The third statement is to the effect that "in the earliest stage of pulmonary tuberculosis it is always possible to obtain prompt and permanent arrest of the disease by the employment of the method of continuous antiseptic inhalation." The evidence on which this statement is based is given in a table of seventy cases, the clinical facts of which are stated in the appendix. Of tuberculin the author says: "It is a double-edged instrument. In skilled hands, if used with care and accompanied by close supervision and regular physical examination, it appears to be capable of giving some slight assistance in the treatment of pulmonary tuberculosis." As substances best suited and most efficacious for inhalation in pulmonary tuberculosis, creosote, thymol, eucalyptus, iodoform or terebene are mentioned.

The Influence of Monarchs. Steps in a new Science of History. By Frederick Adams Woods, M.D., Lecturer in Biology in the Massachusetts Institute of Technology. Price $2.00 net. New York: The Macmillan Company, 1913.

The author has for several years been a pioneer in a field which he designates the science of historiometry. By the application of scientific methods to history he hopes to be able to raise the standing of the philosophy of history and therefrom to derive many advantages. In the present volume he has considered the history of fourteen of the principal countries of the world from the eleventh to the eighteenth centuries and by a correlation of the personal characteristics of their monarchs during this time with the general classification of conditions in their country during their rule has arrived at the conclusion that the influence of the monarch was predominant in bringing about advance or retreat in his country. Out of 354 examples the correlation was perfect in 223, or more than 63 per cent. Presented as the author presents it the argument seems unanswerable and indeed there seems to be no logical reason why it should not be true. The book will prove an interesting one to the reader who is fond of history.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc., etc. Edited by Henry W. Cattell, A.M., M.D. Volume II, Twenty-third Series, 1913. Price $2.00. Philadelphia and London: J. B. Lippincott Company.

Twenty-three articles on diagnosis and treatment, medicine, neurology, legal medicine, etc., are included in this volume of the established Quarterly. Articles on paroxysmal hemoglobinuria, physiology of the heart, hemorrhage in the newborn, vaccines, and rape are worthy of special mention and contain valuable material. This number is well up to the standard set by the previous volumes of the publication.

Coprostasis: Its Causes, Prevention and Treatment. By Sir James Sawyer, of London, Doctor of Medicine; Fellow of Royal College of Physicians; Consulting Physician to the Queen's Hospital, Birmingham, etc. Price 2s. 6d. net. Birmingham: Cornish Bros., 1912.

This small volume is made up of Chapters VIII to XIII of "Contributions to Practical Medicine" in its fifth edition. In them are discussed habitual constipation, intestinal obstruction, backache due to constipation and an ointment for hemorrhoids advised by the author. It is brief and makes interesting reading.

Die Sanitätsausrüstung des Heeres im Kriege. Mit Genehmigung des Kongl. Preussischen Kriegsministeriums unter Benutzung amtlicher Quellen, bearbeitet von Dr. W. Niehues, Oberstabsarzt im Kriegsministerium. Mit 239 Abbildungen auf 73 Tafeln und im Text. Price Mk. 24. Berlin: A. Hirschwald, 1913.

This voluminous work aims to describe with the aid of many illustrations the complete sanitation equipment of the various medical departments in the German army up to January 1, 1913. In introducing the description of the larger apparati, as wagons for the injured in the artillery or infantry, emergency knapsacks, dental cases, etc., the historical development of each particular piece is given. The numerous photographs make the curtailed description of each piece possible and give a clearer conception of them than could be gained by words alone. The book is divided into chapters on the equipment of all the members of the army, of the sanitary corps, of the carriers of the wounded in the infantry, of the sanitary officers, field apothecaries and dentists, equipment of the troop as a whole, of the sanitary company; field hospital and hospital train; the sanitary provision halting depot.

Golden Rules of Diagnosis and Treatment of Diseases. Aphorisms, Observations, and Precepts on the Method of Examination and Diagnosis of Diseases, with Practical Rules for Proper Remedial Procedure. By Henry A. Cables, B.S., M.D., Professor of Medicine and Clinical Medicine of the College of Physicians and Surgeons; Consultant at Jefferson Hospital; formerly House Physician at Alexian Brothers' Hospital, St. Louis. Second Edition, Revised and Rewritten. Price $2.25. St. Louis: C. V. Mosby Company, 1913.

The book has been entirely reset and chapters added on infectious diseases. The entire work has been rewritten and new rules have been added. The book has been a very successful one and is presented with the firm belief that a study of it will assist in making a correct diagnosis and indicate the proper therapeutic measure, as well as aid in fixing in the mind valuable information that can be readily recalled when needed.

Fibroids of the Uterus; Their Pathology, Diagnosis and Treatment. By Sir John Bland-Sutton, F.R.C.S., Surgeon to the Middlesex Hospital and Its Cancer Charity. Thirty-nine illustrations. Price 4/6 net. London: Science Reviews, 1913.

This is one of the London Series of Handbooks and an attempt is made to set down in narrative form a summary of their knowledge of uterine fibroids which includes the natural history, the diagnosis and the best methods of removing them. At the end of the more important chapters a list of references is added; he believes that an inspection of such lists is instructive, for some of them serve as milestones indicating the progress in pelvic surgery. This little book should commend itself to all.

The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose. By Ross Hall Skillern, M.D., Professor of Laryngology Medico-Chirurgical College; Laryngologist to the Rush Hospital; Fellow of the American Laryngological, Rhinological, and Otological Society; Fellow of the New York Academy of Medicine; Member of the Society of German Laryngologists, etc., etc. Price $5.00. Philadelphia and London: J. B. Lippincott Company, 1913.

This is the first complete textbook in the English language on the subject of the catarrhal and suppurative diseases of the nasal accessory sinuses. It is hardly necessary to emphasize the importance of a recognition of these diseases as the chief factor in what is commonly regarded as chronic nasal discharge and in the production of painful local and reflex symptoms, to say nothing of the serious complications from involvement of the neighboring cranial and intracranial structures. The general practitioner cannot afford to ignore the significance of many symptoms, such as headache, which are frequently indicative of disease of one of the accessory sinuses. To the rhinologist the chief value of this book lies in its gathering together the threads of knowledge on the subject that are scattered throughout the literature, chiefly foreign, and in presenting a comprehensive guide in the diagnosis and treatment of the sinus affections. The work is eminently practical. The illustrations are numerous, artistic, and particularly helpful in elucidating the text. The frontispiece with its superimposed transparent drawings, after the manner of the paper anatomical manikin, showing the different strata of the lateral wall of the nose, is a most ingenious didactic contrivance and exemplifies the author's efforts to make his work as lucid as possible. The bibliographical references indicate a vast amount of research. The book may be recommended to the student and practitioner as a superb and up-to-date textbook.

Disease in Milk. The Remedy Pasteurization. By Lina Gutherz Straus. New York, 1913.

The author, Mrs. Nathan Straus, is to be congratulated upon her editorial skill and rare enthusiasm in compiling a volume that forms a valuable addition to medical literature, chiefly because it records the growth of a private philanthropic enterprise, which has in many localities resulted in the municipal enforcement of milk pasteurization. With almost prophetic vision Nathan Straus perceived two decades ago the important relation between impure milk and infant mortality, and his creation of infant depots at which pasteurized milk was dispensed inaugurated a movement that was really threefold: a campaign for the reduction of infant mortality, the world-wide establishment of infants' milk-depots, and the general pasteurization of milk supplies as a public sanitary measure. Any one of these achievements would have been a source of pride to any man. The fact that the name Nathan Straus has become almost synonymous with the campaign for the general pasteurization of milk, is not to be attributed to egotistic exploitation, but rather to the fact that the influence of a strong personality, backed by abundant financial means, is infinitely more effective in directing large philanthropic movements than the mere bloodless and silent power of wealth.

What Heart Patients Should Know and Do. Suggestions for Persons Suffering from Diseases of the Heart and Blood-Vessels. Exercise, Diet, Prevention, etc., and Advice as to the Regulation of Their Lives. By James Henry Honan, M.D. Rush Medical College (University of Chicago), M.D.; Imperial Friedrich Wilhelm University of Berlin, M.D.; Special Lecturer on Cardiovascular Disease in the University of Georgia; Honorary Member of the American Medical Association; Honorary President and formerly Active President of the Anglo-American Medical Association in Berlin; Mitglied des Vereins für Innere Medizin, Deutschland; Mitglied des Aerzte Verein zu Bad-Nauheim, etc. Price $1.20 net. New York: Dodd, Mead & Company, 1913.

The object of this book is to give encouragement and hope to those who know they have heart trouble; to lead those who are unconscious that they have heart trouble to ascertain their deficiency or weakness without arousing their undue anxiety; to help both to make the most of their lives by avoiding those things which so often lead to the needless and tragic sacrifice of men and women; and to warn the well from doing those things which cause heart, blood-vessel and kidney diseases. The book gives general and special advice, treats of habit, diet, rest, baths, exercise, etc., in their relation to heart trouble.

Practical Guide to Diseases of the Throat, Nose and Ear. For Senior Students and Junior Practitioners. By William Lamb, M.D., C.M. Edin., M.R.C.P. Lond. Honorary Surgeon, Birmingham Ear and Throat Hospital. Third edition. Price $2.75 net. New York: William Wood & Company, 1913.

In this third edition the subject matter has been revised and brought up to date as far as that is possible in an elementary work, and short sections have been added on such practical points as oral sepsis, occasional risks attending the tonsil and adenoid operation, tonsillectomy, submucous resection of the nose, intranasal operation for chronic autral suppuration, danger signs in ear disease, the conservative mastoid operation, the examination of the labyrinth, etc. The book is fully illustrated and gives a clear but elementary outline of the subject.

Sex. Its Origin and Determination. A Study of the Metabolic Cycle and Its Influence in the Origin and Determination of Sex, the Course of Acute Disease, Parturition, etc. By Thomas E. Reed, M.D. New York: Rebman Company, 1913.

In this book the general methods of reproduction and the various theories of sex determination are reviewed. The author then demonstrates the primitive hermaphroditism of all animal organisms and the bisexual rhythm in the germ plasm. He discusses the influence of the lunar month and lunar day in its relation to the phenomena of menstruation, the progress of labor and the determination of sex. In discussing the last subject he advances the theory that the time of conception is a determining factor as regards sex; if the ovum is impregnated during the positive cycle, a male results; if during the negative, a female. The book is interesting reading as a collection of theories and biologic facts bearing on the subject of sex determination, but the theory advanced offers about as many weak points as its originator has found in other theories of this kind, and we may venture to predict that the last word on this subject has not yet been said.

Hygiene of the Nursery. Including the General Regimen and Feeding of Infants and Children; Massage, and the Domestic Management of the Ordinary Emergencies of Early Life. By Louis Starr, M.D., LL.D. Eighth Edition, with twenty-six illustrations. Price, $1.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

The seven previous editions apparently have not exhausted the efficiency of this manual, for which the demand is still undiminished. This popularity is probably to be attributed to the author's soundness of views and command of a clear and forceful style. There is little that one can criticize. Possibly too many methods of infant feeding are described, which cannot but confuse the parent looking for specific advice. May one not suggest that the term "humanized" milk be abandoned as misleading? No milk can be "humanized" in the sense that it can even slightly approximate the wonderful biological properties of the human product.

Food and Feeding in Health and Disease. A Manual of Practical Dietetrics. By Chalmers Watson, M.D., F.R.C.P.E. Assistant Physician, Royal Infirmary, Edinburgh: Editor of the "Encyclopedia Medica." Second edition, revised. Price $5.00. New York: William Wood & Company, 1913.

Recognizing that the subject of dietetics has no recognized place in the teaching of medicine, the author aims at providing a practical epitome for the dietetic student. The elements of physiology with reference to food and digestion, the nature of foods, the normal laws of feeding are reviewed. Some attention is given to kitchen processes. Less attention than is usual in works on diet is devoted to the chemical composition of the heat values of food and more to its influence on the digestive and bacterial processes in the digestive tract. The chapters on the special diets in the various diseases have been collaborated with the assistance of specialists in their special lines. Dr. A. Dingwall Fordyce prepared the chapter on infant feeding in health and disease, and G. W. Watson, J. H. Gibbs, F. Gardiner, Andrew Hunter, G. Lyon, Malcolm Campbell, C. B. Paul and B. C. Watson have given their assistance in their individual fields. There is an appendix which gives the results of the experimental researches carried out by the author and others in the Physiological Laboratory of Edinburgh University since 1900. Every physician will find in this work many suggestions of real practical value in feeding the sick which will give him assistance in solving some of his most puzzling problems; and furthermore it can be read with profit by every nurse and mother and should be kept in a convenient place for reference.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF SURGERY.

Stated Meeting, Held April 4, 1913.

DR. A. S. VOSBURGH, CHAIRMAN PRO TEM.

Large Defect in Abdominal Wall Repaired by Silver Screen Method, "Willy Meyer" Modified.—Dr. A. JUDD presented this patient and read the report.

Case of Chronic Infection of Gall-Ducts Cured with Schäner's Vaccines.—Dr. A. JUDD presented this patient and read the report.

Open Operation for Congenital Dislocation of Hip.—Dr. JOSEPH WIENER reported the case of a girl of nine years who was admitted to Mt. Sinai Hospital, September 19, 1911. Her family and previous history was negative. When the child began to walk at the age of one year (eight years ago) the mother noticed that she had a limp. There was no trauma, no pain, no fever, no chills, but she had kept a waddling gait up to the present time. There had been no treatment during the entire period. The physical examination showed limited motions of the left hip joint. There was full flexion, some limitations of extension, outward and inward rotation were exaggerated, adduction was almost to 90°, and abduction was limited. When the thigh was flexed on the abdomen, then abducted, there was considerable limitation. Motion of the thigh upward and downward was possible. The head was felt behind and above the acetabular cavity. When the femur was drawn down, left Scarpa's triangle appeared as a deep fossa, and the adductors and sartorius were rendered tense. From the anterior superior spine to the external malleolus on the left side the distance was 54.5 cm., on the right side 59 cm. (about 2 inches shortening); from the anterior superior spine to the posterior border of the great trochanter on the left side the distance was 8.5 cm., on the right 7 cm. Bryant's triangle showed on the left 1 cm., on the right 5.5 cm. On November 1 an attempt at reduction under ether anesthesia was attempted. Relxation of the muscles was complete after extension for two weeks. Hyperextension, then flexion and circumduction and counter-pressure on the head of the bone failed to reduce the dislocation after several attempts. On November 11 an open operation was performed. A curved incision was made over the hip joint, the muscles were split, the joint reached and opened, the capsule being cut anteriorly above and below. Exploration then discovered that the head of the femur was anteverted on its neck, and that the acetabulum was abnormally short, small, and shallow. The acetabulum was enlarged and deepened with a chisel, the finishing being done with a sharp spoon. The thigh was flexed, abducted, and externally rotated in the efforts at reduction; on repeated attempts the femur jumped into place. This was followed by extension and internal rotation. The capsule was sutured with No. 2 chromic gut, the muscles with No. 2 plain gut, and the skin with silk. Plaster of Paris dressing was then applied with the leg in extension and internal rotation. The cast was removed and reapplied on December 3, and again on January 3. The child subsequently walked very well, with a freely movable hip. X-ray pictures of the case were shown.

Dr. A. S. VOSBURGH asked Dr. Wiener what the functional result was.

Dr. JOSEPH WIENER replied that it was very good. There was no shortening. The child had attended school all winter and went up several flights of stairs every day.

Dr. DEXTER D. ASHLEY said that Dr. Wiener had certainly obtained a very admirable result in this open operation for the reduction of the congenitally dislocated hip. If we could get such results every time it would be the desired procedure. There were a certain number of cases that with the best of endeavor and skill were not curable by the bloodless reduction. However, according to late reports of some of our best orthopedic surgeons, 90 per cent. could be made perfect by the bloodless procedure when taken at the proper age. Dr. Lorenz, eleven years ago, when approaching his one-thousandth ease, stated with some hesitancy that he never expected to do any other than the bloodless operation. For those who may have forgotten, and regarded Dr. Lorenz only as a bloodless surgeon, I wish to say that he had done two hundred cases by the open method, described as the "Hoffa-Lorenz method," before he did the bloodless reduction. There had been some intimation that the bloodless reduction did not give as stable a hip, and was less accurate in its procedure than the open operation. According to the statistics of the Boston orthopedic men, who held very late to the open method, the percentage of stability by the open operation is not any greater than by the bloodless method; there are just as many relapses. When we take into consideration the early passive motion that must be instituted in this open operation, we have the explanation of the cause of the lack of stability. Dr. Ashley said he had done something over two hundred cases, and could say that when he had reduced the hip, getting a stable position, and had been able to follow up the case, he had never had a hip redislocate. In other words, one could predict, almost with certainty, the outcome of the case at the time of operation. He had been asked on several occasions to what extent the bloodless method was accepted and used by orthopedic surgeons and wished to state that it was the only method that was in general use to-day.

Acute Septic Infarcts of the Kidney: Nephrectomy: Recovery.—Dr. ANTHONY H. HARRIGAN reported the case of a woman, twenty-one years of age, a housewife, who was admitted to Fordham Hospital, service of Dr. William P. Healy, January 24, 1913. The family history was negative. Her habits were good. She was married ten months ago and was now pregnant four months. Her present illness began ten days ago when an alveolar abscess opened spontaneously. Two days later she suffered from backache which was severe. The following day she had a severe chill. The pain persisted and became more severe. The chills occurred daily. The temperature had ranged between 100° and 103.5° F. The day before admission the pain became general over the abdomen, with its maximum in the right lumbar region. There were no bladder symptoms. The physical examination showed a pulse of 80 and a temperature of 99° F. The patient appeared to be gravely ill. The examination of the abdomen revealed the enlarged pregnant uterus. The right kidney was enlarged and tender. The extreme point of tenderness was in the right costo-vertebral angle. The leucocyte count was 34,800, the polymorphonuclears 88 per cent., the large mononuclears 6 per cent., the small mononuclears 5 per cent., and the transitionals 1 per cent. The examination of the lungs, liver, spleen, and all the regions was negative. The urine contained albumin and pus cells. In the diagnosis two things were considered, pyelonephritis and acute septic infarcts of the kidney. The latter diagnosis was considered in view of the history of the alveolar abscess. A right oblique lumbar incision was made and the kidney easily delivered and inspected. The surface presented innumerable foci of suppurations. The diagnosis of septic infarcts was made and nephrectomy was decided upon. The pedicle was clamped and divided, and the kidney removed. The pedicle was transfixed in several places and ligated with chromic catgut. The ureter was ligated separately with catgut. The wound was sutured in layers up to the upper angle when a plain gauze drain was passed to the ligated pedicle. The recovery was uneventful. The patient did not abort. There were no signs of kidney insufficiency during the first twenty-four hours. After the operation the temperature dropped to normal and remained there. The patient was discharged in excellent condition. The wound was closed except for a short sinus in the upper angle. It was a staphylococcus infection.

Dr. WILLIAM H. LUCKETT asked how it was possible for him to make a diagnosis of septic infarct.

Dr. HARRIGAN replied that the diagnosis was made only after exposing the kidney.

Dr. F. KAMMERER said that he was much interested in Dr. Harrigan's case, as the patient was a woman and the right kidney had been the one affected. In a discussion of Dr. Brewer's paper at the American Surgical Association, in 1908, he had referred to four cases of unilateral hematogenous infection of the kidney which had been under his care. These cases were more extensively described in the *Festschrift* for the German Hospital of the city of New York, published in 1909. In this later publication the speaker had called attention to the fact that these infections occurred much more frequently in women than in men, and were most always situated on the right side. Of 28 cases, which he was able to collect at the time, 16 belonged to Dr. Brewer, 8 to Dr. Cobb, and 4 to himself. Of these, 24 occurred in women. In 3 of these 24 cases the kidney had been the seat of some prior disease, but in the remaining 21 the infection had, to all appearances, developed in a previously healthy kidney. Furthermore, of these 21 nineteen were on the right and only two on the left side. These numbers, in connection with the fact that three of the speaker's cases were affections of the right side in women, had suggested to him the probability of a connection between unilateral hematogenous infection and a movable kidney. Two years later Cotton, in the *Annals of Surgery* (November, 1911), offered the same

explanation, evidently in ignorance of the speaker's previous publication. Cotton reported two cases in which an excellent result had been obtained by decapsulation of the kidney as opposed to nephrectomy. In the *Festschrift*, previously mentioned, Dr. Kammerer had suggested this plan of treatment, and he was glad to see that it had been so successfully carried out. His suggestion was to free the kidney to its pedicle, to remove the capsule exposing the small septic foci, which at the beginning of a hematogenous infection were generally confined to the cortex, to wrap the organ in loose gauze and to await further developments. If the septic symptoms did not subside the organ could, a few days later, be easily removed by throwing a ligature around the pedicle. That in many such cases the kidney could be saved, Cotton's experience had demonstrated.

Dr. A. S. Vosburgh reported the case of a girl who was admitted to Bellevue Hospital with the diagnosis of appendicitis. She gave a history of having struck her flank on the side of a table, which was followed by pain, and she was ill for some time after. When Dr. Vosburgh examined this mass on the right side it seemed too huge for appendicitis, and he thought that probably there was a suppurative nephritis of the right side to deal with. A preliminary incision was made and a mass was found that was retroperitoneal. The incision was sewn up and the kidney was exposed from behind. There was a dilatation of the kidney and an abscess outside the kidney. This organ was very adherent. It appeared to him that if the kidney was left there would follow a very prolonged suppuration. The kidney was enucleated at that time. This kidney was movable and by its descent had produced an obstruction of the ureter. The previous attacks of pain she complained of were simply attacks of colic.

Resection of Esophagus for Carcinoma.—Dr. Franz Torek. The first successful case of resection of the thoracic portion of the esophagus for carcinoma. The tumor was situated in the middle portion of the esophagus, beginning just below the arch of the aorta and extending one and three-quarters inches down. Dr. Torek called attention to Sauerbruch's position that only the carcinomata in the portion near the cardia should be resected. He also called atttention to the fact that the carcinomata near the cardia occur less frequently than those in the middle portion, and that they are also more frequently associated with metastases. The carcinomata in the middle portion therefore played a more important rôle in the problem of cancer of the esophagus. Among the dangers in the operation were injury to the vagi and leakage from the oral stump of the esophagus after resection. To avoid the former better access was needed. The patient was a woman, 67 years of age, on whom he had performed a gastrostomy some time previous. He made an incision through the whole length of the seventh intercostal space, from the posterior end of which it was extended upward by cutting through the seventh, sixth, fifth, and fourth ribs near their tubercles, which gave an excellent access to the parts. Extensive adhesions between lung and parietal pleura were separated. The portion of the esophagus below the tumor was lifted out of its bed after preparing the vagi aside. Over the tumor the dissection of the vagi was more difficult, requiring the division of some branches crossing it. During this procedure the pulse remained steady, between 93 and 96. The dissection of that part of the esophagus which passed behind the arch of the aorta proved difficult. It was accomplished by dislodging the aorta after dividing a number of its thoracic branches. Posteriorly the tumor was attached to the left bronchus, which was cut during the process of separating the tumor from it. The cut in the bronchus was afterward sutured with silk. The dissection of the esophagus was then continued all the way up the pleural cavity to the neck. It was then divided with a cautery at a safe distance below the carcinoma, after double ligation, the lower stump was invaginated, and the upper part brought out through an incision in the neck at the anterior border of the sterno-cleido-mastoid muscle. Thus an infection of the pleura from the esophagus was rendered impossible.

The thorax was closed and the esophagus transplanted under the skin of the chest, the open end being sutured to the skin at an incision made for the purpose. The thorax was not drained. Anesthesia by tracheal insufflation was employed. The patient made a good recovery. On the seventh day, when the last stitches were removed, the wound was completely closed. Feeding was done by introducing the upper end of a gastrostomy tube into the end of the esophagus; what the patient swallowed passed through this rubber tube into the stomach. Dr. Torek mentioned that there were several methods of esophagoplasty that could be employed.

Dr. Willy Meyer said that since 1904 surgeons had tried without success to save the patient's life after resection of the esophagus for carcinoma. As to the cause of death, it was particularly the so-called vagus death that took the patients away, and it can be stated that involvement of both pneumogastric nerves above or behind the aortic arch rendered the case an inoperable one. Sauerbruch succeeded in pulling the patient through the operation as such, excising carcinoma at the cardia with following esophagogastrostomy by button. Two weeks later the patient contracted pneumonia of the right lower lobe and died. Ach of Munich operated upon a similar case. He also transposed the oral esophageal stump (as Torek has done in his case). Both pneumogastrics had to be cut below the aortic arch. The gastrostomy fistula became insufficient and caused the patient's death on the 17th day after operation. Now, in this year, 1913, they were so fortunate as to be able to record two successful cases within nine weeks, Dr. Torek operating on March 14 on a carcinoma situated behind the aortic arch, in a female patient, 67 years of age, and Zaaijer of Leiden, Holland, for a carcinoma of the cardia involving the lower end of the esophagus in a male patient of 55 years, January 9. Torek's case was undoubtedly the first in which a carcinoma situated in the upper portion of the esophagus in the neighborhood of the aortic arch had been removed with recovery of the patient. It proved the correctness of the stand taken with regard to thoracic work at the German Hospital, namely, to attack a carcinoma of the esophagus, no matter where in the course of the tube it might be situated, and not to confine operations to tumors in the lower end of the esophagus. Torek, and according to the report, it seemed Zaaijer, too, found conditions such that they could prepare off both pneumogastric nerves. *Early diagnosis and early operation*, therefore, is the watchword. The evolution of the surgery of the esophagus has of late been exceedingly rapid. A year ago their efforts were confined to proving the possibility of resection of the growth in cases of malignant stricture of the esophagus. To-day they not only considered the possibility of removal of the tumor, but also the construction of a new esophagus, or the reconstruction of what had been left within the thorax. In connection with the latter efforts, the method of gastrostomy recently proposed by Jianu had given a great impetus to this kind of work. A patient thus operated upon was recently presented by me before the New York Surgical Society. The patient was a woman, 46 years of age, in whom the free end of the Jianu tube reached up to the cartilage of the third rib. In transposing the oral end of the esophagus extrathoracically and subcutaneously downward, both ends of these tubes might meet at once and be united by end-to-end suture, representing the so-called extra-thoracic esophagoplasty. If the transposed oral stump proved to be too short, a subsequent skin plasty must complete the work, except the wearing of a rubber tube connecting both openings should satisfy the patient. The speaker added that he was sure he voiced the sentiment of every one in the audience in offering hearty congratulations to Dr. Torek.

Acute Diverticulitis of Sigmoid.—Dr. Henry H. Janeway presented this patient. For three months preceding the date of operation the patient had been troubled with vague abdominal pain, constipation, anorexia, and indigestion. These symptoms became much intensfied two weeks before operation, though the bowels still acted with cathartics, and to them were added nausea, vomiting, marked abdominal tenderness, and pain, chills, fever, and sweating. Dr. Janeway first saw the patient on July 18, 1912. The examination elicited an area of maximum abdominal tenderness and rigidity two inches below the umbilicus and one inch to the left of the middle line. The abdominal rigidity diminished in degree the further from this area palpation was made. No mass could be felt (the patient was fat). The temperature was 102.6° F. The leucocytes numbered 16,500, the polynuclear forms were 79 per cent., and the mononuclears 21 per cent. Operation was performed four hours after Dr. Janeway saw the patient. A median incision was made and a pint of fecal pus was evacuated. An opening into the sigmoid was identified and apparently was above the meso-sigmoid at the angle of juncture of the horizontal and vertical portions, *i.e.* in the bend where the descending vertical portion of the sigmoid continuing the descending colon bent to the right to form the horizontal portion of the sigmoid. The pus was mopped out, and rubber drain tube was inserted. The patient made an ideal recovery, the fecal fistula healing in three or four weeks' time.

Epithelioma of the Esophagus, Illustrating a New Method of Gastrostomy.—Dr. Janeway presented this patient who was operated on January 6. A gastrostomy opening was made by a new method which was made pos-

sible by a small plastic procedure on the anterior wall of the stomach, which had the following characters: (1) The operation could be performed under local anesthesia through a small one and a half inch incision. (2) The new fistula was lined with mucous membrane and, therefore, would not spontaneously close, and consequently it was not necessary for the patient to wear a tube constantly. (3) The new canal was furnished with a natural sphincter in the rectus fibers, and with a valve closure at its inner extremity preventing leakage.

A New Form of Insufflation Apparatus (Portable).—Dr. JANEWAY exhibited this piece of apparatus for intratracheal anesthesia. It had the following features: It weighed fifteen pounds, and measured 4 x 14 inches. It could be readily taken apart and could be carried about in a small handbag. It was supplied with a motor running upon both alternating and direct currents, a blower delivering ninety cubic feet of air an hour, in other words, twice the amount calculated as necessary for the large permanent plant in Roosevelt Hospital. In fact, this was the same blower adopted by the layer machines. The apparatus was also furnished with a rheostat ether flask, air filler valve controlling the amount of ether used, and manometer and safety blow-off valve.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Meeting Held April 21, 1913.

THE PRESIDENT, DR. REYNOLD WEBB WILCOX, IN THE CHAIR.

Intestinal Adhesions: Bacteriologically, Experimentally, and Surgically Considered.—Dr. ROBERT T. MORRIS said that from time to time he hoped to bring before the society new points that were developed in the course of study of the subject of intestinal adhesions of insidious toxic origin, which promised to become one of the most important subjects ever taken up by the medical profession. In former years we had considered that a patient either had a good deal of peritonitis or none at all. The midway position, we were now coming to understand, was much more important, for patients who had insidious peritonitis, without symptoms leading to its classification as such, were far more common than those who had suffered from the more clearly recognized forms. The adhesions of the attic of the abdomen interfered with gastric and duodenal motility, and also caused at times obstruction of the bile ducts. They frequently gave rise to pain in the epigastrium, and were to be found to some degree in almost every adult who was examined with reference to this point. We had to distinguish between attic adhesions and peritoneal defects common in the upper part of the abdomen, and also to distinguish between such adhesions and the more recently described Lane's kink and Jackson's membrane, which apparently belonged in the same toxic category. The latter conditions seemed to represent a hyperplasia of connective tissue, like that found in Dupuytren's contraction of the palmar fascia, and specimens of the connective tissue from Lane's kink, Jackson's membrane, attic adhesions, and Dupuytren's contraction could hardly be distinguished from each other on microscopical examination. In Dupuytren's contraction of the palmar fascia the hyperplastic connective tissue was more dense, because of the density of the parent tissue, while with the Lane kink, Jackson's membrane, or attic adhesions it was more loosely arranged, on account of the character of the parent tissue in these regions. Adventitious connective tissue was found also at the hepatic and splenic flexures of the colon. Examination of adhesion tissues for bacteria sometimes resulted in finding the colon bacillus, but in many cases no bacteria at all were found. It was probable that the toxins alone made their way through the bowel wall, causing toxic injury to cell protoplasm, with the resulting changes. The anaërobic bacteria were particularly prone to do this when there was intestinal stasis. These toxins were probably like those which made their way through the walls of the bile ducts and the gall bladder, excepting that in the latter case they represented a supply beyond the metabolizing ability of the individual for their disposal. Unmetabolized toxins poured out of the liver upon the duodenum, and probably excited at that point the secretion of hormones of abnormal character, and these stimulated abnormal secretion from the mucous glands of stomach and bowel. We had then a vicious circle established. The patients who were most subject to peritoneal adhesions of insidious toxic origin belonged to the neurasthenic group, the class of persons who seemed to have originally defective ductless glands, and who were otherwise deficient in the factors of protection which guarded against toxic injury in more perfectly developed individuals.

Dr. ANTHONY BASSLER said that while the surgical standards of drainage and extirpation of pathological tissues answered well in the whole domain of surgery, in the present subject more than these should be given consideration, because we were dealing with biology. It was not simply a matter of intestinal stasis. We must remember that the bowel might be matted into one mass by chronic peritonitis, so that great interference with peristalsis existed, and still intestinal toxemia not be present. Many cases of acute intestinal obstruction, as well as of those of a chronic type, were not accompanied by toxemia. The matter of intestinal stasis, an important one in this connection, was far from being proved, and in medicine it should always be remembered that the coexistence of two phenomena did not prove that they stood in the relation of cause and effect. Adhesions took place in the pia, pleura, pericardium, and joint cavities only because of infection with bacteria, and the same was true of the peritoneal cavity. In his opinion, all adhesions here directly bacterial in nature. It had been proved conclusively that bacteria can pass through a normal mucous membrane of the intestine, and, as a fact, they often did so. The subject was bound up in the bacteriology of the intestines, and this was further shown by the fact that the upper part of the small intestine, where there were but few bacteria, was practically free from adhesions. Then, most of the adhesions were found in those parts of the intestines where the veins and lymphatics emerged, as, for instance, the anterior band of the colon. Lastly, his studies had suggested that the bacteriology of the intestinal canal in adhesion cases was never normal. There were some ten forms of anaërobes of the bacilli class alone which were responsible for adhesions. Recently he had isolated a new bacterium which was commonly present in the stools of cases where there were marked adhesions, and which, when grown in culture and thrown into the intestinal canal of dogs, would produce pericolonic adhesions after a few injections. As to splanchnoptosia being responsible for adhesions, he would say that splanchnoptosia was due to intestinal toxemia, because in his studies of four autopsy cases of splanchnoptosia he had been able to prove that distinct degeneration of the sympathetic plexuses of the abdomen existed. Thus he felt that a toxemia affected the neuromuscular structures of the stomach and intestines, and then the extrinsic nerves; making possible the production of dilatation of local or generalized character. The splanchnics, as was known, were the inhibitory agents of the hollow abdominal viscera. Thus, with the toxemia persisting, degeneration took place in the sympathetic system of the abdomen by reason of the disturbing effects on the nutrition of the abdomen as a whole; while adhesions might ensue as the final result of the toxemia, plus bacterial extravasation.

Dr. WARD J. MACNEAL said that peritoneal adhesions were either fibrinous or fibrous. The former were but temporary, and either disappeared or became organized into fibrous adhesions. The fibrinous adhesion was produced by a general peritonitis or by a localized injury to the peritoneum. It was difficult to conceive of such localized injury occurring as a result of the penetration of soluble bacterial toxins through an intact intestinal wall, and it would seem that the local injury was most frequently caused by a localized infection of the subserous tissues or by bacterial invasion of the serosa itself. The injury to the serous coat brought about a precipitation of fibrin which served as a weak bond of union to some contiguous structure. If this fibrous union organized into fibrous tissue, a typical firm adhesion was the result. It was the latter type with which the physician and the surgeon had to deal. Such a fibrous adhesion was of the same order as a scar, and it might be impossible to arrive at any reliable conclusion as to the original etiological factors by the examination of such a scar. In order to study the etiology of peritoneal adhesions resort might best be had to experimental surgery, to ascertain the exact conditions which determine the production of adhesions and to distinguish them from the circumstances under which the formation of adhesions does not occur. A series of careful observations along this line had recently been reported by Adams in his Hunterian lecture before the Royal College of Surgeons. He had been able to produce both infected and bacteria-free adhesions in the peritoneal cavities of guinea pigs and rabbits. Noninfective adhesions were induced by destructive injury to the peritoneum, but with greater certainty by the introduction of foreign bodies (such as cotton sponges and drainage tubes) into the peritoneal cavity. Often these ad-

hesions would subsequently become infected by the penetration of bacteria from the lumen of the intestine. Extravasated blood in the peritoneal cavity rarely caused adhesions unless it had become infected. Infection of the peritoneum, and especially the introduction of infected foreign bodies, proved to be a ready method of causing adhesions. The omentum, Dr. MacNeal said, was one of the structures which most readily became adherent to an area of injured peritoneum. This was in part due to its wide range of excursion, and in part to the rapidity of absorption of foreign material by its lymphatics. The movements of the omentum were wholly passive, and depended upon the active movements of other structures, the most important of such movements being intestinal peristalsis.

Dr. Robert Coleman Kemp thought the profession owed a debt of gratitude to Dr. Morris for his careful investigation regarding the etiology of intestinal adhesions. The so-called attic of the abdomen he believed to be of great pathological importance, and it was Dr. Morris who first called our attention to the fact that the "spider-web" adhesions emanating from the diseased gall-bladder and involving the pylorus or upper duodenum, produced dilatation of the stomach, and at times even hemorrhage; simulating gastric ulcer with commencing pyloric stenosis with which he himself was in accordance. Dr. Morris held the view that the milder types of adhesions of web-like character resulted from various bacterial toxins emanating from the intestinal tract—in some cases those of the colon bacillus, while in a few instances he had found a few colon bacilli present. Briscoe had reported in the *Lancet* several instances of the matting together of the pelvic viscera by an exudate, which, on microscopical examination and culture, was proved to be caused by the colon bacillus. Turck, as would be remembered, had fed colon bacilli to dogs and produced gastric ulcer. It was extremely significant that gastric and duodenal ulcer were found with considerable frequency in association with gall-bladder infection and chronic appendicitis, as such ulcers were undoubtedly the result of some embolic process of toxic origin. The speaker said he was inclined to take the view of Dr. Morris that in many instances gastric and duodenal ulcer could be attributed to local endarteritis caused by the toxins of intestinal bacteria, particularly the colon bacillus, or to infection by these organisms. Secondary gastric ulcer had also developed from the erosions of achlorhydria hemorrhagica gastrica, and, moreover, adhesions frequently occurred with ulceration of the gastro-intestinal tract.

The Relations of Adhesions and Intestinal Angulations Resulting from Enteroptosis to Chronic Constipation; Personal Observations.—Dr. Robert Coleman Kemp read this paper, which was illustrated with a number of large radiographs taken by Dr. Sinclair Tousey. In making the diagnosis of this class of cases, he said, the symptoms and physical signs, as well as the radiograph, should be taken into consideration in connection with the radiograph. For example, in one case showing a portion of the transverse colon lying well down in the pelvis there was no evidences of interference by adhesions to the passage of bismuth. Only the angulations and displacement could be determined by the *x*-ray, but the history and the physical signs were conclusive. Subsequently to the removal of a diseased appendix this patient suffered from a local peritonitis, evidently having its origin at the stump of that organ, and there had been persistent tenderness over that region for several years. Without doubt there were adhesions binding the descending arm of the transverse colon to the caput coli and ascending colon; so that the usual medical treatment of enteroptosis, by application of adhesive strapping or special belt or corset, together with diet to increase the intra-abdominal tension by the accumulation of fat, etc., would prove of no avail. Advanced cases of chronic stenosis of the intestine could usually be diagnosed without the aid of the *x*-ray, but, nevertheless, it should be employed on account of its confirmatory evidence. For the early and positive diagnosis of adhesions producing constipation it was of great value. In the etiological classification of chronic constipation was that due to disturbances of the motor functions of the intestine, and this was subdivided into constipation due to retarded intestinal peristalsis, atonic constipation, and constipation due to enterospasm—spastic constipation. The great prevalence of constipation among women was well known, and Meynert, in his gynecological clinic, had found that 80 per cent. of the patients suffered from enteroptosis. In cases of this kind the musculature of the stomach and intestines and the muscles of the abdominal walls also were relaxed, and this was a factor likewise in the production of atonic constipation. The stigmata of typical cases of enteroptosis were readily recognized at sight, but many of the milder cases were apt to be either overlooked by the general practitioner or diagnosticated as nephroptosis alone, or possibly as simply "atonic constipation." The more moderate types of angulation from enteroptosis, the speaker believed, had a bearing on the disturbances in intestinal motility resulting in the symptoms of so-called atonic constipation. Frequently the *x*-rays had readily demonstrated the angulation to the satisfaction of the patient, and correcion of the enteroptosis had relieved or cured the constipation. It was a well-known fact that perigastric adhesions interfered with the motility and disturbed the secretion of the stomach, and, in his opinion, adhesions not sufficient in degree to produce stenosis of the intestines were often a cause of disturbance of the motor and secretory functions of the latter. In effect, therefore, careful investigations would demonstrate that, in the etiology of quite a large percentage of cases of so-called atonic constipation, enteroptosis with moderate angulations, or slight adhesions, were factors. He believed, furthermore, that intestinal adhesions with narrowing of the lumen and enteroptosis with marked angulations were frequent factors in the production of so-called spastic constipation, and in such conditions he had observed the typical symptoms of this, with the evacuation of small balls (groat feces) or pencil-shaped material. The spastic type of constipation was met with in those cases where the adhesions or the angulations from enteroptosis were of more pronounced degree than those observed with atonic constipation. These varieties of constipation every practising physician was liable to meet with, and he thought that all cases of chronic constipation should be carefully studied with the *x*-rays. He then cited a number of illustrative cases. In case 1 the *x*-ray showed a stomach with a long vertical limb and a short horizontal limb, at the level of the umbilicus—a "water trough" stomach. The transverse colon dipped below the umbilicus. The caput coli and ascending colon were much dilated and there was marked angulation at the junction of the descending limb of the descending transverse colon and its transverse limb; accounting for the dilatation. Indicanuria, nervous symptoms, and constipation persisted, in spite of mechanical support, electricity and the usual medical treatment. Operation (short-circuiting the intestine by the juncture of the ileum to the descending colon) was advised, but up to the present time this had been refused. In case 2 there was moderate gastroptosis, nephroptosis (right kidney, third degree), and the appendix was slightly sensitive. The sigmoid flexure was prolapsed and the rectum showed a tendency to prolapse. The radiograph confirmed the diagnosis. The caput coli was narrow and low in position, the splenic flexure high, and the transverse colon below the level of the umbilicis. The patient had greatly improved under medical treatment and repeated application of Rose's belt, and the tenderness at the appendix had disappeared. In case 3, that of an unmarried lady of 49, the ovaries had been removed in 1889 and the appendix in 1901. After the last operation pain and tenderness in the region of the stump of the appendix, together with marked constipation, developed. Dr. Kemp first saw her at Williamstown, Mass., in 1910, when the physical examination showed moderate tenderness in the right iliac region and enteroptosis. Adhesions were also diagnosticated, but there were facilities for an *x*-ray examination. The patient would not consider operation, and mechanical and medical treatment afforded partial relief. In New York Dr. Kemp examined the case again, in February, 1913, when the same diagnosis was made—enteroptosis with adhesions at the site of the appendix operation. The radiograph confirmed the diagnosis of enteroptosis, though it did not show the adhesions, and also revealed an angulation at the hepatic flexure, a second angulation where the descending arm of the transverse colon passed downward into the pelvis, and still another where the ascending arm first came in contact with the descending colon. Operation was still refused. Three other cases were described in the paper. In one of these there was obstinate constipation and a history of attacks of peritonitis. Physical examination showed narrowing at the sigmoido-rectal junction, which was regarded as probably due to adhesions. The radiograph showed marked adhesions about the transverse colon, considerable dilatation of the caput coli, and slight adhesions at the sigmoido-rectal junction. A laparotomy by Dr. Parker Syms confirmed the diagnosis, and the adhesions were severed. The patient did well for some months, when there was a recurrence of the constipation, and a radiograph taken at this time showed the presence of adhesions at the transverse colon. Dr. Syms again operated and marked adhesions were found, not only to the transverse colon, but also to

the ascending colon and between several coils of the small intestine and the abdominal wall on the left side. The adhesions were separated, as far as possible, and after this the constipation again improved. There were many interesting features in these cases, the speaker went on to say. Abnormalities in gastric secretion when there was enteroptosis he believed to be due to the misplacement of the stomach, and in his book on gastrointestinal diseases he had reported the disappearance of hyperchlorhydria after repeated application of Rose's belt alone. In cases with intestinal adhesions functional disturbances were, no doubt, in most instances, a reflex from these, just as such reflexes resulted from disease of the appendix or gall-bladder. Many cases of so-called atonic constipation he imputed to moderate intestinal angulations from enteroptosis or to slight adhesions, while more marked angulations or adhesions might produce the symptoms of spastic constipation. Unquestionably, correction of an enteroptosis uncomplicated by adhesions by such means as belts, adhesive strapping, corsets, and the increasing of abdominal fat would do much for the constipation in some instances, but cases of enteroptosis which could not be relieved by such means, including all those due to adhesions, belonged to the domain of surgery. Regarding the question of surgery, Dr. Kemp said he desired to present some problems for discussion, and, first, as to adhesions. In two of his cases, which were operated on for these, by skillful surgeons, the adhesions formed again, necessitating a second operation in each instance. In such cases, therefore, would it not be preferable to short-circuit the intestine by entero-enterostomy, and leave the intestines undisturbed? In that case what probability would there be of torsion of the gut or of some other portion of the intestine slipping beneath the adhesions, or becoming adherent to them? Second. In the cases of enteroptosis with marked angulations there was always great redundancy of the transverse colon, and suspension of the intestine would in some cases seem impracticable, and revision of the recoti muscles equally so. Would a double entero-enterostomy, thus short-circuiting the angulations, be preferable? In one of his cases, even if this procedure were carried out, there would still remain the sigmoid flexure, lying completely prolapsed in the pelvis and angulated. The additional problem would then remain, whether to resect, to short circuit, or to suspend the sigmoid. Unless some such procedure were adopted there would probably be still sufficient mechanical obstruction to cause constipation. In conclusion, he stated that it had been his endeavor, in this paper, to demonstrate not only the great value, but also the necessity of careful examination of all cases of chronic constipation by means of the Röentgen rays.

Some Radiographs of Obscure Stomach and Intestinal Cases.—Dr. Sinclair Tousey read this paper. For *x*-ray diagnosis in these cases, he said, the patient, as was well known, came with the stomach and intestine empty. A meal consisting of mashed potato, a glass of water, and an ounce or more of bismuth oxychloride formed an accurate mold of the stomach and cast such a dense shadow in the radiograph as to show the size, shape, and position of that organ. Dislocation, ptosis, and hour-glass contraction were evident at a glance, as seen in some of the radiographs shown. Having referred to the radiographing of other stomach conditions, he mentioned that the best demonstration of lesions of the rectum, sigmoid flexure, descending, transverse, and ascending colon, and cecum was by a radiograph made after a bismuth or barium enema. A number of the radiographs he had taken had been shown by Dr. Kemp. He then went on to say that the dangerous tendencies in recent *x*-ray work upon the gastrointestinal tract lay chiefly in the use of the fluoroscope and in the making of multiple radiographs of the same patient. It was very far from being true that any ray giving a perceptible fluoroscopic image through the abdomen could be applied indefinitely with safety. He did not permit this kind of work at all in his laboratory, but if he did so it would be only on condition that the dosage of the radiance used for fluoroscopy should be measured, and the safe time of exposure determined beforehand and strict account kept of every second's exposure. Another dangerous use of the fluoroscope lay in the making of a preliminary observation to facilitate the location of the patient, the *x*-ray tube, and the plate, in the effort to secure the picture of the desired parts upon a plate of rather small size, as 8 x 10 inches. The objection to multiple radiographs, and especially cinematographs, was the danger of over-exposure. Just as there had been a very distinct limitation to the number of pictures which could be safely made through the abdomen with the long, weak exposures formerly employed, there was about the same safely limit with the short, strong exposures of today. Because it was easy to give the exposures in rapid succession there was danger that the safe dose might be exceeded. From two to ten times as many pictures could be made with safety when an intensifying screen was made use of as when it was not; but when it came to a matter of twenty, thirty, or forty pictures, as in radiocinematography, one was dealing with a dose which should be exactly measured, and its effect upon the individual patient most carefully considered, before applying it. The modern apparatus made it possible to make individual pictures of moving organs, like the stomach, and this might be repeated at different stages of digestion; but Dr. Tousey thought it dangerous to make a very large number of exposures to show the actual motions of the organs.

Dr. Parker Syms said that this subject was still in its infancy so far as our actual knowledge went. He was, however, a great believer in infection as a causative factor. The peritoneum was able to take care of a good deal of infectious material, but, nevertheless, in doing so was exposed to considerable danger. There were some cases in which the adhesions were progressive. Radiographs were an aid to diagnosis, and in the case referred to by Dr. Kemp in which he (Dr. Syms) had operated, the *x*-ray did locate the angulation of the colon at the splenic flexure. This was a well-formed adhesion angulation, and when the adhesions were released immediate relief resulted; the patient becoming free from all distressing symptoms. After some months, however, there was a recurrence of the trouble. The adhesions formed again, and were particularly dense over the ascending colon. He had then operated a second time, and with favorable results, and he now hoped that the relief would be permanent.. There were some cases in which permanent relief could not be afforded by operating on the adhesions, and in these, after one or two failures, we now resorted to short-circuiting the colon. As to the *x*-ray, he thought it would be a great advantage if all the radiographs were taken by one man; so that we might have a single, uniform method to depend upon. The speaker then referred to a case in which radiography did not prove of much service. The patient was a neurotic, hysterical woman who had been in a number of hospitals. She weighed only 97 pounds and had vomited after every meal for four years. On operating he found that the source of her trouble was the obstruction caused by a band of adhesions just below the outlet of the stomach which lifted up the duodenum, and which the radiograph had not shown. Up to the present time the patient had had absolute relief.

Dr. Morris said that his experience had been like that of Dr. Syms. There was recurrence of adhesions because the original cause, a chronic toxic infection, remained. For this reason he had given up operating for adhesions, except for the relief of urgent symptoms. Worse adhesions sometimes formed than those previously existing. The logical conclusion was that it was better to remove the colon. This, however, was a pretty severe measure, and at present surgeons were adopting a procedure which, while of little severity, was at the same time effective. The latter was a short-circuiting of the colon, an operation which had been so simplified that it took but little time and gave the patient a minimum of inconvenience. Now, if we were able to prevent the reversal of peristalsis this would prove all that could be desired in quite a large number of cases. Methods were at present being tried out by surgeons, with the intention of preventing this reversal, which had a tendency to carry the bowl content back into the colon above the short-circuit gate.

Dr. A. Ernest Gallant said it seemed to him most unfortunate that the trend of the papers and discussion this evening should have been so strongly surgical, and that an impression of such a character should emanate from the meeting. He was convinced that the vast majority of these cases could be satisfactorily treated by means of mechanical support, though it was, of course, essential that such support should be of proper character and intelligently applied. He did not believe that one case in a thousand, if even as many as that, called for operation. This craze for surgical interference in such cases, he thought, however, was only a temporary one, which would run its course and pass away like the promiscuous fixation of loose kidneys in vogue a little while ago. In the doing away with that he was happy to say he had been a pioneer.

Dr. G. Reese Satterlee agreed with Dr. Syms as to the need of uniformity in bismuth radiography of the intestinal tract. The use of different amounts and kinds of foods and metals in a series of cases was misleading. In quite a large number of series of cases during the past two and a half years he had studied the motility of the intestinal

tract by means of the bismuth ray. Two leading points of interest were constipation and ptosis, with or without adhesions. For the ptosis the treatment might be either medical or surgical. Abdominal support would often suffice, but operation was sometimes necessary. Of the operative procedures, colopexy had been attended with success in his hands. In twelve cases it had been done with some good results as to constipation, and three of them had been followed long enough to show that relief had been accomplished. This might be slow, as in one patient with an eight-day constipation, in whose case, after eight months' unsuccessful medical treatment, colopexy eventually relieved the situation. He thought this operation might also be effective in the case of adhesions, by drawing the bowel out of the pelvis, where infective processes were apt to spread over a crowded bowel. He was now trying another method of overcoming adhesions, namely, by immunizing by means of autogenous vaccines made from bacteria isolated from the feces. This had proved successful in one case of obstinate ulcerative colitis of ten years' standing, relieving the toxemia. It seemed as if this method ought to have a promising future for the peritoneal infections.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS.

April, 1913.

ANATOMY.

1. Give the origin and distribution of ulnar nerve.
2. Describe the sternum.
3. Locate saphenous opening and name an important vessel passing through it.
4. In disease of upper chest why is there frequently pain on inside of upper arm and about the shoulder?
5. How do the ventricles of the brain communicate with each other and with the subdural space?
6. Give a rule for locating the fissure of Rolando.
7. Name the arteries supplying intestinal tract from pylorus to anus.
8. Describe arrangement of gray and white matter in spinal cord.
9. Describe method of division and termination of capillary bronchial tubes.
10. Name a racemose gland. Describe its structure.

PHYSIOLOGY.

1. Define physiology.
2. Tell the functions of the third, fourth, and fifth cranial nerves.
3. What is the function of the uterus?
4. What is the function of the portal vein? What veins form it?
5. What is an enzyme?
6. Describe reflex action.
7. What is the function of the lymphatic system?
8. Tell the distribution and function of the pudic nerve.
9. Describe the cardiac cycle.
10. What nerves form the solar plexus?

CHEMISTRY.

1. Give the antidote for carbolic acid. For formaldehyde.
2. Give the chemical composition of iodoform.
3. How does permanganate of potassium act as a disinfectant?
4. What is the toxic agent in ptomains?
5. What is the formula of sulphuric acid?
6. Give the method of uranalysis for albumin and sugar.
7. Would you use iodine on the skin after a mercuric solution?
8. What is the law of Avogadro?
9. What is the antidote for arsenic?
10. What is chemistry?

MATERIA MEDICA AND THERAPEUTICS.

1. State the sources and dose of salicylic acid.
2. Describe the therapeutic uses of glycerin.
3. Name four principal coal-tar derivatives and give physiological action.
4. Name the principal potassium salts. Give dose and use of each.
5. Name three vegetable and three mineral astringents with dose of each.

Treat the following diseases, giving doses of drugs used, their therapeutic effect, diet, and prognosis.

6. Typhoid fever.
7. Pneumonia.
8. Pellagra.
9. Cerebrospinal meningitis.
10. Scarlet fever.

TOXICOLOGY AND MEDICAL JURISPRUDENCE.

1. Describe how subcutaneous wounds may be produced. How many kinds of open wounds? Name them according to the way they are produced.
2. How does electricity produce death?
3. Give some of the conditions simulating death.
4. Name some peculiarities of some of the special senses which would furnish important evidence in relation to identity.
5. Give some of the symptoms of organic nervous diseases.
6. How does chloral hydrate produce death? Name lethal dose.
7. How does chloroform produce death?
8. What are the important symptoms of poisoning by digitalis?
9. By what method of examination would you ascertain that a person was suffering from a fatal dose of quinine?
10. How does antipyrine produce death?

PHYSICAL DIAGNOSIS.

1. Describe the general method of palpation.
2. In what condition should the examiner's hands be before applying them?
3. What regions are studied by a simultaneous application of both hands?
4. What condition may cause total abolition of fremitus?
5. Where is palpation of vocal fremitus of most practical value?
6. What does splashing fremitus signify when felt against the thoracic wall, shaking the body?
7. How many attributes of percussion sounds? name them?
8. Describe artificial vocal resonance (plegophonia).
9. Describe Broadbent's sign in inspection.
10. What is learned by percussion when we have simultaneous extension of the area of cardiac dullness toward both sides and upward of the pericardial sac?

BACTERIOLOGY AND PATHOLOGY.

1. What is acute miliary tuberculosis, and name three varieties of tubercle?
2. Name the lesions usually found in the second and third stages of syphilis.
3. What is hypertrophy of the heart? Give three causes for same.
4. How would you diagnose croupous pneumonia from catarrhal pneumonia by microscopic examination?
5. Name three ways by which you can determine whether a certain organism is or is not pathogenic.
6. How would you make a bacteriological examination of water suspected of fecal contamination?
7. Name a simple method of producing a pure culture of the typhoid bacillus.
8. Name three malarial parasites and the kind of malaria caused by each parasite.
9. Name three pathological changes that may result from cerebral hemorrhage.
10. Name three pathological changes that take place in peritonitis.

ANSWERS.

ANATOMY.

1. The *ulnar nerve* takes its origin in the inner cord of the brachial plexus. It is distributed to the elbow and wrist joints; to the Flexor carpi ulnaris and the inner half of the Flexor profundus digitorum; to the skin of the ulnar half of the back of the hand, and to the skin of the little finger and adjoining half of the ring finger on the palm of the hand.

2. The STERNUM is a flat, narrow bone, situated in the median line of the front of the thorax. It consists of three portions: Manubrium, gladiolus, and ensiform. It is about seven inches long. At the junction of the first two pieces is the angle of Ludovic; and here the second costal cartilage joins the bone. It articulates with the clavicle and seven costal cartilages on each side. Muscles attached are: Pectoralis major, sternomastoid, sternohyoid, sternothyroid, diaphragm, triangularis sterni, and aponeuroses of external oblique, internal oblique, rectus abdominis, and transversalis.

3. The *saphenous opening* is located on the anterior sur-

face of the thigh, at the upper and inner part, just below Poupart's ligament, and beneath the superficial fascia. It transmits the internal saphenous vein.

4. In disease of the upper part of the chest, the pain which may be felt on the inside of the upper arm and about the shoulder, is due to involvement of the supraclavicular branches of the cervical plexus, and the lesser internal cutaneous and intercostohumeral nerves of the brachial plexus.

5. The lateral ventricles of the brain communicate with the third ventricle by means of the foramen of Monro; from the third ventricle the aqueduct of Sylvius leads to the fourth ventricle; communication between the latter and the subdural space may occur through the foramen of Magendie.

6. To *locate the fissure of Rolando:* Draw a straight line over the top of the scalp from the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the *fissure of Rolando.*

7. The *duodenum* is supplied by the pyloric, pancreaticoduodenal, and inferior pancreaticoduodenal; the *jejunum* and *ileum* are supplied by the branches of the superior mesenteric; the *cecum,* by the ileocolic and right colic; the *ascending colon,* by the right colic; the *transverse colon,* by the middle colic; the *descending colon,* by the left colic; the *sigmoid flexure,* by the sigmoid branches of the inferior mesenteric; the *rectum,* by the superior, middle, and inferior hemorrhoidal arteries.

8. In the spinal cord, the white matter is situated externally to the gray matter; the latter, on transverse section of the cord, is found in the center of the cord, and appears as two crescentic masses united together by a narrow, central, transverse band. Each of these crescentic masses has an anterior horn and a posterior horn.

9. "On entering a lobule, the small bronchial tube divides and subdivides; its walls at the same time become thinner and thinner, until at length they are formed only of a thin membrane of areolar, muscular, and elastic tissue, lined by a layer of pavement epithelium not provided with cilia. At the same time they are altered in shape; each of the minute terminal branches widens out funnel-wise, and its walls are pouched out irregularly into small saccular dilatations, called air-sacs. Such a funnel-shaped terminal branch of the bronchial tube, with its group of pouches, or air-sacs, is called an infundibulum, and the irregular oblong space in its center, with which the air-sacs communicate, an interceilular passage." (Kirkes' *Physiology.*)

10. "The mammary glands are compound racemose glands, and consist of gland-tissue which is made up of lobes, and these again of lobules. The lobes are connected by fibrous tissue, and between them is fat. Each lobule is composed of sacculated alveoli and a duct, the lobular duct. The lobular ducts discharge into larger ducts, which in turn discharge into a lactiferous duct, which may be regarded as the excretory duct of a lobe. Of these ducts, there are from fifteen to twenty; and they open at the surface of the nipple. Under the areola the tubuli lactiferi are dilated, forming ampullæ, in which, during the period of lactation, the milk accumulates in the intervals of nursing. The walls of the alveoli consist of a basement membrane, covered, during the period when the gland is not active, by a single layer of flat or cuboidal cells with one nucleus and presenting a granular appearance." (Raymond's *Physiology.*)

PHYSIOLOGY.

1. *Physiology* is that branch of science which treats of the functions of the organs and tissues of the body in a state of health.

2. The *third cranial nerve* supplies motion to the following muscles of the eye: Superior rectus, inferior rectus, internal rectus, inferior oblique, and levator palpebræ superioris. The *fourth cranial nerve* supplies the superior oblique muscle of the eye. The *fifth cranial nerve* has three subdivisions. The *first,* or *ophthalmic:* sensory to anterior half of scalp, conjunctiva and skin of upper eyelid, cornea, skin of nose, mucous membrane of nose, lachrymal gland. *Second,* or *superior maxillary;* sensory to conjunctiva and skin of lower eyelid, nose, cheek, upper lip, palate, upper teeth, and alveolar processes. *Third,* or *inferior maxillary;* sensory to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower lip, teeth, and alveolar processes of lower jaw. It is also motor to the muscles of mastication (temporal, masseter, two pterygoids), mylohyoid, and anterior belly of the digastric.

3. The function of the uterus is to receive the fecundated ovum, to retain it until it is developed into a mature fetus, and then to expel it.

4. The function of the portal vein is to carry the blood (with products of digestion and absorption) from the spleen, stomach, small intestine, pancreas, and large intestine to the liver. The portal vein is formed by the gastric, cystic, splenic, superior mesenteric, and inferior mesenteric veins.

5. Enzymes are more or less hypothetical substances, produced by living cells and capable of causing definite chemical changes in the media in which they develop.

6. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc,* which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

7. The function of the lymphatic system is to provide for the manufacture and circulation of the lymph, which provides the tissue cells with nutritive material and carries away their waste products.

8. The pudic nerve is distributed to the perineum, anus, and genitals; it is motor and sensory.

9. *The cardiac cycle* includes all the changes which occur between the commencement of one heart-beat and the commencement of the next; it consists of the alternate contractions (or systole) and relaxations (or diastole) of the auricles and ventricles of the heart. The contraction of the two auricles takes place simultaneously and is followed by the simultaneous contraction of the two ventricles; then follows a period during which the whole heart is in a state of diastole. The cycle then begins again with the auricular systole.

10. "The *solar plexus* is composed of three elements: the *celiac plexus* surrounding the origin of the celiac axis between the crura of the diaphragm and two *semilunar ganglia,* each lying on the corresponding crus of the diaphragm, and overlapped by the suprarenal capsule, and on the right side by the inferior vena cava. The plexus is continuous with subordinate plexuses, diaphragmatic, suprarenal, renal, superior mesenteric and aortic; and by means of *the hypogastric nerves* the aortic plexus becomes continued into the *hypogastric plexus,* which again forms the chief origin of the *pelvic plexuses.*" (Cunningham's *Anatomy.*)

CHEMISTRY.

1. *Antidote for carbolic acid.* Sodium sulphate, or alcohol; for *formaldehyde,* ammonia.

2. Iodoform is triodomethane, CHI_3.

3. Potassium permanganate is a powerful oxidizing agent, and its action as a disinfectant is due to the oxidation of the organic matter with which it comes in contact.

4. The poisonous agent in ptomaines is a *toxin.*

5. The formula of sulphuric acid is H_2SO_4.

6. To examine for *albumin:* The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

To examine for sugar: First remove any albumin that may be present, then "render the liquid strongly alkaline by addition of sodium carbonate. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."

7. Iodine with a solution of mercurous chloride will produce a mixture of mercuric chloride and mercuric

iodide. For this reason I would not use iodine on the skin after a mercuric solution.

8. *Law of Avogadro:* Equal volumes of all gases, under like conditions of temperature and pressure, contain equal numbers of molecules.

9. The antidote for arsenic is freshly prepared solution of ferric hydroxide.

10. *Chemistry* is that branch of science which treats of the composition of substances, the changes they can undergo, and the laws governing these changes.

MATERIA MEDICA AND THERAPEUTICS.

1. SALICYLIC ACID. *Sources:* Oil of wintergreen; and made synthetically by combination of sodium carbonate and carbon dioxide, this is then treated with hydrochloric acid. *Dose,* 7½ grains.

2. *Glycerin* is used as an emollient, as a laxative, as a vehicle for other medicines; it has also been given in cases of hepatic and nephritic calculi.

3. *Four coal-tar derivatives:* Acetanilide, phenacetine, antipyrine, and lactophenine.

Physiological action of coal-tar derivatives: They reduce body temperature; they have an analgesic action; they depress the nervous system; they destroy red blood corpuscles and produce other changes in the blood; they have an irritant and toxic action on protoplasm.

4. The *potassium salts, with doses,* are: The acetate, gr. xxx; bicarbonate, gr. xxx; bitartrate, gr. xxx; bromide, gr. xv; carbonate, gr. xv; chlorate, gr. iv; citrate, gr. xv; effervescent citrate, gr. lx; cyanide, gr. 1/5; dichromate, gr. 1/5; ferrocyanide, gr. vij; hypophosphite, gr. vij; iodide, gr. vij; nitrate, gr. vij; permanganate, gr. j; sulphate, gr. xxx; and potassium and sodium tartrate, 5ij.

Uses: The bicarbonate and carbonate are gastric sedatives; the acetate, citrate, and effervescent citrate are diuretics and diaphoretics, and are also used in cases of gout, uric acid diathesis and scurvy; the sulphate and bitartrate are purgatives, the latter being also a diuretic and diaphoretic; the nitrate is used in asthma and is a diuretic and diaphoretic; the chlorate is used in tonsilitis, stomatitis, and pharyngitis.

5. *Three vegetable astringents:* Belladonna, gr. j; opium, gr. j; and hyoscyamus, gr. vij. *Three mineral astringents:* Alum, gr. xv; lead acetate, gr. ij; silver nitrate, gr. ½.

6. *Typhoid fever:* Rest in bed, liquid diet as a rule (chiefly milk, eggs, broth, etc.), intelligent nursing, cold sponging, brandy or strychnine sulphate, gr. 1/30; for collapse, calomel in divided doses gr. 1/10 for constipation, bismuth subnitrate, gr. xxx for diarrhea, turpentine stupe to abdomen for tympanites, morphine sulphate gr. ¼ for intestinal hemorrhage (also raise the foot of the bed), for perforation laparotomy is indicated. The prognosis is guardedly favorable; the mortality is about 5 to 8 per cent.

7. *Pneumonia:* Rest in bed, fresh air, nutritious and easily digested diet, vensection sometimes, calomel in divided doses gr. 1/10 to clear out the intestinal tract, strychnine sulphate gr. 1/40 as a cardiac stimulant, digitalis gr. j if the pulse is of low tension, if pulse is of high tension nitroglycerin gr. 1/100 with aromatic spirit of ammonia 5j, cool sponging with water or alcohol for the fever, for dyspnea and pain cardiac stimulants (strychnine) and morphine sulphate gr. ¼ are indicated, Dover's powder for the cough, sulphonal gr. xv for insomnia. Prognosis is uncertain; mortality is about 20 to 40 per cent.

8. *Pellagra:* Since the etiology is uncertain treatment is symptomatic; liberal diet, hygienic surroundings, and change of climate are beneficial; arsenic in the form of Fowler's solution or atoxyl (hypodermic of 20 drops of a 10 per cent. solution every third day) is useful. Mortality is from 5 to 25 per cent.

9. *Cerebrospinal meningitis:* Rest in bed, liquid diet, ice-bags to the head, and counterirritation to the back are essential. Morphine sulphate or chloral hydrate (dosage according to the age of the child) may relieve the restlessness and nain. Calomel in divided doses may be given to open the bowels. Lumbar puncture and laminectomy are sometimes necessary. Serum treatment is also employed. Prognosis is bad; the mortality is from 20 to 75 per cent.

10. *Scarlet fever:* Isolation, rest in bed, and liquid diet are essential, good ventilation and proper antiseptic precautions should be insisted on; the nose and throat may be cleaned with Dobell's solution; calomel in divided doses, for the bowels, and aromatic spirit of ammonia (mχ-x) or strychnine sulphate gr. 1/60 for the heart, cold sponging for the fever, and inunction with vaselin or cacao butter are the chief indications. Prognosis is guardedly favorable; complications are to be averted.

TOXICOLOGY AND MEDICAL JURISPRUDENCE.

1. *Subcutaneous wounds* may be caused by falls, blows, crushes, or squeezes.

Open wounds may be incised, punctured, contused, lacerated, gunshot or poisoned.

2. The *causes of death by electricity* are thus summarized by Cunningham: "(1) Industrial electric currents which traverse the whole body transversely or longitudinally in sufficient intensity kill because fibrillary contraction of the heart is produced, and not, as has been hitherto surmised, by producing a total paralysis of that organ or by killing it outright. (2) Such currents neither kill the central nervous system outright nor paralyze it instantaneously. Death of the nervous system from such currents is due to the total anemia following a sudden arrest of the circulation. (3) In rare cases, when an electric current traverses only the cerebrocervical portion of the nervous system, in considerable intensity and for a considerable length of time, it may kill by asphyxia, consequent on a more or less complete inhibition of the respiratory movements which occurs chiefly during the passage of the current. No existing facts warrant the conclusion that the medullary respiratory center is paralyzed or killed in such conditions. (4) It may be possible for an electric current of enormous intensity and electromotive force to produce instantaneous death either by its disruptive action or by producing an instantaneous heat coagulation of the cellular constituents of the body. Industrial currents do not kill instantly, although, as a result of their action, death rapidly occurs." (Peterson and Haines' *Legal Medicine.)*

3. *Some conditions which simulate death:* Syncope, trance and catalepsy.

4. *Peculiarities of the special senses which have a bearing on identity:* Errors of refraction, color-blindness, imperfections in vision or hearing.

5. *Some symptoms of organic nervous diseases:* Paralysis, anesthesia or paresthesia, disturbance of reflexes, loss of control of bladder or rectum, pain, shock, atrophy or degeneration of any tissue or organ.

6. Choral hydrate probably produces death by failure of respiration; sometimes by pulmonary edema. *Lethal dose* depends on the age and habit of the victim; a dose of three grains has proved fatal to an infant, and a dose of over one ounce has been recovered from.

7. The cause of death in chloroform inhalation is uncertain; some attribute it to failure of the heart, others to failure of respiration.

8. *Important symptoms of poisoning by digitalis:* Nausea and occasionally vomiting. Sometimes colic and diarrhea. After two or three hours marked diminution in the frequency of the pulse, which may fall to 40 or even 25. Dyspnea, attended by a sense of oppression in the chest and coldness of the extremities. Headache, vertigo, and tendency to sleep. Usually attacks of syncope occur, provoked sometimes by the slightest movement of the patient.

9. An excessive dose of quinine will produce hyperemia of the ear and constriction of the vessels of the retina. The latter can be seen by ophthalmoscopic examination, the former by direct examination.

10. Antipyrine produces death, probably, by cardiac failure.

PHYSICAL DIAGNOSIS.

1. *Palpation:* "This method is employed by placing the hand upon and feeling the external surface of the chest. It detects tenderness, edema, vocal or tactile fremitus, and the amount of expansion. The back of the finger tips is frequently more sensitive than the palmar surface, and comparisons should be made at times during examinations. Fremitus is produced by the vibration of the air below the vocal cords, beginning in the bronchi, thence to lungs, and finally communicated to the cutaneous surface of the chest." *(Cyclopedia of Medicine and Surgery.)*

2. The examiner's hands should be clean, dry, and warm; and the nails should not be too long.

3. The anterior and lateral regions of the thorax.

4. *Vocal fremitus is absent* when air or fluid is present in the pleural cavity.

5. Over the anterior surface of the thorax.

6. Air or fluid in the pleural cavity.

7. *Percussion sounds are characterized,* as: Resonant, hyper-resonant, tympanitic, normal, dull, flat, cracked-pot, amphoric.

8. *Plegaphonia* is "tapping on the larynx or trachea, to take the place of the voice sounds in auscultation." (Stedman's *Medical Dictionary.*)

9. *Broadbent's sign* is a retraction of the left side and back adjacent to the eleventh and twelfth ribs observed in adherent pericardium.

10. Pericardial effusion.

BACTERIOLOGY AND PATHOLOGY.

1. *Acute miliary tuberculosis* is an infectious condition due to the presence of miliary tubercles (chiefly in the

lungs). *Three varieties of tubercle:* Gray, yellow, and conglomerate.

2. *The second stage of syphilis* is characterized by: Sore throat, mucous patches; the skin lesions or syphilides, which are characterized: By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical. In this stage may also appear: Iritis, periostitis, and alopecia.

The *third stage* is marked by: Anemia, gumma formation, periosteal nodes, headaches, endarteritis and various other diseases.

3. *Hypertrophy* of the heart is an overgrowth or increase in the muscular tissue which forms the wall of the heart. *Three causes:* Emphysema, Bright's disease, and prolonged muscular exertion.

4. In the sputum of croupous pneumonia the diplococcus pneumoniæ may be found; this is never present in catarrhal pneumonia.

5. To *prove that bacteria cause disease* it is essential: (1) That the microorganism be found in the tissues, blood, or secretions of a person or animal sick or dead of the disease; (2) the microorganism must be isolated and cultivated from these same sources; it must also be grown for several generations in artificial culture media; (3) the pure cultures, when thus obtained, must, on inoculation into a healthy and susceptible animal, produce the diseases in question, and (4) the same microorganisms must again be found in the tissues, blood, or secretions of the inoculated animal. These are called the rules or postulates of Koch.

6. The water should be carefully collected in sterilized bottles, and then examined for the colon bacillus. This latter grows on the ordinary media; stains readily with the ordinary anilin dyes, but not by Gram's method; and is motile, flagellated, non-chromogenic, non-liquefying and non-sporogenous.

7. *Pure culture of the typhoid bacillus.* "The bacillus is best secured in pure culture, either from an enlarged lymphatic gland or from the splenic pulp of a case of typhoid. To secure it in this way the autopsy should be made as soon after death as possible, lest the colon bacillus invade the tissue. No special precautions need be taken, as the bacilli are usually present in pure culture. Care must be taken, however, to plant the culture in bouillon containing glucose, and in milk in order that the absence of fermentation and coagulation may make sure that no colon bacilli are present." (Macfarland's *Bacteriology.)*

8. The plasmodium vivax causes the tertian variety; the plasmodium malariæ causes the quartan variety; and the plasmodium præcox causes the estivoautumnal variety.

9. Wasting of the paralyzed muscles, contractures, rigidity.

10. Adhesions, infection and pus formation, fatty degeneration.

(*To be concluded.*)

Therapeutic Hints.

Treatment of Impetigo of the Nostrils and of Vestibular Rhinitis.—G. Laurens states that impetigo of the anterior nares is very common in the child and is the result of a chronic rhinitis or of adenoid growths. It is characterized by the presence of crusts, with a chronic irritation and frequently a secondary lymphangitis of the upper lip. The treatment is the care of the general health, the removal of adenoids, irrigation of the nose with normal salt solution, and the application at night of the following ointment:

℞ Ichthyol, 1 gram.
Vaseline, 20 grams.

or

℞ Calomel, 0.25 gram.
Vaseline, 25 grams.

Vestibular rhinitis is characteried by the presence of crusts in the anterior nares, and frequently by the development of a true folliculitis, with the formation of pustules and sometimes of furuncles at the border of the nostrils. Painful fissures may be present. The most disagreeable complication of this condition is sycosis of the moustache region. The treatment is generally a protracted one. All underlying causes, such as blephritis and disease of the lacrymal tract, should be attended to. A rhinitis should be combated with saline irrigations. Hypertrophied turbinates should be corrected. At night the following ointment should be applied:

℞ Ichthyol,
Yellow oxide of mercury, of each, 0.50 gram.
Vaseline, 20 grams.

The following lotion should be used:

℞ Precipitated sulphur, 5 grams.
Alcohol (90 per cent.), 10 grams.
Water, 30 grams.

A 10 per cent. sulphur ointment is effective: Swabbing the parts daily with a 5 per cent. solution of nitrate of silver is of value in the scaly and non-purulent forms of vestibular rhinitis.

In suppurative folliculitis it is necessary to incise the lesions and to touch their base with 90 per cent. alcohol, and then with the following:

℞ Powdered saffron, 0.20 gram.
Camphor, 0.50 gram.
Zinc sulphate, 3 grams.
Copper sulphate, 1 gram.
Distilled filtered water, 100 grains.

This mixture is thoroughly shaken, allowed to stand for 24 hours, and then decanted.

CLINICS, DEPARTMENT OF PUBLIC CHARITIES

CALENDAR, OCTOBER 1913

MONDAYS

City Hospital	Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
	Ophthalmology	Dr. Strouse	2:00 P.M.
Metropolitan Hospital	Medicine	Dr. Laidlaw	9:00 A.M.
Randall's Island Hospital	Surgery	Dr. Frink	10:00 A.M.
Cumberland St. Hospital	Surgery	Dr. Ritch	2:30 P.M.

TUESDAYS

Neurological Hospital	Neurology	Dr. Byrne	9:00 A.M.
Randall's Island Hospital	Orthopedic Surgery	Dr. Ogilvy	10:00 A.M.
	Ophthalmology	Dr. Mulcahy	2:30 P.M.
Kings County Hospital	Surgery	Dr. Bogart	9:00 A.M.
	Obstetrics	Dr. Commiskey	10:00 A.M.
	Genito-urinary Surgery	Dr. Fraser	2:00 P.M.

WEDNESDAYS

Metropolitan Hospital	Medicine	Dr. Laidlaw	9:00 A.M.
	Dermatology	Dr. Dearborn	2:30 P.M.
	Surgery and Gynecology	Dr. Harrington	2:30 P.M.
Neurological Hospital	Neurology	Dr. Maloney	10:00 A.M.
Randall's Island Hospital	Medicine	Dr. Steel	4:00 P.M.
Cumberland St. Hospital	Gynecology	Dr. Pierson	2:30 P.M.
	Surgery	Dr. Pallister	2:30 P.M.
Kings County Hospital	Orthopedics	Dr. Truslow	10:00 A.M.
	Orthopedics	Dr. Napier	4:00 P.M.
Coney Island Hospital	Medicine	Dr. Hegeman	3:00 P.M.

THURSDAYS

City Hospital	Medicine	Dr. Evans	9:00 A.M.
	Gynecology	Dr. Child	2:00 P.M.
Cumberland St. Hospital	Surgery	Dr. Ritch	2:30 P.M.
Kings County Hospital	Surgery	Dr. Bogart	9:00 A.M.
	Obstetrics	Dr. Commiskey	10:00 A.M.
Coney Island Hospital	Surgery	Dr. Lack	10:00 A.M.
	Gynecology	Dr. Mills	10:30 A.M.

FRIDAYS

City Hospital	Laryngology and Rhinology	Dr. Dougherty	2:00 P.M.
	Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Metropolitan Hospital	Medicine	Dr. Laidlaw	9:00 A.M.
Neurological Hospital	Neurology	Dr. Abrahamson	9:00 A.M.
Cumberland St. Hospital	Surgery	Dr. Pallister	2:30 P.M.
Coney Island Hospital	Surgery	Dr. Bogart	2:00 P.M.

SATURDAYS

City Hospital	Genitourinary Surgery	Dr. Fuller	1:00 P.M.
	Pathology	Dr. Larkin	2:00 P.M.
Neurological Hospital	Neurology	Dr. Walsh	2:00 P.M.
Kings County Hospital	Surgery	Dr. Bogart	9:00 A.M.
	Obstetrics	Dr. Commiskey	10:00 A.M.
	Pediatrics	Dr. Little	3:00 P.M.
	Medicine	Dr. Stivers	3:30 P.M.

Cards of admission may be obtained at the New York Academy of Medicine, 17 West 43d St., Manhattan, and at the Medical Society of the County of Kings, as well as from the Secretaries of the several Medical Colleges. All registered physicians, visiting and resident, as well as medical students, are cordially invited to attend these clinics.

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Original Articles.

THE MODERN TREATMENT OF TABES.

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NEW YORK.

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The treatment of tabes, the most frequent organic disease of the central nervous system, is a subject that must interest the general practitioner, for in practically every instance he encounters the possessor of the disease long before the counsel of a neurologist is sought. If I may judge from what patients tell me, the treatment which they frequently receive at the hands of the general practitioner is not that which has the stamp of approval set upon it by those who have had much experience in the treatment of the disease. It is partly since the advent of salvarsan and neosalvarsan into the field of therapeutics that the approved treatment of tabes has been subject to material modification. Having now had nearly three years' experience with these preparations in the treatment of nervous diseases that flow out of syphilis, and especially having in this time treated upward of one hundred cases of locomotor ataxia with this substance or remedy, I am moved to set forth my experience in this direction, and, meanwhile, to discuss in its entirety the treatment of tabes.

The Cause of Tabes Is Syphilis.—I shall assume that it is generally admitted that tabes is a disease that flows from syphilis. Whether or not there are instances that occur in individuals who have not had this infection is a matter of personal experience and belief. My belief is that tabes is a syphilitic disease in every instance. There are many instances of sclerosis and decay of the posterior columns of the spinal cord which have a symptomatology, subjective and objective, resembling that of genuine tabes, but which flow from other causes than syphilis. But in every instance such cases can be distinguished from genuine tabes. The utilization of the Wassermann test of the blood serum and of the cerebrospinal fluid has had much to do with convincing those who have opposed the unity of causation of tabes. The general acceptance of the belief that a cerebrospinal fluid which in addition to giving a positive Wassermann contains an excess of lymphocytes (more than ten to the cubic millimeter), an excess of globulin, and which reduces Fehling's solution, indicates the existence of the syphilitic virus in a state of activity within the system, now permits us to take a far more dogmatic statement of the luetic origin of tabes than was formerly justified. We know, to be sure, that the Wassermann test is positive in other states of disordered health, which are by no means syphilitic in their origin; we know also that a lymphocytosis may result from pathological states that do not have their origin in this disease; but despite this, the occurrence, clinically, of symptoms which we know from experience are indicative of tabes, plus the occurrence of this information furnished by the laboratory, is conclusive.

Since the time when we began to avail ourselves of the corroborative information to be obtained by the application of laboratory methods in this disease, we have learned that cerebrospinal fluid taken from patients with tabes varies in its constituents and in its reactions, especially does it vary with the different stages of the disease and with intensity of the disease and with the kind and amount of treatment to which the patient is subject. For instance, in the early stage of the disease, that is, in the stage that corresponds clinically with the occurrence of sensory symptoms (paresthesias, pain, easily induced fatigue, indefinite vesical symptoms), and especially in those cases in which the symptoms have come on with considerable abruptness not long after the original infection (within five years), a stage which I believe is dependent largely upon meningeal involvement, the lymphocytosis is profound, often reaching over one hundred cells to the cubic millimeter, the globulin content is greatly in excess, and the Wassermann reaction is strongly positive, whereas in cases that have been in existence a long time and especially those that have developed slowly and subject to more or less mercurial treatment, the condition of the cerebrospinal fluid is very different.

The significance of the lymphocytes in the cerebrospinal fluid taken from patients with syphilis of the cerebronervous system is not known. It is thought by some that the number of cells stands in direct relationship to the activity of the underlying pathological process, and the fact that they diminish and disappear while the patient is given remedies that aim to cure the disease would tend to support this view, but despite this, the opinion is not yet acceptable. It is no uncommon experience to find the lymphocytes increased after one or a few injections of salvarsan or mercury. To be sure, the increase is usually temporary and the permanent effect of such treatment is always reduction.

The treatment of tabes may be discussed under three headings:

1. *Causal Therapy.*—Treatment directed against the cause of the disease, *i.e.* syphilis, and the pathological state which it causes in the spinal cord, the meninges, the ganglia of the spinal cord and the posterior roots.

2. *Symptomatic Therapy.*—Treatment undertaken for the relief of the symptoms of the disease—pain, paresthesias, sphincter incompetency, ataxia, hypotonia, arthropathy, diplopia, optic atrophy, etc.

3. *Plan of Treatment.*—Attitude of the patient toward the disease, work, efficiency, happiness.

What Patients Afflicted with Tabes Should Be Subjects to Antisyphilitic Treatment, and What Are Our Reliable Antisyphilitic Agencies?—Every patient with symptoms of tabes whose cerebrospinal fluid shows on microscopic examination to contain ten or more lymphocytes to the cubic millimeter should be given vigorous antisyphilitic medication, providing no contraindication to such medication exists. The reliable antisyphilitic agencies which we are in possession of at the present time are mercury and salvarsan. They should be given simultaneously or sequentially and until every indication of the activity of the syphilitic virus within the system has ceased to exist; *i.e.* until it can no longer be detected by laboratory examination. Iodide of potassium is not in my experience an antisyphilitic agency, and it should never be used as a routine measure in the treatment of tabes. I have frequently dwelt upon what I believe to be the injuriousness of this drug in the treatment of tabes, but I regret to say that practically every patient that I see for the first time in advanced stages of the disease, and especially those that have had conspicuous eye symptoms which have caused them to seek counsel from ophthalmologists, have been so treated.

Which is the most potent antisyphilitic agency in the treatment of tabes—salvarsan or mercury? A satisfactory answer to this question cannot yet be given. The treatment of tabes is far more satisfactory now than it was before Ehrlich added salvarsan to the pharmacopeia. Salvarsan alone does not seem to bring about the degree of recovery that salvarsan plus mercury does. In some instances it is impossible to obtain and maintain a negative Wassermann reaction in the blood serum and the cerebrospinal fluid, and to bring about a normal globulin and cell content of the latter by administering salvarsan alone, no matter the dose or the frequency of administration. But when such administration is followed by mercury, conditions, approximating those of health, are quickly brought about. I have had far better results from the administration of salvarsan in the treatment of tabes than I have had from mercury. I have had better results from the use of both of them than from the use of one of them alone.

Salvarsan, that it shall be of real, lasting service in the treatment of tabes, must be given repeatedly. This is one of the most important lessons that we have so far learned concerning it. The interval between the first dose and the repetition of it should not be longer than from ten days to a fortnight. The third dose should be administered within the month and the fourth within a month after the third.

If neosalvarsan is used instead of salvarsan the interval betwen the administrations should be less. Neosalvarsan is given one dose (0.9 gm. for men, and 0.45 gm. for women) every third day for four doses, and then an interval of from six to eight weeks is allowed to transpire before the medication is resumed. During this time in many instances it is advisable to give mercury, possibly in large doses, or cacodylate of soda. We are assisted in determining whether we shall or shall not give mercury after salvarsan administration by the chemical and microscopical findings in the cerebrospinal fluid. For instance, if a patient who had the symptoms and signs of tabes and the characteristic blood and cerebrospinal findings of the disease should have, after the administration of one or more doses of salvarsan, what is called a negative condition in these fluids, then we would not be justified in giving further antisyphilitic medications. Indeed, before returning to it we should await what are called positive signs in the blood or in the fluid.

I have discussed at some length the mode of administering salvarsan to patients afflicted with syphilitic nervous diseases in an article written in conjunction with Dr. R. G. Armour and published in the *Journal of the American Medical Association*, June 22, 1912. The various reasons for preferring the intravenous method of administration are there set forth.

The Dangers of Salvarsan Medication.—Either the dangers of salvarsan administration have been exaggerated or we have been especially fortunate. We have had no serious results whatsoever in upward of 3,000 administrations, with one exception. In that case, a young woman who received a full dose developed the symptoms of a transverse myelitis, which disappeared at the end of four months. We have had three cases in which acute and severe symptoms of arsenical poisoning developed, such symptoms as papulomacular eruption, garlic odor to the breath, nausea and vomiting; symptoms of collapse came on within twenty-four hours after the administration of salvarsan. But all of these cases yielded very readily to the administration of alkali (carbonate of magnesium), high rectal irrigations, and hot baths. We have encountered no instance in which nephritis developed, and so long as the kidneys act normally there is very little danger from salvarsan intoxication. We have seen no instance in which any disorder of the optic nerve has developed, nor de we hesitate to administer it to patients who have disease of the optic nerve induced by syphilis.

The administration of salvarsan in no way tends to dislodge mercury as an adequate agency to combat syphilitic nervous disease.

Mercury should be given as an adjuvant to salvarsan. Not that it is not an adequate spirillocide—indeed it may be quite as potent in this direction as salvarsan—but when administered in sufficient doses to act efficiently as such, is a powerful depressant, and often causes serious disorder of nutrition (ptyalism, gingivitis, loss of teeth, digestive disturbance, emaciation). The most competent ways of administering it are by inunction and intramuscularly. My preference is for the latter method, and in the shape of the salicylate of mercury suspended in liquid albolene. I have had much experience with other preparations, and particularly with enusol (an arseniated salicylate of mercury) which, largely because of Erb's approbation, has had considerable vogue both here and abroad. I have discarded its use entirely. My experience in no way substantiates that of Schaffer of Budapest, Hudovernig, and others who have published statistics setting forth its value in the treatment of tabes. My experience with atoxyl and iodine convinced me of their worthlessness in the treatment of tabes.

The important point in the treatment of tabes by mercury is that it shall be administered in sufficient doses to influence the disease and to destroy its cause, and yet in the meantime not injure the patient. This point I have discussed in a previous article published in the MEDICAL RECORD of January 27, 1906, so I shall not take it up again here.

TABES DORSALIS

	Ser Wass.	C.S.F. Wass.	Glob.	C.S.F. Cells	Red Fehl	No. Doses	Grams	Ser. Wass.	C.S.F. Wass.	Glob.	C.S.F. Cells	Red Fehl
1.	+	+	+	204	+	2	0.6	+	+	−	133	+
2.	+	−	+	273	+	2	0.6	+	−	−	11	+
3	+	+	+	135	+	1	0.6	−	−	−	26	+
4	+	−	−	33	+	4	0.6	−	−	−	35	+
5	−	−	−	33	+	1	0.6	−	−	−	9	+
6	−	−	−	61	+	4	0.6	−	−	−	13	+
7	−	−	−	53	+	4	0.6	−	−	−	0	+
8	+	+	−	6	+	4	0.3	−	−	−	0	+
9.	+	−	−	2	+	3	0.6	+	−	−	4	+
10.	+	+	+	96	+	3	0.3	−	+	+	15	+
11.	−	−	+	54	+	3	0.6	+	−	+	34	+
12.	+	+	+	50	+	2	0.6	−	−	−	21	+
13	+	+	+	137	+	3	0.6	−	−	−	0	+
14	+	+	−	94	+	0	0.6	+	−	−	36	+
15.	+	+	+	131	+	4	0.3	+	+	+	160	+
16	−	−	−	42	+	4	0.6	−	−	−	0	+
17.	+	+	+	90	+	4	0.6	−	−	−	17	+
18	−	−	−	142	+	3	0.6	−	−	−	48	+
19	+	+	−	110	+	3	0.6	+	−	−	31	+
20.	+	+	+	64	+	2	0.6	+	+	+	91	+
21	+	+	+	94	+	2	0.6	+	+	−	68	+
22.	+	−	+	253	+	1	0.6	+	−	+	59	+
23	−	+	−	33	+	3	0.6	−	−	−	25	+
24	+	−	+	273	+	2	0.6	+	−	−	11	+
25	+	+	+	128	+	1	0.6	−	−	−	60	+

SUMMARY

	Serum Wasserman		C. S. F. Wasserman		C. S. F. Lymphocytes		C. S. F. Glob. Excess	
	+	−	+	−	Least No.	Greatest No.	+	−
Before	18	7	13	12	2	273	14	11
After	11	14	6	19	0	133	5	20

In order to show graphically the result of salvarsan medications upon the blood in cerebrospinal fluid, I have tabulated the results in the last twenty-five cases of tabes, many of which are still under treatment. Any one who will take the trouble to examine this table will see the effect that it has upon the Wassermann reaction both of the blood serum and of the cerebrospinal fluid. It likewise shows the very striking results which it has upon the cell content of the cerebrospinal fluid.

We have not entirely finished with the causal therapy of tabes when we have satisfactorily or fully discussed the treatment directed against the syphilitic virus. There are other agencies concerned in the causation—the precipitation one might better say—of the disease, and chief among these are agencies, influences or activities that exhaust the peripheral sensory neurons. Every experience that makes for great weariness, that tires the eyes, that puts stress upon the digestive tract or bladder; every influence that causes excessive radiation of bodily heat; in brief, the activity of any agency that depreciates the patient's vitality causes the disease to develop earlier and to progress more rapidly than it otherwise would, and the therapy that does not take this into consideration fails in an important feature.

There are many measures that we utilize in the treatment of tabes that are not directed so much against the cause of the disease, or the disease process, as they are against the inroads which the disease makes upon the patient's vitality. Among these are electricity, massage, hydriatic measures, cauterization, nerve stretching, diet, climatic consideration; medication and reeducation of purposeful movements. Two forms of electricity are useful in the treatment of tabes, galvanism and the high-frequency current. Neither of them has specific or great value despite what has been said by enthusiasts in their favor. Galvanism, the positive pole to the spinal column applied labile fashion, the negative pole over the sternum, a mild current flowing, will, after ten minutes' application, cause the back to have a lively red color; applied daily often has a beneficial effect subduing pain, both the lightning pains, and the "sore pains," and in producing a general tonic effect, that is, a feeling of well being, manifest particularly in improvement of paresthesiæ and motor weakness. Whether or not the application has a retarding influence on the pathological process, which is the foundation of the disease, we do not know. Empirically we know that patients feel better, oftentimes, as the result of this treatment. Static electricity given in the form of short sparks, with or without the insulating plate and in the form of the breeze, is often useful in overcoming the paresthesiæ of tabes and in stimulating the nutrition of the muscles, but it has no effect upon tabetic pain.

Of the mechanical measures, massage is by all means the most serviceable. Deep massage of the entire body, both kneading and grasping of the subcutaneous tissues and muscles, between the thumbs and fingers, is in the majority of instances grateful to the patient and followed, as a rule, by a feeling of increased static and locomotive security and capacity for relaxation. There are few patients with tabes in reality that are not benefited by massage judiciously and temperately administered. When it makes the patient nervous, fidgety or exhausted, its use should not be persisted in.

Nearly all patients with tabes are excessively, often painfully, sensitive to cold, and especially to the application of cold water. This makes it oftentimes difficult for us to avail ourselves of the usefulness of hydriatic procedures, and especially of the tonic douche bath and tonic half-bath. It is worth while, however, to persist in the use of these two most useful measures, for their tonic effect is greater than any other mechanical measure, and the reward of persistence is that the patient tolerates the treatment without discomfort. The salt rub, and flagellation with the end of a coarse towel taken dripping from cold water (65° F.) are useful measures to prepare the patient's skin for the tonic douche or half-bath, and they are themselves important adjuncts to any tonic treatment.

The dietetic and climatic treatment of tabes consists in the application of the principles of common sense. The wholesome diet that will nourish the patient and aid his vital forces to combat the infection that is causing his extremities, and climatic conditions that will permit him most easily and readily to follow the rules of hygiene, encompasses the matter. As a matter of fact, the diet for a tabetic depends in a large measure upon the state of his digestive organs and their juices. Not infrequently there exists hyperchlorhydria, rarely an achylia, and when such conditions exist they must be attacked both medicinally and dietetically. French writers have attempted to maintain that the arthritic diathesis (which means more apparently to them than to others) plays an important rôle in tabes, and that it must be combatted by a lacto-vegetarian diet. A mixed diet of food well prepared for digestion and easily assimilated is the diet for tabetics. Extremes of temperature, dampness and humidity depress and enervate sufferers from locomotor ataxia. When the patient's financial circumstances permit him to choose a climate these are the features to be avoided. To exchange the comforts and facilities for being cared for which

the patient's home provides for the discomforts of travel and the inadequacies of hotels, even though there is a gain in the way of climate, is unwise. On the other hand there is a clinical type of the disease, the one in which hypotonia is the conspicuous symptom, that is often much benefitted by change from home to a properly equipped sanitorium in a suitable climate. There is no drug that has any influence to arrest the sclerotic process that constitute the anatomical basis of the disease. Mercury and salvarsan may, and do sometimes, perhaps often, destroy the spirochetes, and then if degeneration has not proceeded too far restitution may result. Ergot, nitrate of silver, chloride of aluminum, belladona, and strychnine which have been lauded as efficient agencies to check the disease process are, I believe, valueless in the treatment of tabes. Iodide of potassium, which, I think it is safe to say, is given at one time or another in large doses to every individual suffering from this disease is, I maintain, of no use. Indeed, in very many instances, it is injurious, impairing the patient's vitality, disordering his digestion, depreciating his nutrition. I believe that the majority of neurologists are of this opinion, and that their teachings are in conformity with it. This being so my early experience is inexplicable, *e. g.*, a patient with tabes who bears witness that he has been under treatment with iodide of potassium frequently, as much as from two to three hundred grains a day.

There exists today in the rank and file of the medical profession an ineradicable belief that tabes is a "tertiary" manifestation of syphilis, and that iodide of potassium is a "specific" for "tertiary" manifestations. Therefore, iodide of potassium is given to tabetics. Mrs. Wharton's delineation is not the only "Custom of the Country." This is one, and until a new generation of physicians differently instructed in the temples and wards in which they first imbibe medical knowledge replaces the present one, it will remain so. Meanwhile, those who, like myself, are witnesses daily of the baneful effects of its administration, will continue to protest against its use whenever occasion offers. There are symptoms of tabes that demand mitigation or relief, and to ameliorate them is an important part of the physician's problem. These symptoms are pain and paresthesiæ, vesical and rectal incompetency, gastric and laryngeal crises, arthropathies and perforating ulcers, hypotonia and ataxia, ocular palsies, and insomnia.

The pains of tabes are sometimes relieved by coal-tar derivatives alone, in combination or administered simultaneously with some cardiac stimulant such as caffeine or alcohol. At other times nothing save opium will relieve them, especially if they are associated with symptoms called "crises," gastric, laryngeal, or vesical. No physician needs to be warned of the great danger of using morphine for the relief of tabetic pains. It relieves them, but its use is followed by a lessened capacity of resistance which manifests itself in clamor for repetition that few sufferers can resist, consequently the morphine habit is a not infrequent and disastrous result of its occasional use. As a rule sufficient relief from tabetic pain can be obtained by the administration of phenacetine, aspirin, acetanalid, or pyramidon to permit the patient to withstand it for the time. A full dose of castor oil, the application of the actual cautery lightly to the spine; prolonged hot baths are often efficacious, combined with suitable drug administration, in terminating an attack. Conformation to the rules of hygiene that have been found to apply to the victims of the disease will diminish both the frequency of the attacks and the intensity of the pain. Unquestionably deep massage, putting the spine upon the stretch (Sprimon's method), the application of the galvanic current to the spine and the avoidance of indigestion and fatigue diminish the likelihood of pain. What has been said regarding the amelioration of pain applies equally to the paresthesias of tabes, one of the distressing symptoms in some cases. Of all the agencies for the relief of this symptom none is more potent than light cauterization of the spine frequently repeated, a measure which, I regret to say, is often neglected for an inferior but more easily applied substitute, viz., sedative drugs.

For the relief of vesical incompetency there is a drug of some real value, belladona. It must be given in doses that cause so-called physiological effect. To counteract the pernicious results arising from decomposition of urine within the bladder urotropin is of undoubted value. But nothing succeeds so well in cases in which vesical incompetency is a symptom, that is practically in all cases of tabes, as putting the patient upon a time table for urinating. He should be advised to make a voluntary effort to void urine every four hours during the day, and to facilitate conformation to the order he should keep a "time sheet." Soon it becomes a habit and thus saves many a patient hours and days of misery. When the physician suspects that a tabetic patient retains a considerable amount of urine in the bladder after voluntary urination he should pass a catheter to determine how derelict the bladder really is, so that he may be better able to determine just what tonic measures, such as strychnine and static electricity, to use, and whether or not to administer urotropin.

The crises of tabes, gastric, laryngeal, and vesical, are so unbearable that they demand relief, and in many instances morphine alone administered in large doses will relieve them. Fortunately the danger of forming the habit is not so great as it is when administered for the relief of tabetic pain. In the first place crises are comparatively rare symptoms of tabes, and in the second place much can be accomplished in preventing their occurrence by constitutional and local treatment. Patients who have gastric crises should have their gastric juice investigated and abnormalities of it corrected by suitable chemical additions. As a rule an attack is best combated by administering a cathartic if it can be retained, or if not as copious an action of the bowels as is possible should be secured by enemata; by absolute cessation of attempt to feed the patient by the mouth, at least in the beginning of the attack; by stimulation of skin activity with hot packs, also a counterirritant attack; by the hypodermatic administration of pantopone (ampoules 1/6 to 1/3 gr.), and if this does not succeed then the administration of morphine (1/3 to ½ gr.). If the attack is protracted, resort must be had to nutrient enemata. It is the treatment during the interval between attacks that is most important, and such treatment is the general treatment of the disease. I have never encountered an instance of laryngeal crisis that demanded operative intervention, though I have seen one patient brought to the operating table. The patient is now and has been for four years a hard-working gardener. His at-

tack was combated with morphine and atropin, and his disease was brought to a standstill by salvarsan and mercury.

The arthropathies of tabes, Charcot joints they are commonly called, should be immobilized either in plaster, by braces or splints, and not manipulated, painted with iodine or otherwise irritated, while constitutional treatment is being given. Oftentimes, unfortunately, they develop in conjunction with profound hypotonia, when the problem of their treatment becomes more difficult. As a matter of fact hypotonia is the most difficult of all the symptoms of tabes to treat satisfactorily. It is the most important underlying cause of ataxia, and when it occurs in an advanced degree it is peculiarly rebellious to treatment. All the measures that are known to increase muscular tone from volitional movement to the administration of strychnine should be tried. The greatest benefit may confidently be expected from faithful adherence to the system of reeducation of movements purposeful, or voluntary movements known as the "Frankel System." It is astonishing the improvement that some patients with profound ataxia make who are given systematic instruction along the lines formulated particularly though not originated by Frankel of Heiden. In the Neurological Institute of New York, where such instruction is given as a routine measure to tabetics, I have seen results in the past four years which I had never been able to obtain for private patients, the reason being, in all likelihood, that I had not been able to carry them out systematically and continuously. The incentive to continue with them which the beginner has in seeing about him those who a few weeks or months before were obliged to walk with sticks or crutches, now walking unaided, is no small element of the success which attends the use of the system in institutions.

Of the early symptoms of tabes ocular palsies are the most distressing, unless the levator palpebræ is paralyzed so as to close the eye. The diplopia that results from paresis of the external rectus or the superior oblique, together with very slight involvement of the third nerve, bewilders the patient, and contributes profoundly to uncertainty of station and gait. Such ocular palsies are among the early symptoms of tabes, and not infrequently occur five or even ten years before any of the symptoms from which the diagnosis is readily made, appears. On consulting a physician, a specific history being obtained, they are given without exception large doses of iodide of potassium; and the physician who administers it concludes that because the diplopia mitigates, the medication is responsible for this result. In reality such diplopia ameliorates and disappears in practically every instance without medication. The diplopia and ocular palsies of early tabes are evanescent phenomena, unless the sequelæ of the paralysis is such as to cause permanent deformity. I have never seen an instance in which I was convinced that the administration of iodide of potassium had any beneficial effect in facilitating the rapidity with which ocular palsy disappears. On the other hand I have seen many cases in which I was convinced the underlying disease, namely tabes, had been influenced and developed more rapidly on account of the numerous doses of this drug which was given. For instance, at the present time, in the hospital we have a patient who for upward of three months was given between 500 and 800 gr. of iodide of potassium daily by the ophthalmologist whom he consulted for the relief of diplopia. The depreciatory effect of the drug upon his nutrition was not recovered from for a long time. The treatment of the tabetic ocular palsies is the treatment of the disease of which they are symptoms, and it consists in the appropriate use of salvarsan and mercury, and of the physical measures, the application of which make up the better plan of treatment of the disease. Meanwhile the patient's comfort is enhanced by wearing a shield which compels him to depend upon monocular vision. In certain rare instances in which the paralysis does not disappear it may be advisable to take into consideration advancement of the tendon of one or other muscles of the eye, but this should not be undertaken before the eyeball has assumed what may be considered to be a permanent position.

The most important factor of the treatment of tabes next to the administration of the substances that destroy the cause of the disease, one that is almost uniformly, and, as it were, studiously neglected, is the general nutrition of the patient. It cannot be expected that an individual will be able to withstand the onslaught of the spirochetes on a vital and vulnerable part of his system unless reparative forces of his nature or economy are enhanced. The chief value of such physical measures as the application of water, electricity, massage, exercise, etc., is the uplift that they give to the individual nutrition. In addition to these measures we have two which are not utilized as frequently as they should be. One is the cacodylate of soda and the other phosphate of soda. Aside from small doses of salvarsan I know of nothing that aids the patient to pick up so quickly as the former of these drugs. My mode of administration of it in the majority of instances is to follow the administration of a course of mercury hypodermatically with a course of these two drugs, giving them alternately for a period of from four to six weeks. The preparation that I use is cacodylate of soda, the dose being one ampoule, three-fourths of a grain, and a preparation known as soude vital. Aside from these I rarely administer any so-called tonic medication.

The Plan of Treatment.—Next in importance to the causal treatment of tabes, possibly indeed equalling it in importance, is the plan of treatment. Nothing does so much injury to the patient or his prospects of recovery as a pessemistic attitude on the part of the physician. "He (one of my assistants) said his spinal cord was dead and what could we expect," explained the wife of one of my patients, who was relating the experience of her husband in the two years that had elapsed since I first saw him. "So when they told him that he could be cured with goat serum we took him to Detroit." Then the chiropractitioners divorced him from the remainder of his savings, while he became reduced to crutches. Many patients with tabes live useful, active, efficient lives for years, and decades after the disease has become established. I could quote many examples both from history and from my own experience to substantiate this statement. The most brilliant exponent of English letters of the Victorian era had tabes for the last twenty-five to thirty years of his life. I have had for years under my observation and care the active head of an extensive railway who has had the disease for twenty years. Even a business which requires such peripatetic activity as the management of a baseball team is consistent with the possession of the disease.

In the vast majority of instances it is good judgment on the part of the physician to explain to the

patient fully, and in a way that will not alarm him, just what the disease is, that it need not materially shorten his life; that fifteen to twenty-five years of comparative efficiency may be vouchsafed him, and that vigorously combated a certain degree of functional preservation and restitution may be anticipated. It cannot be expected that every case of tabes will justify such prophecy. The majority will however. Those who have marked hypotonia respond most disappointingly to treatment. The amaurotic type, also unfortunately go on, so far as blindness is concerned, uninfluenced by treatment. But the algic and esthetic type and the type with early profound ataxia often respond most favorably to treatment. Few things have more unfavorable effect upon the disease and its possessor than lack of courage, improper point of view concerning his disease, and hopelessness.

On the other hand, nothing has a more beneficial effect upon the disease, save causal therapy, than a firmly rooted belief that a certain degree of efficiency and many years of usefulness may be vouchsafed the patient despite the possession of the disease.

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THE USE OF TUBERCULIN IN THE DIAGNOSIS OF OBSCURE CONDITIONS IN THE GENITOURINARY SYSTEM.*

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The object of the following brief paper is to emphasize the importance of a very useful and very much neglected aid in the diagnosis of tuberculous conditions in the genitourinary tract. In the now vast literature of genitourinary tuberculosis there is very seldom even the slightest reference to the usefulness of diagnostic injections of "old tuberculin." In the masterly paper of Prof. Rovsing, read in June, 1912, at Atlantic City, he reviewed all the methods of diagnosis in renal tuberculosis, and much to my surprise failed to draw attention, either favorable or otherwise, to the use of tuberculin.

In view of these facts, and as I have found tuberculin of great assistance and have experienced no ill effects from its use, I determined to call attention once more to this diagnostic aid. To make this paper clear, I shall first refer to the evidence in favor of the specificity of the tuberculin reaction, and then I shall cite some illustrative obscure cases of renal, prostatic, and testicular diseases in which the tuberculin definitely assisted in making the diagnosis; thereafter I shall attempt to put together the experience of some others along these same lines.

Before beginning to cite experiences, let me say that I employ imported "alt tuberculin." This is diluted, so that five drops are equal to ½ milligram.*

*℞

Old Tuberculin	0.05
Trikresol	0.15
Distilled water qs. ad.	30.00 c.c.

S. ♏ V = 0.0005 old tuberculin.

This is kept on ice when not needed. Injections are made only in nonfebrile cases, the temperature being taken regularly every four hours for several days prior to the injection. Five minims is the initial diagnostic dose, and only in case of a negative reaction is a larger dose permissible. Under such conditions, the dose may be gradually increased, ½ milligram at a time, up to a maximum of 5 milligrams. In children a much smaller initial dose should be used (1/20 milligram). This increase should be gradual, allowing at least two to three days, preferably the latter, between injections. A positive and useful reaction is made up of at least two series of symptoms, and, in some cases, of three. There must be a general febrile reaction, with all the symptoms of fever, usually of a low grade and transient. Secondly, there must be a distinct local reaction at the point of tuberculous disease, as evidenced by either spontaneous pain or increased local tenderness. Thirdly, in such cases as permit of such an eventuality, there may be a marked increase of tubercle bacilli in the discharge (urine), or they may appear there for the first time. The injection is made in the arm, subcutaneously, in the early part of the day,* and the patient being in bed, the temperature is to be taken every two to four hours. If a general reaction (not too severe) is produced without a focal reaction, which is a frequent occurrence, the same dose should be repeated and it may then evoke, in addition to the general, a focal reaction. (See case of renal tuberculosis reported below.) Koch thought the fact that the general rection to the second, but identical, dose, was more marked than to the first dose was an absolutely reliable sign of tuberculosis.

I believe that very few, at the present day, would deny the specific action of tuberculin. From year to year the evidence is accumulating that points to but one conclusion. If one sees wounds in which there is firm union over a small tuberculous focus, such as is left in the vas deferens after castration for tuberculosis of the epididymis, break open directly after the use of too large a dose of tuberculin, the specific action of this agent becomes very manifest. Such an effect I have seen following a castration for tuberculosis at a time when the wound had been thoroughly healed, and again under similar conditions after a nephrectomy for tuberculosis, in which the reaction developed in the remaining tuberculous ureter.

The few selected cases reported later may also be looked upon as clear-cut demonstrations of the specificity of this reaction.

In 1907, Mohr collected the evidence in connection with tuberculin and called attention to the fact that Voges in 7,327 cases noted only 2.7 per cent. errors. Beck found in a series of 2,508 cases, in which 371 were clinically tuberculous, all were positive to the tuberculin test. Neisser reported that all tuberculous cases were positive in his experience. In Labbe's paper in 1907, he emphasizes the fact that the earlier reports of positive reaction in nontuberculous cases must be very carefully scrutinized before they are allowed to weigh against the specificity of the reaction, especially as an overdose of such a strong poison may in healthy people give a febrile reaction. He calls attention to Nocard's work on animals in which there was a careful autoptical control. In 124 cattle under these ideal conditions be obtained in 123 cases a positive reaction, all being found at autopsy to have tuberculosis. In Moeller's, 8,000 sanatorium cases the positive reaction was present in 90 per cent. (Very old

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*R. Hollmann (*Beitr. z. Klinik d. Tuberkulose*, 1911) calls attention to the fact that reaction is more rapid during the day as noted by Riegner, Rosenbach, and others. Be that as it may, it is certain that temperatures will be taken more regularly while the patient is awake.

cases, as in the third stage, may not react.) In the experience of Lanzilotti-Buonsanti 98 per cent. of tuberculous cases gave a positive reaction. C. Franz tested 400 recruits and obtained in 61 per cent. a positive reaction, and then tested them one year later, and every one reacted then as he had done previously. Much more could be cited in favor of the specificity of the general febrile reaction. The focal reaction which is much less regularly obtained, judging from the literature that I have been able to read,* and from personal experience, is even more delicate and has very exceptionally been noted in nontuberculous lesions. In 1891, Goldschmidt, cited by Dluski, says he saw a general and a focal reaction in lepra. Pankow reported that he obtained a focal reaction in both kidneys, though only one was surely tuberculous. Whether this reaction in the second (left) kidney was due to a latent tuberculosis or not is difficult to say. The urine from this kidney was not examined, though at operation the kidney was exposed and appeared nontuberculous. (Early tuberculosis cannot regularly be recognized by looking at the kidney through an exploratory incision.) If this should prove to be a case of a normal kidney responding to tuberculin by a local reaction, it is the only case I have been able to find. Pankow, himself, must have some doubt on this score, as he says that the tuberculin test in renal tuberculosis appears to give prompt results and should be used regularly in early or obscure cases.

While Birnbaum has reported a series of cases in which the tuberculin test had been very helpful, Pankow declares that in gynecological cases examined by him he saw focal reactions in the absence of a tuberculous focus. In three cases of pelvic suppuration, of nontuberculous origin, he obtained a focal reaction. In one of these local symptoms may have been due to menses. Sahli calls attention to the fact that sensitiveness is increased in the premenstrual period. Whether this will prove to be a more common occurrence, future experience will have to demonstrate. Judging from the literature, such focal reactions in nontuberculous cases must be most exceptional.

On the other hand, it cannot be doubted that certain cases of tuberculosis, as mentioned above, may not react to tuberculin. Whether maximum doses in these would produce a reaction, one cannot say. Petruschky goes as high as 10 milligrams. Others (Mohr) up to 20 milligrams. There are some (Mohr) who think a negative response excludes tuberculosis, but to this I am not at present willing to subscribe. *A general plus a focal response is practically invariably due to a focal tuberculosis, and such a response locates the diseased area. A general minus a focal response is of no practical value, as the most careful examination cannot exclude tuberculosis in other parts which may give the general reaction.*

Before turning to the cases that follow, I wish to emphasize most strongly the fact that I am not recommending the use of tuberculin as a routine procedure in genitourinary disease. I fully appreciate the fact that this drug in a large series of cases will be followed occasionally by some unfavorable reaction such as I shall speak of later, especially if the dosage is not carefully guarded and the preparation is not scrupulously careful. All and every other means to arrive at a diagnosis must be employed, and then if the case is still obscure and the symptoms are suggestive of a tuberculous disease, and then only, do I make use of the tuberculin reaction. Others have used it to accelerate the process of diagnosis, but in such cases one must bear in mind that one is taking an additional, even though small, risk, if we are to give any credence to the few reported cases in which there was undue irritation, despite the use of what was said to be only diagnostic doses. (In this connection one can readily see how slight errors in dosage could produce untoward effects.)

Case I.—Renal Tuberculosis. P. S., 22 years of age. Since 1½ years has had increased frequency; of late every fifteen minutes; also burning on micturition. The urine has been turbid. During this time there have been three attacks of hematuria without any colic and without the passage of gravel or sand. Now has pains in both lumbar regions, especially in the left; no fever or chills. Physical examination shows absolutely nothing. There is no tenderness in the kidney regions and neither kidney is palpable.

May 24: Cystoscopy and ureter catheterization. The bladder is almost normal, except for a slight erosion behind the left ureter opening and multiple submucous hemorrhages behind and mesial to the right ureter meatus. Both ureter openings are normal and easily catheterized. The first urine obtained on the right side was blood tinged, but subsequently it became perfectly clear. The specimen from the left side was throughout clear. Both these specimens were sterile and both were injected into guinea-pigs. Examination of these specimens showed: Right kidney—Acid, slightly cloudy, urea 1.9 per cent; microscopically, few epithelial cells, few red cells, and occasional pus cells, no tubercle bacilli. Left kidney—Acid, clear, urea 1.5 per cent.; microscopically, same as the other side, except that there were a few more pus cells, no tubercle bacilli. The bladder urine was repeatedly most carefully examined for tubercle bacilli, and finally they were recovered in small numbers.

With the facts at our disposal it was impossible to locate the site of the tuberculous lesion in the urinary tract. The more marked discomfort in the left lumbar region, combined with the slightly greater amount of pus in the specimen obtained from this side, naturally pointed to this organ. The cystoscopic examination and the fact that there was pain on the right side as well suggested this side as the source of the trouble. On the other hand, the presence of tubercle bacilli in the bladder specimen, and their apparent absence from the specimens taken from the two kidneys, suggested that the lesions might be in the lower part of the tract, and not in the kidneys at all.

To clear up this rather obscure picture, to determine whether I was dealing with a supravesical, either unilateral or bilateral, condition, or with a condition lower down in the urinary tract, I administered one-half milligram of old tuberculin. There was no reaction. Two days later I gave 1 milligram, and again obtained no reaction. Two days later I gave 2 milligrams, and this time there was a systematic reaction. The temperature rose to 100.4° F. and gradually sank to normal in forty-eight hours. As there was no focal reaction, the diagnosis was not cleared up. Two days later I gave another 2-milligram injection, and this time I obtained not only a general but also a striking focal reaction. The temperature rose to 100.6° F., and there was well-marked pain in the left kidney region and distinct tenderness. There was absolutely no reaction in the region of the right kidney. In the right lobe of the prostate a tenderness developed suggestive of a second focus, which did not betray itself otherwise.

The specimen taken from the reacting kidney after this last injection now showed an entirely different picture. This urine was cloudy, contained a faint trace of albumin, and many pus cells. There was a large number of tubercle bacilli. The animal experiment corroborated the above findings, as the animal inoculated from the right kidney did not develop tuberculosis, while that inoculated with the urine from the left kidney did develop tuberculosis. It is needless to add that the operation bore out the above findings, and the kidney of the left side showed an early tuberculosis. Careful observation of the patient for some ten months after the operation has shown that the second kidney has remained normal and that the prostatic involvement is progressing favorably, apparently undergoing a process of calcification, judging from the consistency of the small involved area.

*Cf. Hohlweg for extreme view on this point, *Muench. med. Wochenschr.*, 1911, No. 51.

Case II.—Tuberculosis of the Prostate. M. J., 35 years old. As a child had a tuberculous infection of his knee; since then no further sign of any tuberculous disease. In 1912 patient developed some vague pleural irritative signs at his left base, which cleared up slowly. Thereafter he developed a series of urinary symptoms that gave him considerable distress. He had marked pain at the end of urination, with increased frequency, and the appearance of blood. There had been no lumbar pains and no colic. He had never passed sand or gravel. Examination of his bladder urine obtained by catheter showed enormous numbers of tubercle bacilli. The slide which I examined was literally covered with Koch bacillus. Physical examination showed a healthy young man without any pulmonary involvement. There was no kidney tenderness, and the kidneys were not palpable. His prostate was smaller than normal, the right half impressing me as slightly atrophic. The testes were normal. Cystoscopic examination was made under the impression that the patient was suffering from a secondary vesical tuberculosis with a primary focus in the left kidney, to which I had ascribed the earlier symptoms at the left base.

March 1: Cystoscopy and ureter catheterization: Bladder mucosa was deeply injected in trigone down to the neck. Edema well marked here, and this area bleeds readily. No ulcers and no tubercles were seen. Both ureteral meati were small, but normal in appearance, without any periureteral injection or edema. Both ureters were catheterized and almost clear urine obtained. Left kidney: Albumin 0, urea 1.3 per cent., few red and pus cells. Right kidney: Albumin 0, urea 1.5 per cent., occasional red cell and very few pus cells. Within seventeen minutes there was a strong discharge of indigocarmine. Cultures from the bladder and from each of the kidneys were sterile. So far it seemed that my original suspicion was correct. Careful search in slides from the kidney urines, carried out by three examiners, one of whom spent eight hours in the search, failed to show any tubercle bacilli. This might occur despite the presence of a renal tuberculosis, though it was surprising in view of the myriads that had just been found in the bladder specimen.

To assist in the elucidation of this obscure state of affairs, guinea-pigs were inoculated with sediment from each kidney. The reports on these would have obscured the case much more if a positive diagnosis of prostatic tuberculosis had not been reached by the use of tuberculin before the guinea-pigs had rendered their verdict, as both pigs developed tuberculosis. Whether this positive guinea-pig reaction was to be ascribed to a very slight contamination of the ureter catheters in their transit through the bladder, or to an excretory phenomenon through normal kidneys, it is difficult to decide, though the former explanation I consider the more likely. The subsequent history of the case excluded the possibility of a bilateral renal tuberculosis. If the former explanation be correct, this case illustrates the possible danger of carrying infectious material from the lower to the upper tract. It would seem from this case that the animal experiment is much more delicate than the slide examination, which my experience does not bear out. The two methods must always be used together, as I have repeatedly found tubercle bacilli in the slide when the animal experiment was negative.

Returning now to the case under discussion, it is evident that I had not reached any definite diagnosis, despite the fact that I had availed myself of the most approved methods of diagnosis, and carried them out with the greatest care. After the cystoscopy the patient was kept in bed and the vesical symptoms gradually disappeared. Still the bladder specimens contained tubercle bacilli, and my attention was naturally directed to the lower tract. I catheterized the bladder before and after gentle massage of the prostate, and found what we took to be an increase of bacilli in the second specimen. This I regarded as presumptive evidence of local disease, and to test this conclusion, which was so opposed to my original interpretation, I decided to use the tuberculin test.

Under 1 milligram of tuberculin all the vesical symptoms returned—hematuria, pain, and increased frequency. At the same time there was a mild febrile reaction and locally the half of the prostate that I had regarded as atrophic became markedly tender for the first time. This reaction rapidly subsided, and the patient was placed on therapeutic doses of tuberculin, with the result that all the symptoms of vesical irritation have disappeared, and no tubercle bacilli or red cells were to be found in his urine during the past six months.

Remarks.—I believe this is as obscure a case as one is likely to see, and without the careful use of tuberculin the definite diagnosis of the localization of the disease would not have been made. Everything pointed to a supravesical origin of the trouble, except the smaller size of the left half of the prostate. That this smaller part of the prostate should be the source of trouble, I naturally did not suspect. It was only after finding a marked disproportion between the contents of the kidney specimens and the bladder specimens that I was forced to consider seriously the slight disproportion in the size of the two halves of the prostate. My surprise was all the greater when I obtained a local tuberculin reaction in the slightly smaller half of this organ, rather than in the other half, which, if anything, impressed me as the more pathological.

Case III.—Tuberculosis of the Epididymis. M., 25 years of age, complains since several months of a small nodule in the left side of his scrotum. This has not grown materially, nor does it occasion any serious pain. On examination only the local condition was detected. The right testis was normal, but in the left half of the scrotum there was a small mass, running from the summit of the organ forward and downward, to about the center of its anterior surface. This mass was distinctly nodular and felt very much like a tubercular epididymis in every particular, except that its position was most unusual. In shape and consistency, in absence of any great tenderness, in slow growth, etc., it suggested a tuberculosis of the epididymis. Examination of the course of the vas suggested that the testicle had been rotated on an axis drawn through its center horizontally from side to side. The vas usually descends well down to the lower pole of the testis, and then bends up over the posterior aspect of the organ to run on to the epididymis. In the case under discussion, the vas extended only as far as the center of the posterior surface of the testis, and then turned up, to disappear in the epididymis. This made it very probable that the organ had been rotated in the way mentioned above. This unusual state of affairs did not convince all who saw the case, and some still favored the diagnosis of a new growth. To clear up the nature of the process, I gave the patient ½ milligram of tuberculin, and obtained a general and a very distinct local reaction, as evidenced by well-marked pain in the area under discussion, and distinct increase in local tenderness. This confirmed the diagnosis of tuberculosis of the epididymis in an abnormally turned testis, and subsequent operation bore out this conclusion.[4]

[4]In this connection it is of interest to call attention to the fact that in Kocher's monograph on testicular disease, etc., he remarks that he has seen only two such rotated testes and that both showed tuberculosis of the epididymis.

If now we turn to the literature of this subject, having cited these typical cases illustrating the more usual locations of tuberculosis in the genito-urinary tract, we see that others have been able to obtain valuable information in their cases by means of this same reaction. All the cases in this field that I have been able to find were renal or vesical tuberculosis. According to Wagner's statement, Czerny was the first to use this agent as above described, and I shall quote this case because of the historic interest inherent in it.

"A girl of 18 years had a pyonephrosis of unknown origin and to determine the nature of the process a tuberculin injection was made. There was a general and a focal reaction and the urine became clear, pointing to the conclusion that the other kidney was not diseased and that the pus was derived from the enlarged kidney alone. Next morning the urine was full of pus again, and now for the first time tubercle bacilli were found in the urine. As the patient was in no wise hurt by the tuberculin, the test was repeated several times and always with the same results. At operation the correctness of the diagnosis thus made was verified."

Koranyi, Birnbaum, Karo, Pankow, Hock, and Brueckner have had similar results in cases of renal tuberculosis. Israel also uses the so-called provoca-

tive injection when the case is obscure. In Brueckner's case the test was particularly valuable as in the child in question cystoscopy was impossible. In Karo's case the test showed a bilateral process when a unilateral one was suspected. In this case a careful ureteral catheterization with a complete examination such as I employed in the above cases might have demonstrated the facts that were shown by the tuberculin test.

From this brief review of the literature it is evident that very few surgeons have availed themselves of the possibilities of the tuberculin test. In my search of the literature for cases such as I have reported above, I found no reference to the use of tuberculin as a diagnostic aid, except in renal (secondary vesical) tuberculosis, and in these cases it appears to have been used very exceptionally. Whether this is due to the general discredit into which tuberculin originally fell, or not, it is difficult to determine.

Apparently, most surgeons prefer to expose the organ when in doubt, which surely is a more dangerous procedure as well as a more unsatisfactory method of diagnosis than that under discussion. The exploratory operation will have its field of usefulness, but it should always be the method of last resort. If the tuberculin reaction is focal, as I have repeatedly seen in renal tuberculosis, one starts the operation with a well-considered plan, knowing just what one has to do. Exploratory inspection of a kidney in the early stages of tuberculosis is a most unsatisfactory method of diagnosis, and frequently leads to mistakes, and just in this type of case one may be fortunate enough to clear up the diagnosis with tuberculin by obtaining a focal reaction. If this fails the exploratory operation will be in order.

From what I have said, as well as from what I have hinted at, it must be evident that I do not use the tuberculin test without first carefully studying the case under consideration. I make it a rule to employ every available means of diagnosis before resorting to the use of tuberculin. When the diagnosis can be made without tuberculin, which is the rule rather than the exception, I make no use of this preparation. Moreover, in patients with advanced tuberculosis in the lungs or other parts, I would not use this poison. Koehler advises against its use in convalescents, and Mohr against its use in heart disease. To avoid giving the patient too large a dose as the initial injection, the advice of Diem, borne out by the experience of T. B. Sachs, is worth following. Diem advises testing the susceptibility of the patient by doing a v. Pirquet test first,* and then gauge the size of the tuberculin dose by the severity of the skin reaction, using even less than one-half milligram as the initial dose if there is a marked skin reaction. Sachs has noted that when the skin reaction is rapid and marked in degree such cases usually respond to minimal doses given subcutaneously. In addition to the above precautions, one must be very careful that one has not only obtained the proper preparation but has also given the proper dose.

As far as the dangers of the use of tuberculin are concerned, it must be evident that I think that there are some dangers inherent in this preparation. This belief has been forced upon me not by any personal experience but from a perusal of the literature. In the literature one finds many authors declaring that there is no danger in the proper use of tuberculin, while others just as vehemently declare it is dangerous. Mohr says it is not harmful; Labbe says ill effects are practically unheard of to-day. Servaes says that Moeller made 20,000 injections without any bad effects, and that Bandelier, Freymuth, Kremser, and he himself have had the same experience. He concludes that injuries are a fraction of 1/1000 part and that we are no longer justified in speaking of the dangerousness of a probatory injection.

In a personal communication from Dr. L. Rosenberg of the tuberculosis station of the Montefiore Home at Bedford, he says: "Relative to any possible unpleasant effects from the diagnostic use of tuberculin, I desire to say that we have never observed anything to cause us any anxiety, even in former days when the maximum dose was 10 milligrams. In other words we consider the subcutaneous use of tuberculin for either diagnostic or therapeutic purposes absolutely safe when properly given. By properly given, we mean when there are no constitutional disturbances such as high fever, etc., and no nephritis or other complications that contraindicate the use of the drug. We only employ the test when the history and the physical signs are ambiguous."

All the more recent evidence goes to show that this drug is not dangerous when used carefully and under the restrictions mentioned above. Still in the earlier and occasionally in the more recent literature we find warnings against the use of this drug. Heubner, for instance, thinks he saw two cases of miliary tuberculosis develop after its use, and Foss has reported a hemoptysis. It is of course difficult to say that these cases did not have their miliary tuberculosis at the time of injection. Still such accidents are theoretically possible, as we know how powerful the drug is as an irritator of tuberculous lesions, and to avoid such accidents great care should be taken, as was suggested above, in recommending Diem's procedure of a preliminary von Pirquet test.

In conclusion, I wish to emphasize the fact that the use of old tuberculin as a diagnostic aid should not be ignored, that it has a definite field of usefulness as an adjunct to other methods and it should regularly be employed only after other methods have rendered an unclear verdict, that is, in obscure cases, and then with the carefulness and precautions mentioned in this paper.

*Very rarely this may mislead, as some patients with a negative v. Pirquet reaction may respond to minimal doses of tuberculin, even as low as 1/100,000 milligram, administered subcutaneously.

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THE PAROXYSTIC ATTACK OF METATARSAL PAIN.

(MORTON'S METATARSALGIA.)

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An astute and very observant woman once said to me: "The trouble with you doctor-men is that you do not pay sufficient attention to the minor ailments; nothing interests you but serious cases. If I were a physician I should specialize in trifles, and I'll wager I should make a fortune!" I was young at the time and scouted the idea as pernicious heresy; but experience has since taught me that the lady was altogether right. What this critic did not know, however, was that the reason why practitioners, and particularly young men, are so weak in the human complaints of lesser importance is that, practically speaking, such cases never occur in their hospital experience; in fact, many of them are not even referred to in the textbooks; that is the sort of knowledge that a physician only acquires by dint of years of battling with his trying though educational adversary the private, paying patient. Shall I ever forget the ignominy of my first encounter with a plantar papilloma, a wretched invention that I had previously never heard of? Of what use were years of experience with cancers and major surgical cases in dealing with that little piece of practical work? After several months of scraping, burning and bunion plasters, the patient went home to Scotland on a vacation; and there a more enlightened brother cut the thing out in a jiffy, afterward sending the youth back here to cover my head with derision.

However, even long years of practice are not sufficient to protect the physician altogether from the risk of such downfalls to his pride; and it is because quite recently I had a narrow escape from again coming to grief over a very simple matter that I am relating this tale. Although now in my third decade of practice my attention had never previously been directed to what is known as Morton's painful affection of the fourth metatarso-phalangeal articulation. Now Morton was a Philadelphia; consequently this complaint may be better known at home than over here. But in this community at least I have the best of reasons for believing that I am not the only man to whom this disorder was unfamiliar even by name; therefore, in case there are still others in a similar plight, a brief account of my latest experience may prove a useful lesson.

The patient, a woman of sixty, short, and rather inclined to be heavy, began to suffer with her *left* foot several years ago—the exact date is uncertain. There had been no accident in her history, nor had she ever had any of the ordinary signs of a depressed arch; she did, however, sprain her *right* ankle a couple of years ago, which may possibly have thrown extra work on the left limb. Her description of these seizures, which come in severe attacks separated by periods during which she is quite comfortable, is as follows: She will be walking along feeling perfectly well when suddenly she will be taken with a violent pain in the ball of her foot, always starting precisely at the fourth metatarso-phalangeal joint; this soon spreads to the entire sole, and, if she continues to walk, will extend onward up to the knee, and finally produce a sensation of nausea at the epigastrium. The suffering is intense enough to bring tears—"like a red-hot poker being twisted around in the flesh;" on some occasions even she is quite unable to proceed any farther, but will sit down wherever she may be and take her shoe off, preferring to walk home in her stocking, if no cab is available, to enduring the agony any longer. During an attack the pain is constant, and a recent crisis lasted three entire days. A paroxysm may come on after fatigue, or be induced by treading on a small pebble; again it may break out on the smoothest kind of a floor, such as in her bedroom. One of her worst seizures started on the polished wooden parquet of a picture gallery. The attacks have always been quite similar to each other, varying only in degree; but of late they are becoming more frequent. She now never feels sure of her foot, and is apprehensive about going off on a walk in any but frequented places, lest at any moment the pain should come on and she be unable to reach home again. More or less unconscious sparing of the left limb is gradually making her lame.

Examination shows that she wears a fairly sensible shoe. She claims that she is always better in snug than in roomy footgear. The toes are bent, but without corns. No callous patches on the ball of the foot; neither redness, nor swelling, and very little sensitiveness to pressure. Pulling, twisting or manipulation of the fourth toe cause no discomfort. Movements of toes and feet are similar on both sides. The *x*-ray picture reveals no lesion beyond a foot thrown out of shape by civilized footwear.

Such was the problem before me. I felt that the case was of a mechanical nature, and that neither gout, rheumatism, nor neuralgia would answer in this instance, and I was ruminating on the disorders of the transverse arch when I unexpectedly came on the brief mention "metatarsalgia" in Osler's textbook—not more than half a dozen lines. This afforded me no little gratification, as I imagined that I had hit on something quite unusual, from which much *kudos* might ensue, and I at once wrote to Sir William asking him if he would let me know who Morton was and where he had published his original memoir. My candor of soul must have appealed strongly to the professor's sense of humor; but he was good enough to send me the information desired, adding, however, the dry remark that as regards the rarity of the condition he had seen "a great many cases." This is all very well; he had been a colleague of Morton at the Philadelphia Infirmary, had seen him operate for the relief of the complaint, and had in this way had his attention strongly drawn to it. But one of two things is quite certain: either this disorder is far less common in Europe than at home; or it is in reality one of the rarer occurrences in medical practice.

Thus a surgeon of unusually wide experience, to whom I spoke about the matter, had never been called on to treat a case, and knew it only vaguely from his reading. And what makes me suspect that it cannot be so very common even in America is, that although Morton's original description appeared in 1876, fifteen years later, in 1891, Dr. Bradford of Boston makes the following remark in a paper published in the *Boston Medical and Surgical Journal:* "It is somewhat singular that an affection that is not infrequent, in these days of thorough investigation of all ailments, should have attracted but little attention, either in the researches

of surgeons or of neurologists." Now it may have seemed "not infrequent" to Dr. Bradford, since owing to his special branch of practice such cases naturally turn to him for relief; but this metatarsal variety of pain is a serious matter, very serious in some cases, and if it were really of very common occurrence a great deal more would most certainly have been heard on the question than has been the case so far.

Once the practitioner's attention is called to the existence of this condition its diagnosis is really a very easy matter; there seems, in fact, nothing with which it can be confused. It is observed generally with women; thus out of the fifteen cases on which Morton's original paper was based as many as thirteen were women. It usually occurs in middle life, one writer even stating that it has never

Roentgen picture of the foot in the case of metatarsalgia, showing no lesions.

been met with before adolescence. Some cases follow traumatisms of various sorts, and treading on a stone is often mentioned among them; others gradually develop from pressure; while still others show no perceptible etiology. Its frequency in middle life would seem to point to some giving out of the transverse arch of the foot, and it would be interesting to note whether in a series of cases the patient's weight was appreciably more than the normal; in my particular instance, age, weight, and traumatism were all present. From the different accounts the pain is very severe. My patient came to my house one day in tears; in others morphine has been used; it has been reported to produce convulsions; and in one instance amputation of the limb had been seriously discussed, the patient's life being unendurable.

But the general tableau of the occurrence is really altogether characteristic, the diagnosis being one of those that ought to be made at a distance; a woman of mature years, who is subject to sudden seizures on the street of agonizing attacks of pain in the outside of the ball of the foot, pain rising to the knee and finally causing nausea, pain leading her to sit down anywhere regardless of appearances and remove her shoe and manipulate her foot, the foot on inspection being quite free from redness, swelling and even sensitiveness, can only be suffering from paroxystic metatarsalgia, nothing else will do.

It seems practically certain that the condition is due to a nipping of one of the branches of the external plantar nerve in the fourth intermetatarsal space, due to spreading of the transverse arch, which allows the second and third metatarsals to sink down. The pillars of this arch are formed on the inside by the head of the first metatarsal, and on the outside by the fourth and fifth heads acting together; the second and third constitute the vault. Now the heads of the first three metatarsals are normally about on a line, and are so fastened together as not to admit of much movement; but the fourth falls back of this transverse line, and the fifth considerably more so, they being both much more loosely connected than the other three. What seems to occur, then, is that the transverse arch spreads through some such cause as age, weight, or weakness, and the inner portion of the arch sinks down, throwing the shaft of the fourth metatarsal against the head of the fifth and base of its phalanx—in a word, against the metatarsophalangeal joint—catching the nerve between them. (See the *x*-ray picture.)

Treatment is either palliative or radical. In the first instance an attempt is made, by the use of tight bandaging or the wearing of felt pads or leather inner soles so fashioned as to bring pressure upward behind the heads of the second and third metatarsals, to prevent the foot from widening when weight is thrown on it, and the arch from lowering. Radical treatment consists in excision of the fourth metatarsophalangeal joint with its adjacent soft parts, an operation that has now been many times performed, with, it is claimed, conspicuous success. In my personal case the condition has apparently been quite relieved by a well-fitting shoe and a bandage passing several times around the transverse arch so as to prevent the foot from spreading.

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20 Rue Chalgrin.

THE RATIONAL TREATMENT OF ACNE PUSTULOSA WITH SPECIAL REFERENCE TO THE BACTERINS.*

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The successful treatment of acne pustulosa must be based upon a clear conception of the bacteriology, histopathology, and relation of the disease to development and to constitutional disorders.

Primarily, let us consider the factors in the genesis of acne. According to Whitfield,† these are: (1) seborrhea; (2) comedo formation; (3) suppuration around the comedo. Seborrhea oleosa is hypersecretion of the sebaceous glands which induces pathological sequelæ. Because of close anatomical association it is often accompanied by hyperidrosis. Etiologically the internal secretions of the sexual glands play a rôle, because seborrhea is commonly met with in adolescent males, during the development of the beard, at which time the sebaceous glands assume great activity but not immediate regularity of action. Seborrhea is also excessive in females during development of the mammary glands, which, it will be noted, are themselves modified sebaceous glands having to do with the production of fat. It is also produced by overindulgence in sugars, starches, and fats, by malfunctioning of the digestive tube, and by exposure to a hot, moist atmosphere, or the wearing of excessive amounts of woolen clothing.

Comedo or blackhead formation is a purely mechanical process involving the orifice of the sebaceous follicle. The gland responds by hypersecretion and a modified sebaceous cyst is formed. The "plug" itself consists of whorls of epithelial cells whose layers contain clusters of the microbacillus of Unna and Menahem Hodara (Sabouraud). Dissolved in cedar-wood oil this fatty seborrhic plug reveals large numbers of the demodex folliculorum of Simon and Gruby, the rôle of which doubtless is to carry the microbacillus (Sabouraud, *Brit. Med. Journal*, Aug. 10, 1912, p. 287). The latter has been proven by Halle and others to be a strictly anerobic organism which may be cultivated by emulsifying the comedo and planting it upon gelatin covered with a thin layer of sterilized butter (Mauté). A simpler and equally valuable medium is that employed by Hall, and strongly recommended by Dr. Richard L. Sutton (personal communication) of the University of Kansas. This culture material, which is a glycerin (1 per cent.) gulcose (2 per cent.) agar, neutral to phenolphthalein, is easily prepared, and, by the aid of Buchner's apparatus, pure cultures of the *Bacillus acnes* may be secured without great difficulty.

Whitfield concludes that the first step in comedo formation is the growth of the microbacillus in the mouth of the sebaceous follicle, and that the follicle, stimulated by the toxins liberated by the organism, treats it as the epidermis always treats a non-pyogenic foreign body, that is, by attempting to encyst it with successive layers of cells. The result is acne sebacea.

The way is now prepared for secondary invaders, and of these the most common is the *Staphylococcus albus* of Welch. Entering the mouth of the follicle this organism lodges between it and the comedo, and by its activity surrounds the comedo with a lake of pus. The acne sebacea now becomes an acne pustulosa, and if the depths of the sebaceous follicle are invaded, surrounding infiltration occurs with the production of acne indurata. The bacillus may be absent in smears but present in microscopic sections of the acne lesion. From a study of such sections Whitfield found that abundant colonies of the *Bacillus acnes* without colonies of staphylococci result in comedo without inflammation; whilst abundant colonies of the microbacillus plus colonies of the staphylococcus result in comedo plus suppuration. This would appear to establish the non-pyogenic character of the *Bacillus acnes*.

In the treatment of pustular acne I believe that the common cause of failure is the employment of and reliance upon but one remedy. Success depends upon attacking the malady in several ways at the same time. In the first instance, dyspepsia, constipation, or anemia, if present, should be corrected. Start at the very portals of the digestive tract, and see that the patient has a good and complete set of teeth, and that the gums are in a healthy condition. Then instruct the patient to eat at regular intervals and to masticate his food thoroughly, even to fletcherize. Stop excess of starches, sugar, and particularly fat (see Montgomery and Culver, *Jour. Cutan. Dis.*, 1912, p. 319). Alcohol in any form is bad. This regimen excludes the use of fried food, candy, and pastry. Constipation should be corrected by establishing the habit of regular evacuation after breakfast each morning. Anemia, if present, is best combated by appropriate exercise in the open air, and the ingestion of raw egg three times daily, after or between meals. These methods, if persisted in, are better than the swilling of gallons of empirical drugs. The usual directions of "regulate the diet, open the bowels, and exhibit such-and-such a drug" are not specific enough. For instance, a patient with acne is not an invalid. What he most needs, in nine cases out of ten, is correction of faulty habits. He is physically capable of availing himself of many simple measures that a sick person confined to bed cannot begin to do. Acne is seldom seen in sailors or in others who lead an active outdoor life.

The local treatment may be summed up as follows: If possible, a few exposures to the *x*-ray to cause temporary suspension of sebaceous activity. Then express every visible comedo, thus nipping in the bud many future acne pustules. Facial massage may be of value. Puncture each pustule, and, after bathing in cold water, apply a small Bier cup. Afterward swab the lesion with a mixture of pure phenol, 3 parts; camphor, 2 parts (Abraham). Have the patient use a good boric acid soap (or, better, hand sapolio or Ranier soap) with tepid water on his face at least twice each day, and at night apply lotio alba (zinc sulphate, precipitated sulphur, and sulphureted potash, of each 2.0 to 4.0, rose water q. s. ad 100.0), rubbing in well. If too much irritation results, substitute a soothing application, as rose water ointment, for a time. Finally, when, in conjunction with the above measures, a properly prepared autogenous vaccine is employed, in strong rather than weak doses, a permanent and fairly prompt cure may usually be promised. In those instances where the staphylococcus predominates, it

*Read before the John Morgan Society, University of Pennsylvania, April 10, 1913.

†*Brit. Med. Journ.*, Aug. 10, 1912, p. 287.

is well to start out with an autogenous staphylococcus vaccine, switching over to the *Bacillus acnes* suspensions later. While the carrying out of a successful plan of treatment is often taxing on the patience of both physician and patron, the results more than justify the labor expended.

Old acne scars and indurations, if superficial, may be improved by triweekly vibratory massage with the electric rubber cup. If deep nothing short of excision of the most conspicuous ones will suffice. After intradermal injection of a few minims of a 2 per cent. solution of novocain with 1-3000 adrenalin, an elliptical incision is made with a sharp scalpel around the scar down to the subcutaneous fat. Careful approximation with an intradermal silkwormgut suture results in an inconspicuous linear scar.

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SOCIAL SERVICE IN HOSPITALS AND DISPENSARIES.

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All hospital service is social service, in that the hospital as an institution exists for what it contributes to the welfare and happiness of human beings. The great problems of the hospital are all at bottom social, for disease produces not only individual suffering and inefficiency, but its results penetrate deeply into the very structure and life of both the family and the community, and into every phase of that life. Not only the results, but the causes of disease are rooted in social conditions. Just how closely the social and the physical factors intertwine in the everyday hospital problems may be illustrated by one or two typical cases. Here is the very common case of the scrawny baby suffering from malnutrition, or anemia, or rickets. What brings it to the hospital? A little investigation reveals a one-roomed home in an insanitary tenement, the mother working to support a family, too poor and also too ignorant to supply them with the necessaries of life. Back of the poor food and the bad housing, however, lies the problem of a deserting husband, and back again of that, perhaps, incompetence, non-employment, and the ever-present problem of persistent, depressing poverty. Here is a hollow-chested young man with the typical flush and cavernous cough which even an amateur could diagnose. What brought him here? Tuberculosis, of course; but back of this is a sweat-shop or a stuffy, crowded store, or the fatigue of a twelve-hour day which broke down the man's resistance and made him an easy victim of the ever active and vigilant *Bacillus tuberculosis*. Numberless other cases will suggest themselves; diseases caused or complicated by intemperance, by prostitution, by industrial occupations and conditions, by social habits or customs, many of them not at all confined to the poorer classes.

Such problems are not new. They have engaged the attention of serious people both inside and outside of the hospitals for many hundreds of years. With the deaconesses and sisters of charity and the brothers of the religious orders who helped to found the early hospitals, the physical welfare of the patient was usually secondary to the spiritual and moral welfare, and the ultimate aim was, of course, not to root out physical disease, but to get the soul ready for a happier and holier life. Poverty and misery were considered as not at all bad in themselves, but rather as a salutary means of spiritual discipline through which the soul might reach its highest development. Still, though they did not view the matter in our modern light, their spirit was essentially one of social service, and they did do much to fortify and support and comfort their unfortunate patients in material as well as spiritual ways. Still more practical forms of hospital social service are recorded in some of the reports of the more modern hospitals. Patients were provided with food or clothing or appliances of one kind or another, they were visited and read to, employment was secured for convalescents, and many kindly and charitable services were rendered. This kind of home missionary work was fairly well systematized under the Samaritan Funds of English hospitals which date back as far as 1723, and which were usually organized and administered by boards of women under the advice of hospital officials. Such attempts at hospital social service were more or less individual and spasmodic. It is essentially the "Lady Bountiful" type of charity—palliative, not preventive or constructive.

We see a rather better organized form of hospital social service in the work of the almoner of the English hospital. In older times the almoner was employed by the hospital for the purpose of preventing people from imposing on hospital charity and of administering relief funds to needy patients. As the social and medical sciences have advanced the work has become more educational and preventive in nature. The almoner has tried to establish habits of foresight and thrift in poor families, to improve conditions of living, and to carry the work of the hospital into the homes.

The organized movement in America is quite recent. In 1901 Dr. Emerson of the Johns Hopkins Medical School organized a branch of the Charity Organization Society among the medical students of the university. This work was not medical in character. The aim was to give the students some really concrete idea of how the poor man lives and works and thinks, and what his problems are. It was more for the enlightenment of the student than actual service to the man. Incidentally, it threw a good deal of light on the causes of disease and the futility of many existing methods of medical treatment. In 1905 Dr. Cabot's historic experiment was tried in the Massachusetts General Hospital of Boston. Dr. Cabot was not satisfied with the very superficial work that he felt was being done in many branches of the hospital and dispensary. There seemed to be conditions which he could not remedy and causes which he could not reach by ordinary hospital methods, and the human side of the work was, he felt, often sorely neglected. Miss Pelton, a visiting nurse, was employed to follow up special cases from the dispensary, to find out what home conditions were responsible for their troubles, and to advise and instruct and help the patients in every way she could. The information gained was so illuminating and the results so striking that a separate department or bureau of social service was organized in connection with the dispensary, to which all such cases could be referred. Bellevue Hospital came next, in 1906, and since that time every year has seen the organization of numerous departments all over the country. There are

now thirty social service bureaus in New York City alone. Most of these are an integral part of the hospital, while some are maintained by individuals or organizations outside.

The reasons for this significant modern development are probably to be found in the temper and ideals of our own time. Hospitals, as well as schools and churches and political organizations, are becoming self-critical. They are asking themselves whether they really are fulfilling their whole duty in the light of our modern conceptions of social responsibility. They are beginning to analyze and test their results to see whether they measure up to our modern standards of efficiency. What is the use of spending two dollars a day for six weeks to put this patient on his feet if the whole job is undone for lack of a little care in convalescence? What is the use of nursing a youngster back to ruddy health only to have him return as bad as ever in a few weeks? Some cases have been readmitted again and again simply because they could not live in their home environment. The question used to be, "How many patients did we treat—how many dollars did we spend?" Now they are asking, "What permanent, tangible results have we to show for the money expended?"

Physicians are also beginning to criticize their own results from the economic and social point of view. "What is the use," they say, "of trying to patch up a headache when the source of the trouble lies in worry or in overwork? Why keep on prescribing iron for the anemic child who lives in a horrid cellar and never sees good food? Why spend hours in examining and testing and advising if the patient is too poor or too ignorant to profit by our advice?" Another baffling feature of the present situation is that the agencies of treatment are less within the physician's own grasp than they used to be. It was easy to write prescriptions for all comers, and even to supply the drugs, but it is not so easy to supply the treatment which has to a large extent superseded drugs. Hygienic surroundings and good food and careful nursing, and those intangible influences that lay hold on the mental and spiritual forces which lie in the individual himself—these are not to be doled out at a dispensary window by any ordinary paid hand.

The social service department has helped in solving a good many of these questions. The medical man approves of it because it helps to complete his work—it makes it effective. The hospital approves because it saves the needless waste of hospital resources; it prevents so many readmissions; it helps to prevent the abuse of the hospital resources, and makes the hospital a more popular institution with the public. The nurses approve heartily because it assures to the patient that kind of human help which they themselves have always tried to give in some degree, but can give so inadequately in the rush and hurry of the busy ward. Medical social service from this point of view is simply a logical and necessary adjunct to the medical service—just as good nursing was found long ago to be an absolutely essential element in getting patients well—just as school nursing at the present day with its follow-up work and home teaching is found essential to effective medical inspection. It would seem then that medical social service is largely an extension of the nurses' duties on the wards, with more time to concentrate on the social and educational side of nursing work, which Florence Nightingale defined as "helping people to live."

There is, however, another and different conception of social service which is held by many trained social workers. Disease, they say, is only one element in a much larger situation. It is a symptom of some morbid social condition which affects not only the individual but the family unit, and it is the integrity of this unit rather than the welfare of the individual that must be the primary consideration. Physical welfare is important mainly as it contributes to the preservation and development of character. The patient is not a medical case but a man, and probably the father of a family, and the question is not so much whether we are helping him to get well, as whether we are helping him to be of some use to society and to himself when we are through with him. The hospital is only one in a chain of cooperative agencies which have for their aim the building up of a strong, healthy, and morally sound social fabric.

From this standpoint the social service bureau is a sort of sister to a Charity Organization Society. Its function would be to investigate, to diagnose social maladjustments and maladies, to collect and to organize social data, to keep the hospital in touch with social needs and conditions that bear particularly on its work, and to administer such treatment, help or advice as will aid in ultimately strengthening the moral fiber and conserving the personal and family life of the patient.

It would not seem to be impossible to bring these aims together in hospital social service work and to do justice to both. It has been done very successfully, though it must be admitted that it requires unusually sound judgment to choose wisely between the claims of the sick man and the possible pauperization of his family, or between the immediate relief of the disease and the ultimate good of the patient's character. Personally, I feel that the hospital should concentrate on its business of getting people well, utilizing all the agencies it can for that purpose and reaching out into the community as an educational force, particularly along the lines of preventive medicine.

In regard to methods of work, the social service bureau does not attempt to go outside of the hospital for its patients, indeed, as the work is at present, only those presenting the most acute and distressing problems can be attended to. These are referred to the bureau by nurses and physicians, or are found by the social service worker in her visits to the wards or outpatients' department. The clinics present endless material, especially the children's clinics. In a large bureau one worker is detailed for the children, another for the maternity patients, another for nervous and insane patients, and so on. A good deal of visiting must be done in the homes to keep in touch with conditions there. Here voluntary workers may sometimes be of service, and the experience and training afforded is often of the greatest benefit to the visitor herself. It is Dr. Cabot, I think, who recommends this work as the best known treatment for certain forms of neurasthenia, or "nervous prosperity," as the popular malady has been called.

The work among the patients is so varied that one can do no more than indicate a few general lines of activity. There will be patients who need to be sent to institutions, such as schools and homes for the deaf, the epileptic, the feeble-minded, or sanatoria for consumptives, or convalescent homes. Others will need to have help in securing suitable

employment. The most essential thing in other cases will be just diversion, occupation, friendship, or good advice. In very needy cases, food, medicine, clothing, etc., are sometimes given, though cases that need relief are usually turned over to agencies which exist for that purpose. The educational work is one of the most important of all. Sometimes this teaching is done in classes, but usually it is individual. The teaching is very concrete and practical—everything from cooking and modifying milk to mental suggestion and sex hygiene. The work of investigation and recording is essential as a means of testing up results. Statistics, though notoriously dry reading, have been made the basis for much-needed social reforms and also for adjustments in the hospitals' own methods.

I will not undertake here to describe all the qualifications of a social service worker. Although a few men have specialized in this work by far the largest number of workers are women. Whether she be a nurse or a physician or a trained social worker it is of the highest importance that the worker should be the right kind of a woman, and that she should have an adequate preparation —first, a liberal education, then a training both in the medical and social aspects of her work. It would seem that other things being equal, the nurse has already at hand by far the larger proportion of the necessary equipment. Patients know her and have confidence in her. The doctors are accustomed to working with her and are able to discuss professional matters freely, without embarrassment or unnecessary explanation. A large part of hospital social service work will have to do with sanitation and hygiene, with the explaining or carrying out of medical orders, with the handling and care of sick people, and particularly with the observation of symptoms and conditions, in most of which the nurse is already well prepared. In addition to this, however, she must have the larger social point of view, must be acquainted with the aims and ideals of modern constructive philanthropy, and with all the social agencies which cooperate with the hospital in social service work.

But such preparation, such a point of view, is not needed in hospital social service alone. Practically the same problems are to be met in district nursing, tuberculosis and infant welfare work, in school nursing, and in all the newer branches of public health work which are opening up with such rapidity all over the country. I maintain that the same social point of view is needed in all hospital and even in private nursing work. If the hospital is a social institution, founded and maintained to carry out a definite social function, every worker in that institution is engaged in public welfare work. It is particularly important that the nurses, who are closest to the patient and who are to a great extent responsible for the spirit and atmosphere of the institution, should see themselves in the light of this larger social function. For nursing *is* social service. It is a great mistake to assume that the nurse is concerned wholly with the scientific or administrative or medical aspects of hospital work. Her interest in nursing is usually essentially human and personal. The spirit which calls her into the hospital and carries her through her very difficult training is primarily the desire to be of service—to help people. It was this spirit which built up the splendid traditions of nursing service, extending backwards for hundreds of years. The shameful prostitution of nursing, and the unspeakable horrors of the later hospitals even up to 50 years ago, were remedied only when Florence Nightingale brought back into the service of the hospital and of humanity the enlightened social spirit of educated and earnest women. For a time they were practically the only body of trained social workers. The great reforms that followed in the care of the sick poor in hospitals and workhouses, in the slums of great cities, and in isolated rural districts, are sufficient proof of the intense enthusiasm for humanity, the unselfish devotion, and the practical efficiency of those nursing pioneers.

That spirit is not dead. Splendid women are still setting aside far easier and more lucrative employments to enter nursing schools, so that they may be prepared for this real, vital form of human service, and a large proportion of graduates each year find their way into the various branches of social or public health nursing, such as district nursing, school nursing, tuberculosis and baby welfare work.

As hospitals have multiplied; as the nurses' duties have become more exacting and increased emphasis is laid on the scientific and technical aspects of their work; as the hospital itself has become more highly organized, the human element tends sometimes to be neglected in the relentless demands of the system and the machine. If the officials and staff of some of our hospitals are (as is alleged) often lacking in consideration for patients, blind to human needs, and unable to grasp the larger significance of the service in which they are engaged, the reason is not to be found in the nature of the work itself, but either in the type of men and women who are selected for it, or in the fact that the workers are simply overwhelmed by the multiplicity of manual and routine procedure, so that they have no time to think of the more personal and human needs of their patients. Another undoubted reason is that their attention has not been directed to those large social backgrounds that lie behind the very common phenomena of disease. One needs both to know and to feel these things deeply in order to put one's self into the right relations with sick people.

Perhaps the time will come when we will consider a course of lectures on the sociology of disease and a short term in the social service department as essential in the training of a nurse as the course in anatomy or the term in the operating room; and the most economical of hospital boards may eventually come to feel that in the end it pays better to give its nurses time to care for their patients' social and mental as well as their bodily welfare instead of utilizing all their time and energy in the endless routine of household procedures which belong far less strictly to the duties of a nurse. Internes need this social training quite as much as nurses, and one might hope that it eventually would filter down to every officer and employee of the hospital. Then we would have real hospital social service.

This is not an altogether visionary conception. The change is even now coming about in many of our hospitals through the influence of live social service departments. At first people are a little sceptical, but very soon as the benefits of the work are shown they begin to cooperate heartily and gradually, almost insensibly, a new spirit is felt throughout the whole place. This educational work of the social service department is not the least of its many beneficent activities.

To summarize the arguments for hospital social

service: It is a logical extension of modern hospital treatment, demanded by our higher standards of economy and efficiency, by our developing ideals of social responsibility and humanity, and by the new demands of preventive medicine as well as of medical diagnosis and treatment. It directly and remotely benefits the patient, the family, the community, the hospital and the professional worker. It is universally commended wherever it has been tried, and—it works.

A STUDY OF THE BACTERIEMIA IN PNEUMOCOCCUS INFECTION OF THE RABBIT.*

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Following intravenous inoculation with the pneumococcus the rabbit develops a bacteriemic infection. From this recovery may take place, but usually it is fatal. During the course of these pneumococcus infections and at autopsy pneumococci are always present in the blood, but they vary greatly in number. The conditions determining these fluctuations in the number of pneumococci and other bacteria in blood infections have never been clearly understood.

Wyssokowitsch observed, 26 years ago, that bacteria injected intravenously are not physiologically excreted in the urine[1] and feces, although they disappear rapidly from the blood. Rolly[2] and Roloff,[3] however, found organisms in urine when there was no evidence of lesion of the kidney. The presence or absence of minute lesions is of course difficult to exclude or to demonstrate. After the blood cultures had become sterile Wyssokowitsch found living organisms in the liver, spleen, and bone marrow, and considered the organs bacterial filters; in short, the battlefield of the struggle between the organic cells and the bacterial invaders. It depends upon the outcome of this struggle, he said, whether or not infection will take place. After the discovery of the bactericidal power of the blood serum Wyssokowitsch's observations were attributed to the combined activity of the organs and the blood. But other observers found that the blood lacked bactericidal action on some bacteria. Thus Behring and Nissen,[4] and Kruse and Pansini[5] long ago found that pneumococci grew rapidly in the blood sera of both normal and immunized animals. Similar observations have since been recorded by Weil[6] in his experiments with the streptococcus. He injected rabbits with the streptococci isolated from cases of scarlatina, and, for purposes of comparison, other rabbits with *B. typhosus* and *B. subtilis*. Blood was drawn from the jugular vein at certain intervals, and plated in agar for counting. A portion of blood drawn from the jugular vein of each rabbit soon after the inoculation was defibrinated and incubated at 37° C. in test tubes. A certain amount of this incubated blood was plated in agar whenever a new blood culture of a rabbit was made. In this way he compared *in vivo* and *in vitro* the action of the blood on the streptococcus, and on the two organisms used as controls. In the living animals Weil[6] found shortly after intravenous inoculation first a decrease and then an increase in the number of bacteria injected. Later they again diminished in number. The animals finally became emaciated, had diarrhea, and died of paralysis. In only a few animals was an increase in the number of bacteria found before death. But when infection was rapidly fatal there was after the initial decrease a progressive increase of bacteria. In the defibrinated blood which he incubated *in vitro* the bacteria grew. The normal rabbit serum, Weil assumed from his experiments, is without any means of defence for all bacteria, because the number of bacteria *in vivo*, after the initial decrease, increased again as soon as the filter effect of the organs ceased, and because the blood incubated in the test-tube did not hinder the growth of the bacteria. The antibacterial reaction noticed in the body of an animal in the course of an infection cannot, according to Weil, be attributed to the known means of defence of the blood of ordinary laboratory animals, but is due to some unknown vital function of the body acquired during infection, and ceasing to act as soon as the blood leaves the body.

Of all the bacterial species the pneumococcus is perhaps the least susceptible to the bactericidal action of sera *in vitro*. And yet sera of some normal and many immunized animals have been shown to possess both lytic and opsonic action on this organism. Witness, for example, the studies of Bezançon and Griffin,[7] Neufeld,[8] Wadsworth,[10, 11, 12] and others with agglutinins and precipitins; the observations of Radziewsky,[13] and of Neufeld with lysins, and the studies of Neufeld and others on opsonins. Witness also the more recent work of Wadsworth on the action of immune sera on the pneumococcus, both in vitro and in pneumococcus infection of the rabbit and dog, from which it appears that bactericidal action may be present in rabbit serum when tested with the pneumococcus, even if this is incomplete and followed by growth.

That an elevated temperature may be inhibitory to the multiplication of bacteria is suggested by the recent study of the thermal limits of growth of bacteria in culture, of the increased activity of immune sera at elevated temperature, and of the effect of hyperthermy on infection in animals. Sulina[14] and others studied the thermal limits of bacterial growth in test tubes, and concluded that the growth of bacteria in the infected animal body must, in approximately the same way, be inhibited through an elevation of body temperature.

That the increase in body temperature may retard the development of infection is shown in Filehne's[15] experiment Animals were inoculated with streptococci which he isolated from cases of erysipelas. The inoculated animals when kept warm were only moderately sick, and recovered. Controls untreated died. Pasteur, Joubert, and Chamberland[16] found that anthrax cultivated at 41.5° C. lost its virulence. Hens and pigeons, which normally have a body temperature ranging above 41° C. only when chilled, became susceptible to anthrax in their experiments. K. Wagner,[17] by decreasing the temperature of inoculated hens with antipyrin or exposure to cold obtained similar results. Pasteur and many others have found pigeons and other birds insusceptible to pneumococcus. Recently in the experiments of S. Strouse the pigeon was made susceptible to the pneumococcus when its temperature was lowered by injections of pyramidon. Walther[19] was among the first to suggest the beneficial effect of an elevated temperature upon the course of pneumococcus infections in rabbits. He incubated three rabbits at 35 to 38° C. immediately after inoculation with the pneumococcus. Two animals were

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incubated 14 hours after the inoculation. Every 3 to 4 hours the rabbits were taken out of the thermostat and cooled off at room temperature. During incubation the body temperature of the rabbits rose from 41° C. to 42° C. Control animals similarly inoculated were kept at room temperature. The three animals incubated immediately after inoculation died, but they outlived the controls kept at room temperature. In one instance the incubated rabbit lived three days and nineteen hours, and the control animal only nineteen hours. He concluded that the artificial elevation of the body temperature of the infected animal retarded the multiplication of the bacteria. The rabbits which were incubated fourteen hours after the inoculation died almost as soon as the control animals. At autopsy he found pneumococci in large numbers in the blood and tissues of the control animals, and in those incubated fourteen hours after infection, but very few in those incubated early. In the animals incubated fourteen hours after inoculation, he said, the pneumococci had enough time to multiply and weaken the organs and tissues so that an elevation of temperature was of no help to them in their fight with the bacteria.

Rovighy,[20] Löwy, and Richter,[21] Kast,[22] Welch and Sirotinin, Sulina and others obtained results similar to those of Filehne and Walther in their experiments with other bacteria by elevating the body temperature of the infected animal. In these experiments, however, the effect of an elevated body temperature on leucocytosis or in stimulating the different protective activities of the blood serum was not studied. Rolley and Meltzer,[23] Lüdke[24, 25, 26, 27] and others have demonstrated experimentally that an elevation of the body temperature of animals increased the agglutinative, hemolytic, bacteriolytic and complementary activities of blood sera tested *in vitro*. The writer[28] also has found that an elevation of the body temperature experimentally induced by the incubation of animals increased the opsonic activity of the blood serum in normal, immunized and infected rabbits. In Sulina's studies phagocytosis in vitro was most active between 39° C. and 40° C.

Although in Neufeld's and in Wright's[29] experiments the leucocytes of normal and immunized animals were seemingly equally phagocytic, Rosenow,[30] and Potter and Krumweide[31] observed that the leucocytes in pneumonia have a greater phagocytic power than in health. Shattock and Dudgeon[32] found that washed pneumonia leucocytes were more phagocytic in pneumonia serum than normal leucocytes, whereas in puerperal streptococcus infection the patient's leucocytes were less active as phagocytes than those of healthy persons in the same serum.

In all the above-mentioned work evidence of the conservative action of fever was obtained. A few investigators, however, found in their experiments that an elevated body temperature predisposed or injured the animal, and thus favored the course of the infection, as in the studies of Ritzmann,[33] and also Barankeiff.[34] Lüdke found that clinically in man the most favorable time to demonstrate bacteria in the circulating blood is the time when the body temperature is most elevated, that with the decrease of the temperature the bacteria decrease and that with the disappearance of the fever bacteria are almost always absent in the blood. In order to study more fully and experimentally on animals these relationships of the bacteriemia to the fever I have made the following study of the bacteriemia and of the fever in pneumococcus infection of the rabbit.

The pneumococcus was chosen because it is very susceptible to elevations of temperature when grown in culture, and because it gives rise to a purely bacteriemic infection in rabbits. A pneumococcus was isolated from the sputum of a pneumonia patient.* Rabbits were inoculated with this pneumococcus in one ear vein, and blood for culture was drawn at stated intervals from the vein of the other ear. This blood was plated in dilutions,† and counts were made of the colonies to determine the number of pneumococci present. Morphological preparations were made from the colonies, but their characteristic greenish color and halo easily distinguished the pneumococcus colonies. Contamination, however, was exceptional. Rapidly fatal infections after small and large doses of the pneumococcus, and less virulent infections, fatal only after several days of fever, were all studied. A limited number of inoculated animals recovered spontaneously or after treatment. These were also under observation.

The rabbit infections were studied in series or in sets of one to six animals. In all, 42 rabbits were under observation. These fall into two groups: (1) The group of rapidly fatal infections, 25 rabbits. (a) Without initial decrease of bacteria, 20 rabbits. (b) With initial decrease of bacteria, 5 rabbits. (2) The group of prolonged infection, 17 rabbits; (a) of which 9 were fatal; (b) and 8 recovered. The 20 rabbits of group 1 (a) died rapidly within 18 to 48 hours after inoculation. The bacteria increased continuously after inoculation until death of the animal. An initial decrease of bacteria was noticed in none of these animals. An increasing temperature accompanied an increasing bacteriemia from the start in ten of the rabbits. In one of the ten remaining rabbits the temperature increased only 2°; in another it did not increase; in five others the temperature fell 2/10 to 1 2/10° C. In the remaining three rabbits of the set there was, one hour after inoculation, a slight decrease of temperature followed by an increase which was highest at the end of the second day. An antemortem drop of temperature took place in only three rabbits of this entire group. A high temperature accompanied by a retardation in the growth of bacteria was not found in any rabbit of this group. Neither rise nor fall of temperature had any apparent effect on the bacteriemia in these animals.

The five rabbits of group 1 (b) died within two to two and a half days after inoculation, and thus outlived slightly the animals of the previous group. In all of these a marked initial decrease of bacteriemia within two and a half to six hours after inoculation took place. This initial decrease was followed by a continuous increase of bacteria until death in two rabbits. There was a second single remission in the number of bacteria in the three other rabbits. The temperature, contrary to that of the first group, rose in all these rabbits with the increasing bacteriemia, and reached its maximum at the end of the second day (104.4, 105, 105.6, 106.6, 105.2, 105). An ante-mortem fall of temperature was noted in three rabbits, but the other two rabbits of this set died during the night, and the tem-

*Encapsulated gram positive streptococci of characteristic morphology which fermented inulin, which gave a characteristic reaction on blood agar plates, and were dissolved by rabbit bile in dilutions of 1:20 were considered pneumococci.

†Colonies of the pneumococcus develop well in blood agar, but if the blood is too highly diluted many of the pneumococci fail to develop in agar plates. I usually used /10 or 1/20 c.c. of blood for plating.

perature records were incomplete. In these rabbits a temperature above 104° F. at the end of the second day was accompanied in some instances by an increase, in other instances by a decrease in the bacteriemia. The protective activity of the body cells and of the blood of the rabbit against the invading bacteria was indicated by the initial decrease of bacteria in all rabbits of this group. Later a rise of temperature above 104° F. was accompanied by a marked decrease in the bacteriemia at the close of the second day in three animals and by a slight increase in the other two. Ante-mortem in the rabbits dying with a high temperature the increase of bacteria was relatively slight, whereas in those dying with a low temperature the increase of bacteria was exceedingly marked.

Of the 17 rabbits of group 2, the group of prolonged infections, 9 died within 3 to 7 days, and 8 recovered. Each of the first 11 rabbits of this group is a separate experiment, and requires separate consideration. All of these received intravenous inoculations of a pneumococcus culture (W) which under artificial cultivation had lost most of its virulence. Beginning with the first rabbit which received 4½ c.c. the other rabbits in series received smaller and smaller doses as the organism regained its virulence. Six rabbits of another experiment which had been inoculated intravenously by a usually fatal dose of a pneumococcus culture recovered. They were studied here only for the purpose of determining the time during which pneumocci might be found in the blood after the temperature had become normal.

Rabbit 2 was inoculated with 4½ c.c. of a 48-hour broth culture of an attenuated pneumococcus W. The temperature rose from 98° to 100.4° within one hour and to 104.5° within six hours after inoculation. During this period the bacteriemia decreased from 2,340,000 to 80. The second day the temperature fell 4½° and then toward evening rose again 2½°. The bacteriemia had increased from 80 to 410 and toward evening to 24,115. Then al elevated temperature of 103° to 103.5° persisted for 30 hours. During this time the bacteriemia fell from 24,115 to 16,298, then increased to 47,462 and fell again to 9,646. The fifth day, antemortem, the temperature fell from 103° to 98.6° and the bacteriemia increased immediately, rising in 16 hours from 9,686 to 75,600, and then 8 hours later the pneumococci were innumerable at autopsy.

In rabbit 3, following inoculation of 3 c.c. of a 24-hour rabbit-serum broth culture of pneumococcus W., the temperature rose in 6 hours to 104.6°. During this period the bacteriemia was one hour after inoculation, 7,897, and decreased in 2½ hours to 1,829 and in 6 hours to 130. The second day the temperature fell 2½°, then during the evening and night rose again 2°; the bacteriemia increased from 130 to 6,731 and later to 49,280 with the rise in temperature. The animal took food and appeared well. The elevated temperature, 103°-104°, continued 24 hours, and the bacteriemia fell from 49,820 to 3,896. On the fourth day, a Sunday, there were no observations. The fifth day, antemortem, the temperature fell to 98.8°, the bacteriemia increased from 3,896 to 317,364 per 1 c.c. of blood and at autopsy the pneumococci in the heart's blood were innumerable.

Rabbit 10 was inoculated in the late afternoon with 1/10 c.c. of a virulent broth culture of pneumococcus W. which had been incubated only 5 hours and therefore contained relatively few pneumococci. The temperature remained unchanged after inoculation but the next morning it was 105.5°. The bacteriemia increased from 830 to 2,710 during the first hour after inoculation but the next morning, with the rise of temperature, it had fallen to 1,000. The second day the temperature rose from 104.5° to 106°. The bacteriemia increased from 1,000 to 5,340 the evening of the second day, and was 9,063 in the morning of the third day. Then it dropped suddenly in 8 hours to 955, the temperature continuing elevated. The fourth day, antemortem, with a temperature falling to 98°, the bacteriemia increased to 1¼ million per 1 c.c. of blood.

Rabbits 12, 13 and 14 were inoculated intravenously with .01 c.c. of a 24-hour broth culture of a virulent pneumococcus W.

In rabbit 12 the temperature rose only .5° F. within the first 6 hours. The bacteriemia increased from 9,752 to 80,136 six hours after inoculation. The second day the temperature ranged from 103° to 105° F. The bacteriemia decreased at the same time from 80,136 to 30,528, then increased over night to 905,824 per c.c., the temperature falling from 105° to 103.5°. The third day, ante-mortem, the temperature was 104° to 104.5°, and fell abruptly over night to 99.5°. At autopsy the plates of blood in dilution were too crowded with colonies.

In rabbit 13 the number of bacteria in 1 c.c. of circulating blood one hour after inoculation was 40. Six hours after inoculation the blood culture was sterile. The temperature decreased during the first six hours from 100.6° to 98.4°. The morning of the second day the temperature was 103.4° and the bacteriemia 8,454. The temperature fell during the day to 101.5° and the bacteriemia rose to 32,895. The morning of the third day the temperature was 102.2° and it rose in the afternoon to 104.5°. The bacteriemia decreased from 32,895 to 3,922 in the morning, and continued low—the evening count being 4,664. The fourth day, ante-mortem, the temperature fell to 101° and 101.3°. The bacteriemia increased from 4,664 to 20,670 and to 45,792. At autopsy the colonies in the plates of blood in dilution were too numerous to count.

In rabbit 14 six hours after inoculation there was a marked increase of the bacteria from 11,819 to 60,314, and the temperature rose from 101.2° to 104°. The second day the temperature continued elevated, 103.6°, 105° and 104.6°, and the number of pneumococci decreased from 60,314 to 8,904 in the morning and 6,784 in the afternoon. The third day the temperature fell sharply to 98.4° over night, but the bacteriemia increased to 101,396. In the afternoon of the third day the number of pneumococci decreased from 101,396 to 8,480, although the temperature was only 101°. The fourth day there was a marked ante-mortem increase of bacteria to 562,860, and only a slight rise of temperature to 101.6° and 102°. At autopsy the plates of diluted blood were too covered to count.

Rabbits 22, 23, 24 and 25 were all inoculated intravenously with 1/100 c.c. of a 24-hour growth of pneumococcus W. in rabbit serum broth. Rabbit 22 died early and was recorded in the group of rapidly fatal infections.

In rabbit 23 there was only a small number of pneumococci, 20, in the circulating blood, two hours after inoculation. The temperature rose slightly from 99.6° to 101.4°. Six hours after inoculation the bacteria increased from 20 to 70 and the temperature .2° F. The morning of the second day the temperature was 100.5°, and the blood culture sterile. The afternoon blood culture was again positive, giving a count of 180; the temperature having risen to 103.4°. The third day there was a moderate increase of bacteria from 180 to 255 and 760 and a temperature of 102.8° in the morning and 104° F. in the afternoon. There were no observations on the fourth day, a Sunday. The fifth day the morning temperature was 101° and the bacteriemia 1,540. The evening temperature fell to 98.4° and the bacteriemia increased from 1,540 to 9,911. The sixth day the temperature was normal, 101° to 101.2°, the animal appeared well; no cultures were taken. The seventh day the morning temperature was 90.4°, and the number of bacteria 5,353. The temperature continued to decrease and was in the evening 98.2°. The bacteriemia increased with the falling temperature to 10,229. The eighth day, antemortem, the temperature was 97.2° and the bacteriemia 9,874. In the afternoon the temperature rose to 102° and then decreased to 100°. The bacteriemia fell from 9,874 to 100 a half hour ante-mortem.

Comment: During the first four days the fluctuations in temperature and bacteriemia were unimportant as compared with the bacteriemia in the other animals. Both temperature and bacteriemia were slight during this period and gradually increasing. During the last four days of infection the bacteriemia was more marked, but the animal did not respond by an abnormally elevated temperature, on the contrary, with the increase in bacteriemia there seemed to be an exceptional depression of temperature. The animal was emaciated during the last four days and so possibly unable to respond. Nevertheless, at the same time, it had evidently developed sufficient immunity during the first four days to inhibit the bacteriemia and to prevent the marked increase usually noted ante-mortem.

In rabbit 24 the bacteriemia, two hours after inoculation, was 80,510 six hours after inoculation and 3,367 the next morning. The temperature rose gradually from 99.6° to 101.6°, and was 104.2° in the morning and 104.6° in the evening of the second day, the bacteriemia having increased by evening to 47,664. The morning of the third day the pneumococci had increased to 135,680, the temperature continuing elevated, 104.2°, and in the evening 104.6°. This

continuously high temperature of the third day was accompanied by a decrease of the pneumococci from 135,680 in the morning to 7,473 by the evening of the third day. Temperature and bacteriemia of the fourth day, a Sunday, were not recorded. The fifth day the animal was weak and exhausted. The temperature had fallen to 98.4° in the morning and 97° in the evening, and the bacteria had increased from 7,473 to 22,843 and the colonies of the blood culture in the evening of the fifth day were too numerous to count. The rabbit died over night.

In rabbit 25, the number of bacteria in the blood two hours after inoculation was 200, and six hours after inoculation, 120, increasing over night to 2,120. The temperature rose at the same time from 102.2° to 103.6°. The second day the temperature reached 104.6°, and the bacteriemia fell in eight hours from 2,120 to 370. The temperature continued elevated the third day, rising to 105° and then fell sharply 2° in three hours without change in the bacteriemia. Counts of 370 and 310 per 1 c.c. of circulating blood were obtained during the day. There were no observations on the fourth day, a Sunday. The morning of the fifth day the animal was very weak, exhausted and dying. The temperature fell to 101.2° and a blood culture taken immediately before death showed an enormous increase of bacteria, the plates were too crowded to count.

In the group of prolonged infections 8 rabbits recovered from the pneumococcus bacteriemia.

Rabbit 1 was inoculated intravenously with 3 c.c. of a twenty-four-hour broth culture of pneumococcus W., containing 70,000,000 of pneumococci in 1 c.c. The cultures made one-half, one and two hours after inoculation contained innumerable pneumococci. The temperature increased slowly but continuously from 99.8° in the morning to 104.8° in the late afternoon. In the fourth culture, taken in the afternoon, 10,800 pneumococci per 1 c.c. of blood were found. Over night the bacteriemia increased to 36,199. The temperature continued elevated the second day, 104.4°, 103.6° and 105.6°. The bacteria decreased from 36,199 in the morning to 24,751 in the evening. The animal was very sick. No observations were made on the third day, a Sunday. The fourth day the temperature was 103.6° in the morning and the pneumococci only 365 per 1 c.c. of blood. They decreased to 70 in the evening and the temperature fell to 101.8°. The morning of the fifth day there was a brief rise of the temperature to 104.6° followed immediately by a fall to 100° F. The bacteriemia decreased to 25 per 1 c.c. of blood and the afternoon culture was sterile. The sixth and following days the temperature was normal and the blood cultures sterile. Although records are lacking the third day, it is evident that this animal recovered by crisis.

The nineteenth rabbit, a male, weighing 1,238 g., also recovered. It was inoculated withit 1/100 c.c. of a twenty-four-hour rabbit serum broth culture of a pneumococcus having passed through rabbit 13.

First period: The number of pneumococci in 1 c.c. of circulating blood two and one-half hours after inoculation was 20 and six hours after inoculation 80. The temperature rose from 98.6° to 104° within the first six hours. Second period: Next morning the temperature fell to 102° and then rose to 103°. The bacteria increased to 110 and then to 170 per 1 c.c. of blood. In the morning of the third day the temperature was 102.5° and a sterile blood culture was obtained but pneumococci were still present as the following positive blood cultures proved. In the evening of the third day there was an increase of pneumococci to 100 per 1 c.c. of blood and a rise of temperature to 104.8°. The morning following this high evening temperature of the third day 40 pneumococci per 1 c.c. of blood were found. The temperature fell to 102° then rose to 105° and fell again to 103°. These fluctuations in tempeature were followed by a further decrease of bacteria to 4 per 1 c.c. The fifth day the temperature was normal. The morning blood culture was sterile, but 15 pneumococci per 1 c.c. of blood were found in the evening blood culture. Third period: From the sixth to the thirteenth day after inoculation the temperature was normal, fluctuating from 100.6° to 102.4°. A few pneumococci were found in the blood up to the thirteenth day after the inoculation, although the animal was apparently well. This infection is therefore an example of a latent microbism or harmless parasitism.

This rabbit belonged to a set of rabbits which were all similarly inoculated; the others died early. The effect of the inoculation differed with each animal and more markedly than in any of the other sets of animals studied. For comparison the results of the first six hours of observation are here tabulated:

Number of Rabbit	Weight in Grams	Temperature Before Inoculation	Two Hours After Inoculation		Six Hours After Inoculation	
			Temperature	Number of Pneumococci per 1 c.c. Circulating Blood	Temperature	Number of Pneumococci per 1 c.c. Circulating Blood
16	1283	100.2°	100.6°	63	103.°	35,404
17	1230	98.8	99.6	7291	103	Too many to count
18	1465	100	99.8	636	103.2	91,584
19	1238	98.6	100.4	20	104	80
21	1220	100.6	100.8	6042	103.8	Too many to count

The marked variation in the bacterial counts of the bacteriemia after inoculation of these animals is an indication of the different degrees of resistance in the rabbits, which does not depend on the size or appearance of the animal.

Since in moderately virulent and prolonged infections many of the inoculated bacteria are immediately destroyed by the blood and other tissues, and since this destruction varies greatly with the resistance of the different animals, it is impossible to determine the number of pneumococci inoculated in a suspension by means of blood cultures taken after inoculation.

In the course of these prolonged infections three periods were recognized. First, an initial period of injury and disturbed balance immediately after inoculation. This was characterized by a decrease* in the number of bacteria in the blood within the first six hours after inoculation, and by a rise of temperature in all these rabbits. The initial decrease in the number of bacteria in these prolonged infections might be attributed to the bacteriolytic action of the blood, or to other activities of the protective mechanism in these rabbits, or to lack of virulence in the pneumococcus; but there is no evidence that the rise of temperature following the inoculation was an important factor. The initial decrease in bacteremia preceded the rise of temperature. Second, there was a variable period of two to six days during which the factors of resistance of the animal and the bacterial virulence were more evenly balanced, and both temperature and bacteriemia fluctuated. The elevation in body temperature was sustained and ranged in general from 103° to 106°. In a few instances it fell to normal in its fluctuation. The ba cteriemia in all the rabbits of this group after the initial decrease increased. This increase was followed by a second marked decrease, and then by a second increase, which continued until death in eight of the nine fatal cases. In one fatal case, 23, the bacteriemia decreased ante-mortem. In the cases which recovered the second rise in the bacteriemia was followed by a fall and recovery. The pneumococci persisted seven days in one instance, but in the seven other animals disappeared in 24 hours.† The increase after the initial decrease of pneumococci may be attributed to the fact that the pneumococci surviving the initial destruction by the tissues become adapted to the new conditions, and multiply in some animals more rapidly than in others. Their toxic products acting on the tissues of the rabbit cause a rise in temperature and the

*In seven rabbits this decrease was marked. In four the number of bacteria in the culture inoculated was not determined.

†Wolf and Wadsworth have also noted instances of this harmless parasitism of the pneumococcus following recovery from pneumococcus infection.

formation of antibodies, a certain degree of immunity. The second decrease in the number of pneumococci might be more reasonably attributed to the action of this immunity than to an elevated temperature which of itself seemed to have little or no influence on the multiplication of the pneumococci. From the data of these experiments no definite relationship could be established between the rise of temperature and the fluctuations in the bacteriemia during this period.

Finally there was the period of disturbed balance, ending in death or in recovery of the animals. During the prostration, in 8 of the 9 fatal cases of this group of animals, the bacteriemia increased enormously, and the temperature fell abruptly. The resistance of these animals was exhausted, and the tissues were no longer able to react. The relationship of the increase in bacteriemia and the fall in temperature was a similar and constant one in all the animals. In one rabbit (23) after a more prolonged infection, conditions were reversed; the bacteriemia decreased markedly ante-mortem, and the body temperature of the animal increased 3° from subnormal to normal, which was sustained until death. As pointed out above, this was evidently due to the immunity acquired during the long course of infection, which was sufficient to inhibit the development of the bacteriemia. Although apparently an exception, rabbit 23 is after all only an additional example to the fact that the temperature in itself is of secondary importance, inhibiting the multiplication of the bacteria in the animal body when there is considerable resistance or immunity present in the tissues.

Summary.—From my experiments it is evident that the course of pneumococcus infections varies greatly even in the rabbit, although equal doses of the same organism are used. The rabbit's tissues, therefore, have some anti-bacterial properties. Large doses of the pneumococcus cultures or the more virulent pneumococci neutralized these anti-bacterial substances in the body tissues of the rabbit, and the bacteriemia progressed immediately to fatal issue. The temperature may rise, or it may fall, but this apparently had no effect on the bacteriemia in these animals. Moderate doses or less virulent pneumococci give rise to a longer course of infection, with fluctuating bacteriemia and temperature. These prolonged infections are also often fatal, but occasionally recovery takes place. From the data of my experiments with virulent and with prolonged infections there was no very definite evidence of a retarding influencce of an elevated temperature upon the growth of pneumococci in the rabbit. A temperature of 105° to 106°, which retards or arrests pneumococcus growth in the test tube and which may also inhibit growth in the rabbit's tissues, does not necessarily diminish the bacteriemia

In conclusion I wish to acknowledge my indebtedness to Dr. Augustus Wadsworth for his advice and help in preparing this paper.

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A NEW METHOD FOR DETECTING OCCULT BLOOD IN GASTRIC CASES.*

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THE diagnosis of gastric carcinoma or gastric ulcer, to be of any value, must necessarily be made early. Clinicians of experience are aware of the difficulty of attaining this end. Without bringing to bear all

*Gastroenterological investigations in the Department of General Medicine.

means at our disposal, early cases, that might otherwise receive the benefits of appropriate medical or surgical treatment, are sacrificed or allowed to advance perilously near the danger point. The present report will not deal with the various methods of diagnosis, but will be confined to one test, that in the writer's hands has recently yielded results that are at least interesting.

There are several tests for occult blood which are used in routine practice. The following are the best known and are perhaps the most reliable: The benzidin test, as modified by Schlesinger and Holtz, the aloin and the guaiac tests. The modified benzidin test above mentioned, has recently attained considerable vogue. To be of value such a test should be sensitive, as beginning ulcers or new growths rarely breed to any large extent. On the other hand, by reacting to the small amounts of blood that have been swallowed from the nasopharynx, spongy gums, or that which is incident to the passage of the stomach tube, the sensitive test defeats its own ends.

At the Cornell University Medical College Clinic, where the writer sees most of the stomach cases and is personally responsible for the gastric analyses, the technique employed in securing the gastric contents is most carefully arranged in order to exclude so far as possible these sources of error. Very soft tubes of the Delafield type are used; no aspirating or pumping is employed and patients are cautioned not to strain unduly in expressing; considerable time being allowed for syphonage. No effort is made to secure a large return; only sufficient contents are withdrawn to make the ordinary acid calculations and the microscopical examinations. The total residue is estimated from the acidity of a measured washing, according to the Mathieu-Rémond method. Notwithstanding these precautions, occult blood was found in 27 out of 128 analyses. While all these were straight stomach cases, having been referred after other diseases were excluded, this figure is ridiculously high and well illustrates the fact that such tests are worthless except in a negative way, and there is but little comfort even in this conclusion, for one is not infrequently disappointed in not finding blood where the clinical findings and subsequent behavior of a case would lead one to expect a positive reaction.

That he might obviate these objections to the blood tests at our disposal the writer has evolved a technique that so far as it has been used has proved sufficiently sensitive to ulcerative conditions within the stomach, at the same time eliminating all sources of blood outside that organ.

The patient is directed to present himself in a fasting condition. His throat is sprayed with a bland neutral oil. Only those patients who have become used to the tube after one or two previous examinations are used for the test. A very soft closed-end Delafield No. 30 French tube is gently passed, the patient sitting on a low backless stool. The stomach is then subjected to a thorough lavage with tap water. This lavage is continued until the returned water is clear and free from particles of mucus or other material. As a rule considerable swallowed mucus is encountered in the fasting stomach. This in the writer's experience is the greatest source of error in the ordinary tests, as most of it originates in the nasopharynx and contains sufficient blood to give a positive reaction. The stomach being clean all of the water is syphoned off. Two hundred cubic centimers of a 1 per cent. solution of hydrogen peroxide are then introduced. The operator now stands at the patient's right side with his left arm about the patient's neck and holds the tube between the fingers of the left hand close to the patient's teeth to prevent it from being vomited or pulled out. With his right hand he holds aloft the funnel end of the tube. The patient is now directed to lean back until the body is in a horizontal position. This position is maintained for one or two minutes to allow the peroxide solution to thoroughly bathe all parts of the stomach. It must be remembered that most ulcers and new growths are situated near the pylorus or on the lesser curvature. The solution is carefully syphoned off and tested in the following manner:

The entire specimen is placed in a narrow graduate and allowed to stand for several minutes. This is to give the gas bubbles time to rise to the top, carrying with them the disintegrated pus or mucus with the blood that the solution may have collected from a possible ulcerating surface. The top 50 c.c. are then drawn off and placed in a small Erlenmeyer flask and well shaken. To this are added 20 drops of a solution of benzidin, freshly made by dropping 1 decigramme of benzidin in 3 c.c. of glacial acetic acid. A green color appearing within one minute indicates a positive reaction.

In 20 analyses the following results have been obtained: Nine analyses in cases that had, by other methods, shown occult blood where the clinical findings indicated neuroses or mild disturbances of digestion, were negative.

Six normal individuals were negative.

One apparently normal individual was positive. (This patient had never had a tube passed before and it was not possible to clean out the stomach as thoroughly as it might have been.)

One patient whose case had been diagnosed repeatedly as gastric ulcer, but in whom an impacted gallstone was subsequently found on operation, was negative. (The test was given to this patient on two occasions so sure was the writer that he was dealing with an ulcer.)

Two cases diagnosed clinically as ulcer were positive. (Both of these cases gave straight ulcer histories with the characteristic pain one-half hour and two hours after eating and on examination the localized tenderness of ulcer was found in each.)

One case of alcoholic gastritis, with a history of recent vomiting of blood, was positive.

The writer, realizing that reliable deductions cannot be drawn from a series of such limited proportions, is offering the above merely as a preliminary report to be followed later by a more comprehensive paper, should the results of investigations on a larger series warrant it.

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A METHOD OF PREPARING NERVE TISSUES FOR MICROPHOTOGRAPHY.

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The difficulty of obtaining a stain for nervous tissue which will not only give a complete picture of the section to be examined, but will also afford a clear-cut definition of the individual cells, suitable

(From the Pathological Laboratories of the Royal Victoria Hospital, Montreal, under the direction of O. C. Gruner, M.D.)

for microphotographic reproduction, has led me to formulate the technique described below.

The ordinary silver impregnation methods are not applicable to morbid tissues by reason of their faculty for picking out only occasional cells in great detail. In my hands at least, that of Levaditi, and the commonly used iron and alum hematoxylin methods do not give a sufficiently clear picture of the entire field. This is doubtless due to the well-known slowness with which both staining and differentiating processes take place in nervous tissues, the result being a too diffuse impregnation of the tissue-elements.

The method with which I first attempted to overcome the difficulties named was suggested to me by Dr. Gruner, who received it as a tradition years ago. The originator of the process appears to be unknown.

It is as follows: By adding a saturated alcoholic solution of hematoxylin (at the moment of staining) to a two per cent. solution of iron-alum in distilled water, in the proportion of one drop of the hematoxylin solution to each cubic centimeter of the iron-alum, a lake is formed. The slide is covered with this lake, which is allowed to stain for from thirty seconds to three or five minutes at room temperature. The slide is then washed in running water. A few drops of one per cent. acid alcohol are run quickly over the slide and washed off, followed by the Van Gieson stain, which is also washed off almost immediately. Clear and mount. (The Van Gieson is used solely to sharpen the picture and darken the iron, as a counterstain is unnecessary.)

While this method was a great improvement on any others yet tried, it also gave too great diffusion when applied to nervous tissue, and while this could be avoided to a great extent by lengthening the period of staining and differentiation, absolute clearness was not obtained. After several modifications of the above method had been tried, the following was found to give the desired result (use paraffin sections, five to six microns in thickness, the tissue having been fixed in fifty per cent. formalin):

1. Reagents: (*a*) Saturated alcoholic solution of hematoxylin. (*b*) Five per cent. aqueous solution of iron-alum. Make a lake as before, one drop of (*a*) to each c.c. of (*b*).

2. Stain for ten minutes at room temperature.

3. Wash.

4. Aqueous solution of lithium carbonate, until section becomes an intense blue black. (This makes possible the extreme differentiation of the next step and does away with the necessity of using the Van Gieson, which naturally cannot be applied for any length of time without the appearance of a certain amount of undesired contrast-stain.)

5. Instantaneous immersion in ten per cent. acid alcohol.

6. Wash, clear, and mount.

The above applies to sections of five or six microns; thicker sections require a longer differentiation in the acid alcohol.

Result: All structures show up sharply, with photographic clearness, against a white background. The nuclear chromatin of nerve and infiltrating cells, and the nuclei of blood-vessels, etc., have an intense deep blue-black color; cell bodies, granules, and the commencement of axones are steel gray.

While claiming no originality for the above method, I wish to submit this modification of it as having the following advantages:

1. Simplicity and constancy of results.

2. Flexibility. It may be used with any of the usual fixatives, and may be adapted to sections of varying thickness by simply increasing the time of differentiation. Also it ought very easily to be applied to general tissues, though here it is doubtful if it would be any improvement on the usual methods other than in its speed and simplicity.

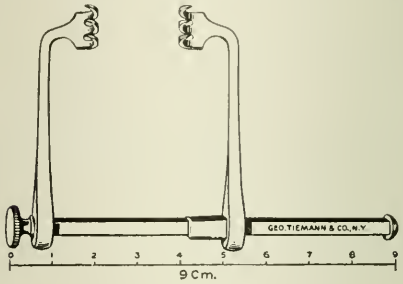
3. For microphotographic purposes and as a general stain for nervous tissues, it shows up all structures in the section, blood-vessels, meninges, and infiltrating cells, as well as the nervous tissue proper, more clearly and completely than any other process with which I am familiar.

SMALL SELF-RETAINING RETRACTOR FOR SUPERFICIAL DISSECTIONS.

By KENNETH BULKLEY, M.D.,

NEW YORK.

In performing office operations of various kinds in which good retraction of the superficial soft parts is helpful, I have had some difficulty in finding a mechanical assistant which fulfilled all requirements. The numerous small retractors of the spring type proved unsatisfactory because of the impossibility of varying the pressure of the spring. Those in which the spread is obtained by means of a thumb screw which on tightening causes the limbs of the instrument to describe the arc of a circle fail to give right-angled lateral pressure. The various instruments which require the operator to use the little finger in a ring to maintain traction have the obvious drawback of not allowing him the free use of either hand.



The accompanying cut illustrates a simple retractor for which I claim no originality but much usefulness. In principle it follows the Gosset instrument which depends on friction-leverage for the maintenance of traction. The arm distal to the thumb screw moves on the horizontal bar, while the proximal limb remains fixed. By removing the screw all parts can be detached for cleaning. The limbs at maximum separation give an operative field 5.4 cm. in breadth. The instrument weighs but ¾ of an ounce and will be found of great help in the absence of an assistant in such procedures as the removal of subcutaneous dermoids, lipomata, and foreign bodies in the hand in excision of isolated tuberculous lymph nodes in the neck, and in the bloodless opening of infections of the tendon sheaths and fascial spaces of the hand where direct vision is essential. The instrument can be readily manipulated by lateral pressure at the base of the distal arm. Its light weight minimizes the tendency to pull out of the wound, and its small size keeps it out of the way of the operator.

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New York, October 11, 1913.

Y-BACILLUS DYSENTERY IN INFANTS AND YOUNG CHILDREN.

It is ten years since Hiss and Russel differentiated a type of dysentery bacillus, the so-called Y-bacillus, which is distinct from the Shiga-Kruse organism on the one hand and the Flexner bacillus on the other. Little attention has been paid to the Y-bacillus, probably because of the close relationship to the Flexner group. The Y-bacillus is a non-motile, Gram-negative rod, presenting certain characteristic cultural aspects, and resembling the Flexner bacillus in fermenting mannite, but differing from this organism in not fermenting maltose and saccharose. The study of the pathogenic rôle of the Y-bacillus has recently received considerable attention, particularly in relation to two distinct epidemics of dysentery occurring among children in Düsseldorf and Berlin. Both of these epidemics are described in the *Festschrift* dedicated to Adolf Baginsky, and constituting the sixtieth and sixty-first volumes of the *Archiv für Kinderheilkunde*. An elaborate study of the Düsseldorf cases was made by Bauer, Ellenbeck, and Fromme. The Berlin epidemic is described by Erich Siegel.

The occurrence of true dysentery in infancy is exceedingly rare. The diagnosis is generally based upon the presence of bloody and mucous stools, tenesmus, abdominal pain, and rapid prostration. Nevertheless the microscope has shown that bacillary dysentery may exist without the presence of the above severe symptoms. The difficulty in diagnosis is further increased by the close resemblance to bacillary dysentery which may be perceived in certain cases of follicular enteritis, typhoid fever, colicolitis, gastroenteritis, and dietetic disturbances of the intestinal tract.

The Düsseldorf epidemic of twenty-nine cases broke out in October, 1912, in the Evangelical Retreat and Hospital of that city, although it had been preceded by two obstinate cases of dysentery that had been observed during July and August in the same institution. Evidently these two cases provided the source of infection, for in two separate wards in which these children had been treated the affection suddenly and almost simultaneously appeared in a large number of other children. The source of the infection could not be discovered, although it was found that two-thirds of the nursing and other adult personnel of the hospital, while perfectly well, nevertheless yielded a serum that agglutinated the Y-bacillus. Noteworthy is the fact that the dysentery was of benign type, all of the children making an uneventful recovery, although in a few instances relapses occurred. Toward the end of the epidemic a number of adults, who gave a positive serum reaction, complained of abdominal pain, dizziness, and headache. They were mostly constipated, and only one of them, a nurse, developed the characteristic dysentery. Of 11 breast-fed infants in the institution at the time of the epidemic, none was affected. All of the 29 cases occurred in artificially fed infants less than two years of age. Only 7 of the cases were serologically negative. Some of the cases that gave a positive reaction presented no evidence of dysentery, indeed, appeared well and continued to gain in weight. Dysenteric stools were present in 11 of the cases. Four others showed a tendency to dyspeptic disturbances. Four of the patients had normal stools, though with an occasional admixture of mucus. The pronounced and characteristic cases of Y-dysentery began with mucous stools, which were followed by mucopurulent, and then by bloody stools. Marked restlessness was observed in all of the cases. Miliary nodules appeared in the skin in some of the patients, and in two of them there was a profuse morbilliform rash. A marked gain in weight preceded the onset of the symptoms in several of the cases. Most of the patients had no fever. The duration of the disease was from a few days to one or two weeks. No complications were observed.

Of considerable interest were the results of the bacteriological examination of the stools in these cases. In contrast to the constancy with which the specific microorganisms are obtained in the bacillary dysentery of adults, the Y-bacillus was isolated in only 7 out of 17 cases of frank clinical Y-dysentery in children. Thirty-six other children in the hospital were examined with reference to the presence of the Y-bacillus in the stools, and in two instances these microorganisms were detected, although the children were free from any clinical symptoms apart from a transient dyspepsia. Serological studies showed that a positive reaction is not present in all cases. A negative reaction is more apt to occur in children under six months of age, and occurs in about 7 per cent. of all cases in older children and in adults. The practical utility of the serological reaction is perceived in the fact that this enables one to determine whether the infection is caused by the Shiga-Kruse organism or by an organism of the Y and Flexner group.

The Berlin epidemic which is described by Siegel concerned a series of 9 cases that were admitted to the municipal Kaiser und Kaiserin Friedrich Children's Hospital during the summer and fall of 1912. In 8 of these cases the specific germ was isolated. In the remaining case the microorganism detected was the *Bacillus enteritidis* of Gaertner. In 8 of the cases bloody and mucous stools were present. The type of infection was a severe one, for half of the cases showing the Y-bacillus ended fatally. This epidemic furnished, therefore, a striking contrast to that which was observed in Düsseldorf almost at the same time.

One important point is emphasized by Siegel. Whereas Baginsky and Heubner question whether bacillary dysentery has pathologically anything in common with follicular enteritis, the microscopic examination of the intestinal mucosa in the fatal Berlin cases showed uniformly the same lesions as are present in the latter condition, namely, an hypertrophy of the solitary lymphoid follicles. Moreover, the clinical picture in both conditions is regarded as identical.

A NEW SIGN IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

The importance of the early diagnosis of pulmonary tuberculosis cannot be overemphasized. In this the physical examination of the patient takes precedence over laboratory methods particularly during the incipient stage of the disease, the time during which treatment offers the greatest hope of success. For this reason, whatever new clinical sign of early tuberculous involvement of the lungs is added to the few signs already available is to be welcomed and carefully investigated. For this new sign we are indebted to Professor Antonio Lombardi of Naples, who reports his observations in the *Giornale Internazionale delle Scienze Mediche*, August 31, 1913. The sign consists in the appearance of venous varicosities in the neighborhood of the spinous processes of the seventh cervical and of the first three thoracic vertebræ. These varicosities, which vary in length from one centimeter to one centimeter and a half and are of bluish color, are at times quite evident, and at other times are made visible by a gentle transverse stroking of the skin. They are observed most frequently in the neighborhood of the seventh cervical vertebra. They may be most minute; there may be only two or three of them, or there may be a large number of them. Occasionally in the region of the venous enlargements there may be a slight edema, and the patient may complain of tenderness in this region when it is pressed upon. This sign is especially to be observed in cases of pulmonary tuberculosis in which there is an infiltration of the apices, as revealed by supraclavicular and supraspinous dullness, diminished respiratory murmur, etc. It is present in from 88 to 90 per cent. of the cases, and has been denominated by Lombardi the "varicose zone of warning" (*zona varicosa d'allarme*).

Without going into the anatomical details which this observer points out in showing how an infiltration of the pulmonary apices leads to a venous engagement of the radicles in the above zone, it may suffice to state that these varicosities are of analogous origin to the enlarged veins that are irregularly distributed over the chest in cases of hypertrophy or congestion of the peribronchial glands, in asthma, in bronchitis, and in pulmonary emphysema, in which the left superior intercostal vein or its tributaries are pressed upon. In all of these cases, however, the venous enlargements are found chiefly in the lower part of the thorax, both in front and behind. Lombardi's sign appears most frequently in cases of disease of the right apex. Of particular value in diagnosis is the presence of this sign in children from five to ten years of age and in adolescents.

Oddities of Medical Nomenclature.

It is to be regretted that so little attention comparatively has been given by writers in the English language to the history of medicine, and especially to the life history and achievements of the great men in medical science. Little is known of some men who have blazed the way to the height to which medical science has attained. They have borne the heat and burden of the day and too often have been allowed to sink into oblivion. The deeds and lives of some of the pioneers of medicine provide an almost inexhaustible mine from which to dig rare jewels of facts and literature, a mine which is, comparatively speaking, untouched. The Royal Society of Medicine of England has taken a step in this direction by the establishment of a section of the history of medicine, and at the meetings of this section a fund of interesting and instructive information is tapped for the entertainment of the medical profession and of literary men in general. At a meeting of the section held early in the year, among other papers contributed was one by Mr. B. Glanvill Corney, dealing with some oddities in nomenclature. He said that in Rio de Janeiro during the epidemics of influenza, which occurred in 1777 and 1802-03, the disease was called "zamporinion" and "corcunda." He also referred to an epidemic of dengue which raged in Brazil in 1847 and was termed "polka" at Rio and "rabo aherto" at Bahia. The designation "zamporinion" was taken from the name of a Venetian singer who was popular at Rio at the time and had nothing to do with the Portuguese name for measles, sarampao, in Spanish sarampion. Corcunda meant hunchbacked and referred to the bent condition in which patients were left at the end of each paroxysm of cough, which was said to be of a very spasmodic character and closely to resemble whooping-cough. Dengue was termed "polka" after a distinguished court beauty at Rio, who was a native of Poland and was in great vogue at the time of the epidemic. The same epidemic received the name "rabo aherto" at Bahia because there chanced to be coincidently an unusual glut of the fish of that name. Corney likewise advanced the theory that an epidemic of cerebrospinal meningitis was coincident with the Bahia epidemic and that whooping cough played a part in the corcunda attack. He also alluded to the older folk names for influenza, "le tac," "the new delight," and the "jolly rant," which have in turn displaced each other and have themselves been replaced by "the flue." Although the paper on oddities in nomenclature is interesting rather than instructive, the establishment of a section of the history of medicine by the Royal Society furnishes an example to be followed. By such means concern in the doings and lives of the great men of science long dead is fostered and attention is directed to a branch of literature to which attention is surely due.

Treatment of Tetanus with Magnesium Sulphate.

The status of the treatment of severe tetanus appears to undergo rapid change from time to time. Some figures show that serotherapy possesses considerable efficacy; others show remarkable results.

from Baccelli's phenol therapy; still others show the promise of Meltzer's magnesium sulphate treatment. But many competent surgeons have reported total failure from all these methods, even when combined. We obtain the idea that locality and race must be reckoned with as well as the skill derived from long experience. It is claimed that among the Chinese recovery from tetanus is the rule, no treatment being employed. The remarkable results of Baccelli and his pupils cannot be duplicated outside of Italy. At a recent meeting of the Aertzlicher Verein of Wiesbaden (*Berliner klinische Wochenschrift*, August 25) Stadler asserted that the magnesium treatment when modified should be our chief reliance in the future. He would add to it Baccelli's phenol method, because of its remarkable showing, its rationale appearing to be that it suppresses the convulsions. Magnesium sulphate in solution injected into the spinal canal has the same tendency. Indeed so marked is the latter that if given in excess it may threaten the heart's action and respiration. The author found in the literature thirty-three cases treated with magnesium sulphate, with thirteen deaths. He himself has treated thus two severe cases and saved one. In discussion Weintraub considered along with the brilliant results on record the dangers of magnesium poisoning. He would not only inject calcium chloride in the muscles as an antidote, but also use camphor as a heart stimulant. Thus the magnesium and phenol treatment combined may come to supersede the older symptomatic resources (chloral, opium, and the specific treatment). The latter is still our prophylactic, but the profession does not seem to be aware that it is untrustworthy even in laboratory animals after tetanus is fully established.

News of the Week.

For Federal Medical Licenses.—Representative T. L. Reilly, of Connecticut, on September 27 introduced into the House of Representatives a bill providing for the issuance of Federal medical licenses which would permit those holding them to practise medicine in any State of the United States. The bill authorizes the President to appoint a United States Medical Licensing Board, to have headquarters at Washington, and to consist of two medical officers of the Army, two medical officers of the Navy, and two officers of the Public Health Service. The terms of the members of this board are placed at four years, and the salaries at $4,000 a year each. The bill provides that any person holding a State license would be permitted to apply to this Federal Board and upon payment of a small fee receive a Federal license, and that those persons who do not possess State licenses, upon application to the Federal Board and the presentation of a diploma granting the degree of M.D. from a recognized medical school and the fulfillment of the requirements of the American Medical Association, would receive a Federal license also, the fee in this case being ten dollars. Persons applying for these licenses must, according to the bill, be American citizens and of good moral character. The bill was referred by the House to the Committee on Military Affairs.

Georgia State Medical Board.—Governor Slaton, of Georgia, recently announced his appointments of medical examiners to constitute the State Medical Board under the recent act of the Legislature by which a single board was created on which the three schools of medicine are represented. The five regular physicians on the board were reappointed from the old. The appointments are as follows, all the terms beginning on October 1, 1913: For one year—Dr. J. W. Palmer, of Ailey, Ga., representing the regular school; Dr. C. M. Paine, of Atlanta, Ga., representing the homeopathic school. For two years—Dr. F. M. Ridley, of LaGrange, Ga., representing the regular school; Dr. A. F. White, of Flovilla, Ga., representing the eclectic school; Dr. R. E. Hinman, of Atlanta, Ga., representing the homeopathic school. For terms of three years—Dr. N. Peterson, of Tifton, Ga., representing the regular school; Dr. O. B. Walker, of Bowman, Ga., representing the eclectic school. For terms of four years—Dr. C. T. Nolan, of Marietta, Ga., and Dr. F. D. Patterson, of Cuthbert, Ga., representing the regular school; Dr. A. Fleming, of Waycross, Ga., representing the eclectic school. All terms to date from September 1.

Postgraduate Instruction in the Medical Sciences.—In recent years there has been a growing desire among the physicians and surgeons of New York City for opportunities to keep abreast of the advancing knowledge of the medical sciences, particularly as such information bears upon the problems of clinical medicine. To meet this demand, the directors of some of the leading laboratories in New York have cooperated to offer postgraduate courses in their respective subjects. The institutions cooperating are: The College of Physicians and Surgeons of Columbia University, The New York University and Bellevue Hospital Medical College, The Cornell University Medical College, The Research Laboratory of the New York City Department of Health. Instruction will be by means of lectures, demonstrations, and laboratory work according to the nature of the subject to be presented. For registration and for details regarding the various courses, applicants are requested to communicate with the directors of the respective laboratories. For information as to facilities for studies not specified in the circular, application may be made to Haven Emerson, M.D., 120 East 62d Street, New York.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1914, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College, Dr. Thomas R. Neilson, 19 South 22d Street, Philadelphia, U. S. A., on or before May 1, 1914. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The American College of Surgeons.—On November 13, 1913, will be held in Chicago the first formal meeting for the conferring of fellowships on the members of the American College of Surgeons. Sir Rickman Godlee, the President of the Royal College of Surgeons of England, will deliver the principal address and extend, officially, greetings to the new organization from the Councillors of the Royal College of Surgeons. President J. M. T. Finney will deliver the presidential charge and formally confer the fellowships on all members of the organization who have qualified. Honorary fellowships will be conferred on a small number of foreigners and Americans whom the Board of Regents have selected as worthy of such distinction.

Infant Mortality Low.—The last two weeks in September of this year showed a considerable decrease in the infant mortality in New York City, as compared with last year's figures, and the record so far for 1913 gives the number of deaths among babies under one year of age as 358 less than for the same period of 1912.

New Columbus Hospital.—Plans for the new building for Columbus Hospital, at 226 East 26th Street, New York, have been approved by the State Board of Charities and by the Building Department, and work on it will be begun within a short time. The building will be ten stories high, on a plot 84 x 72 feet, and in the shape of a T. The cost is estimated at $150,000.

Typhoid Fever Among Soldiers.—Ten members of the Newport, R. I., Artillery Company, including the commanding officer, are seriously ill with typhoid fever at the Newport Hospital. It is believed that the men contracted the disease while at Put-In Bay recently on the occasion of the Perry Centennial celebration. Some members of other Rhode Island organizations which were represented at the celebration are also ill with the disease.

Charitable Bequests.—By the will of the late Miss Anna Blanchard, of Philadelphia, the sum of $50,000 is bequeathed to the trustees of the University of Pennsylvania, the net income of which is to be used for the payment or increase of the salaries of professors in the college department, and the sum of $10,000 each to the Academy of the Natural Sciences and the Hospital of the Protestant Episcopal Church.

By the will of the late Reverend William Hutton, of Philadelphia, the sum of $500 is bequeathed to the Presbyterian Hospital and the sum of $2,000 to the Oncologic Hospital.

By the will of the late Sara H. Janvier, of Philadelphia, her entire estate, amounting to $2,600, is bequeathed to the Woman's Hospital of Pennsylvania.

College Vaccinated.—Every member of the faculty and student body of Swarthmore College, Pennsylvania, with the exception of the football squad, was vaccinated on October 4, after the discovery that two of the students at the college were ill with smallpox.

Medical Investigators Indicted.—Five professors in the University of Pennsylvania, Department of Medicine, Philadelphia, were indicted by the Grand Jury on October 3, on twelve bills charging that they did "wantonly and cruelly torture and maim dogs." The indicted men, who were held in six hundred dollars bail each for trial, are: Dr. Alfred N. Richards, professor of pharmacology; Dr. Allen J. Smith, professor of pathology; Dr. Richard Mills Pearce, Professor of research medicine; Dr. Alonzo Englebert Taylor, professor of physiological chemistry; and Dr. Joshua A. Sweet, assistant professor of research medicine. The attorney in charge of the prosecution on behalf of the Women's Society for the Prevention of Cruelty to Animals states that the society is not attacking vivisection, but that it intends if possible to prevent ill-treatment of animals after they have been operated on in medical laboratories. It is the contention of the prosecution that dogs used for vivisection are not properly cared for after the experiments, that they are fed on garbage, and are allowed to lie on cement floors. The trial is likely to excite much interest since upon its outcome will depend very largely the future of Philadelphia as a center of medical research.

Personals.—Dr. Oswald Wayne Smith, superintendent of the St. Louis City Hospital and vice-president of the American Hospital Association, has accepted an appointment as general manager of the Harper Hospital of Detroit, Mich.

Dr. George Whitfield Stephens, for some years assistant medical superintendent of the Arizona State Hospital for the Insane at Phoenix, has been appointed a medical inspector in the United States Army with the rank of first lieutenant and has been assigned to duty in the Philippines.

Dr. Charles W. Stiles of the United States Public Health Service spoke before the Mobile County Medical Society in Mobile, Ala., on September 20.

Dr. Victor V. Anderson of Boston has been appointed to act as psychologist in the probation department of the Boston Municipal Criminal Court. This is the first time that a psychologist has been officially attached to a court of justice. Dr. Anderson has for some years worked with Prof. Munsterberg.

The Late Dr. Van Santvoord.—At a meeting of the Board of Trustees of Bellevue and Allied Hospitals, held September 16, 1913, the following resolutions were adopted: *Whereas*, The Trustees have learned with profound regret of the death of Doctor Richard Van Santvoord, for many years a member of the visiting staff of Harlem Hospital, and *Whereas*, In his death they recognize the loss of one who gave always skilful and faithful service to the hospital and the patients entrusted to his care; be it therefore *Resolved*, That the Trustees spread upon their minutes a record of the esteem in which he was held by them, both as a physician and as a man, as well as a sense of the loss which will be sustained by the hospital from his absence; and be it further *Resolved*, That a copy of these resolutions be forwarded to his bereaved family.

Obituary Notes.—Dr. Edwin Candee Baldwin of Fort Wadsworth, N. Y., State bacteriologist at the Quarantine Station, Rosebank, since 1900, a graduate of the University of Rochester, and, in 1896, of the University and Bellevue Hospital Medical College, New York, and a member of the American Medical Association and the New York State and Richmond County Medical Societies, died at his home on October 3, aged 48 years.

Dr. Fred P. Gale of Plainfield, Vt., a graduate of the University of Vermont, College of Medicine, Burlington, in 1880, died at his home from heart disease on September 21, aged 60 years.

Dr. William Cecil Stafford of Youngstown, O., a graduate of the Detroit Medical College, Detroit, Mich., in 1872, died at his home after a long illness on September 14, aged 66 years.

Dr. James F. Berlet of Philadelphia, Pa., died on September 14 at the age of 62 years. He was graduated from Jefferson Medical College, Philadelphia, in 1877. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Dr. F. Frazer Thomas died at Philadelphia on September 21 as a result of cardiorenal disease at the age of 45 years. He was graduated from the Philadelphia College of Pharmacy in the class of 1890 and from Jefferson Medical College in the class of 1894.

Dr. William H. K. Davis of East Orange, N. J., a graduate of the New York University Medical College in 1886, and a member of the American Medical Association and the New Jersey State and Essex County Medical Societies, died suddenly in his office on September 24, aged 50 years.

Dr. Charles Albert Bemis of West Medway, Mass., a graduate of Jefferson Medical College, Philadelphia, in 1872, died of apoplexy on September 13, at the age of 70 years.

Dr. Arthur S. Koenig of Lewistown, Pa., died at Philadelphia on September 21 from septicemia at the age of 33 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1901 and subsequently served a term as resident physician in the Philadelphia General Hospital. After doing post-graduate work in Philadelphia and abroad he located at his home and became actively engaged in the practice of laryngology, rhinology, and otology. He was a member of the Mifflin County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. Thomas Wistar died of heart disease at Philadelphia on September 27 at the age of 77 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1863. He was for many years in charge of the Philadelphia Dispensary, an institution founded by his father, the late Dr. Caspar Wistar. He was for 39 years connected with the Provident Life and Trust Company as medical examiner and director. Also for several years he was connected with Wills Eye Hospital and with the Pennsylvania Hospital. He was a Director of the Wistar Institute of Anatomy of the University of Pennsylvania, an institution established by his brother, the late Dr. Isaac Wistar. He was one of the first in Philadelphia to respond to the appeal for medical aid made at the time of the Battle of Gettysburg.

Dr. Henry Thompson Peirce of New York, a graduate of the College of Physicians and Surgeons, New York, in 1870, and a member of the New York State and County Medical Societies, died at his home on September 27, aged 69 years.

Dr. Sally A. Harris of New York, a graduate of the New York Medical College and Hospital for Women in 1878, died at Scarsdale, N. Y., on September 30, aged 87 years.

Dr. Leonard Ballou Almy of Norwich, Conn., a graduate of the Bellevue Hospital Medical College, New York, in 1876, a member of the American Medical Association, the Connecticut State Medical Society, of which he was a former president, and the Medical Society of New London County, president of the Backus Hospital, Norwich, and during the Spanish-American War, physician in charge of the division hospitals at Camp Alger, Va., and at Camp Wyckoff, Montauk Point, N. Y., died at his home after several months' illness, on September 27, aged 62 years.

Dr. William H. Schenck of Flemington, N. J., a graduate of the New York University Medical College in 1848, died at his home on September 28, aged 87 years.

Dr. Charles Anderson of Santa Barbara, Cal., a retired major of the United States Army, a graduate of the Medical College of Ohio, Cincinnati, in 1874, and a member of the American Medical Association and the California State and Santa Barbara County Medical Societies, was fatally burned in a forest fire on September 17, and died soon after, aged 63 years.

Dr. Alexander M. Todd of Denver, Col., a graduate of the State University of Iowa, College of Medicine, formerly a surgeon in the United States Army, died on September 17, after a long illness.

Dr. John C. Neely of Bainbridge, Ga., a graduate of the Medical College of Augusta, Ga., in 1896, and a member of the Georgia State and Decatur County Medical Societies, died in a private sanatorium at Atlanta, on September 19, aged 43 years.

Dr. Olive Ophelia Nelson of Huntington, Ind., a graduate of the Hahnemann Medical College and Hospital, Chicago, in 1900, and a member of the Indiana State and Huntington County Medical Societies, died at her home, after a long illness, on September 25, aged 53 years.

Dr. Emmett Claude Chapman, physician in charge of the Atchison, Topeka, and Santa Fe Railway Hospital, Fort Madison, Ia., since 1894, a graduate of the College of Physicians and Surgeons, Keokuk, in 1878, and a member of the American Medical Association and the Iowa State and Lee County Medical Societies, died at his home, on September 22, aged 65 years.

Dr. Albert Harrison Moore of Ashland, Ky., a graduate of the Jefferson Medical College, Philadelphia, in 1896, a member of the American Medical Association and the Kentucky State and Boyd County Medical Societies, and mayor of Ashland, died suddenly at his home, on September 26, aged 42 years.

Dr. Edwin B. Harvey of Boston, Mass., a graduate of the Harvard Medical School in 1866, a member of the American Medical Association, the Massachusetts State and Suffolk County Medical Societies, and the American Academy of Medicine, for eighteen years secretary of the State Board of Registration in Medicine, president of the State Medical Society from 1898 to 1900, and a counsellor of the society for over thirty years, and formerly a member of the Massachusetts State Legislature, died at his home in Westboro, on September 28, aged 79 years.

Dr. Joseph W. Posthauser of Boston, Mass., a graduate of the New York University Medical College in 1902, died at Burlington, Vt., after a short illness, from septic pleurisy, on September 22, aged 40 years.

Dr. Edward Clefford Town of Narberth, Pa., died on September 29, of chronic nephritis, at the age of 63 years. He was graduated from Jefferson Medical College in the class of 1873. He was Chief Medical Examiner of the Relief Department of the Pennsylvania Railroad, with offices at Broad Street Station, Philadelphia. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a fellow of the American Medical Association.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

B. A. SECTIONS—CONJOINT DISCUSSION ON SYNTHESIS OF ORGANIC MATTER—UNIVERSITY HONORS—NOTES—SANITARY INSPECTORS—OBITUARY.

London, September 19, 1913.

As the proceedings of the British Association are supposed to comprise every department of science the sections are necessarily numerous, but only two or three can claim notice in a medical journal. In most of them the presidents delivered addresses; some on points interesting to experts only, others making a more general appeal or even touching social problems and advocating reforms. Sir R. Temple, in the section of anthropology, urged that a knowledge of the subject should be possessed by those entrusted with administration in all parts of the empire. In physiology, Dr. Hopkins appealed to teachers of chemistry to draw the attention of promising students to biochemistry, so as to increase the number of organic chemists devoting themselves to physiological problems, for although a biochemical society has been lately formed, it is rare to meet a professed biologist sufficiently equipped in organic chemistry to fully understand and discuss the processes of metabolism. In this section a report of the Committee on Anesthetics was presented by Dr. Waller, showing that day after day preventable deaths took place under the administration of these agents by unqualified persons, and proposing a resolution appealing to the council of the association to again represent to the Home Office and the Privy Council the urgent need of legislation to put an end to this abuse. At the Sheffield meeting of the association a resolution was passed to the same effect, and has been since duly pressed on the government. This was two years ago, but nothing has been done, the Cabinet finding no time for the protection of the lives of the people amid its more congenial employment of setting class against class and promoting discontent. Sir F. Hewitt drew attention to three inquests held in the first five months of this year as the result of deaths through the injection of cocaine by unqualified persons and mentioned the many attempts to get legislation by the General Medical Council and other professional bodies, as well as their own association. The government and the public, he said, would not permit porters and cloakroom attendants to drive express trains or work the signals, but were indifferent to the danger of anesthetics being given by unqualified persons. A long discussion followed—if we may so call it, when the speakers taking part in it are practically unanimous. The Dental Association was well represented among the speakers, one of whom mentioned that unqualified dentists numbered 20,000, while the duly qualified were only 5,000. Of course, it is the poorer classes who fall into the hands of the unqualified.

In the section of chemistry, Professor W. P. Wynne appealed for reform in the education of those who followed the science. On two points he was very insistent: (1) Early specialization should be avoided as apt to be disastrous; (2) he would encourage post-graduate training in directions of the student's aptitude or predilection. If the universities would agree on a three years' residence subsequent to the intermediate for an honors degree in chemistry the first reform would be effected. Then for the M. Sc. an approved piece of research occupying not less than a year would be of great service. He who would convert donors and committees to the view that a better return for their endowments would be obtained by post-graduate benefits would do good service to science and the state.

In the section of zoology the president, Dr. H. F. Gadow, said the search for an answer to the question, Why? was the characteristic of our time. The mainspring of science was not utility, nor a desire to do good, but merely "blamed curiosity," the beginnings of which were traceable far back in the lower animals. Comparative anatomy had the casting vote on affinities among resemblances, but that was not all its work. It must reckon with functions—never without them. The animal refused to give up its secrets unless it was regarded as a living individual.

There was a joint meeting of three sections, physiology, zoology and botany, to hear a paper by Professor Benjamin Moore on the "Synthesis of Organic Matter by Inorganic Colloids in the Presence of Sunlight Considered in Relation to the Origin of Life." A good deal of expectation had been aroused as to this part of the program, and a full meeting gathered. Prof. Moore began by remarking that many biologists regarded the problem of life as insoluble and would have it left to psychologists. He had for some time looked at it as an experimental problem and wished to report a step had been taken showing continuity between the organic and inorganic. It was necessary to start far below bacteria which could not survive without nutriment, and so food must have been formed for them even if they had arrived from outside. Such food would have had to be formed by non-living material. He suggested that colloids, as complex chemical molecules became labile, taking up energy from other sources to build up more complex molecules. His experiments showed that colloid iron and colloid uranium, exposed to sunlight or mercury lamp light, led to the formation of formaldehyde, and this he spoke of as the first step from inorganic to organic. Matter, if it could get at energy, tended to take up more and more complex forms. The simplest form of matter was the electron from which came the atom—various atoms being fixed points in the inorganic series. The unstable colloid molecule became labile and took up energy, altering carbon dioxide and water into formaldehyde, the process continuing through greater and greater complexities until it reached the living cell—a new unit that exhibited vital phenomena.

Sir Oliver Lodge opened the discussion and said the synthesis of organic material was not new, it was known in his youth, and now nearly all organic compounds could be synthetized. By supplying energy to a sufficiently unstable molecule you had potentially living matter. But potentially living material was not life—even if life entered into it. If such an experiment could be carried out in a laboratory it would not be the discovery of the origin of life. To speak of it as such was unscientific. It would only be the construction of a physical and chemical vehicle which life could make use of.

Professor Armstrong said the dominant note of the paper was the blessed word "colloid," and like other blessed words "colloid" was used to observe and wrap up ignorance. He disagreed with Professor Moore's statement that a bacterium coming to earth could find no food. He once thought so but

took the opportunity of retracting; instancing the growth of yeast cells, with tartaric acid, sugar, and inorganic material. Formaldehyde in the presence of lime gave sugar, a much simpler way of providing food than Professor Moore's. Vital actions were directed actions as much as a dressmaker's were in building up a dress. Every new growth was formed on an old pattern. We had to account for enzymes and it was no use to bring in colloids at the initial stage.

Dr. Hopkins admitted "colloids" might be one factor, but there was a bad tendency to use them to explain every difficulty. Dr. Leonard Hill agreed with Sir Oliver Lodge, so did Professor Hartog, who mentioned the effect of polarized light on sea water.

The University of Birmingham conferred the honorary degree of LL.D. on five distinguished foreign scientists in commemoration of the visit of the British Association to the city. The recipients were Dr. S. A. Arrhenius, Madame Curie, Dr. Kiebel, Professor Lorentz, and Professor Wood of Baltimore.

The next year's meeting of the British Association is to be held in Australia and Professor Bateson has been elected president. The following year the meeting is to be in Manchester and for 1916 an invitation from Newcastle has been accepted.

On Sunday many sermons were based on the work of the British Association or some special discussion of science in relation to theology. In the cathedral the service was attended by the Lord Mayor in civic state and Sir Oliver Lodge read the lessons, the Bishop preaching the sermon.

During the conference of the sanitary inspectors, the longevity of man having been mentioned, the president, Sir J. Crichton-Browne, told his audience they ought to live 100 years and if they fell short of that they ought to be ashamed of themselves. It would be due to the ignoring of the laws of health by themselves or their progenitors. In another discussion, that on the milk problem, the president interposed in the same positive way with—"As to the milkmaid, why not abolish her and come to electrical milking?" He said he had seen the process in working order and one great advantage was that it was not a typhoid carrier—a most important point, for there were many carriers about that could not be recognized, for they might seem in good health. They must contend against a dangerous notion that had been suggested—that immunization from tuberculosis might result from contaminated milk in infancy.

Dr. Buszard, senior physician to the Northampton Infirmary, with which he was connected for above half a century, died on September 14, aged 74. He qualified in 1860 and afterwards took M.D. Lond. and the Fellowship of the two Royal Colleges. He for many years enjoyed the confidence of practitioners throughout an extensive area around Northampton and was constantly called in consultation. He was many years a magistrate and took an active part in civic and social work—a politician, too, the leader of the Unionists in the county, but respected by all parties as an upright gentleman as much as a learned physician.

Dr. E. J. Nix, physician to All Saints Children's Hospital and St. Elizabeth's Home for Incurables, died on September 11, after a short illness, at the age of 65. He was at one time on the Council of the Medical Society of London and had been President of the Brussels Medical Graduates' Association.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CESSATION OF THE PLAGUE—GONORRHEAL OPHTHALMIA—PERSONALS.

MANILA, P. I., August 18, 1913.

THE last case of human plague in the Philippine Islands occurred in the City of Manila on May 21, 1913, and the last plague-infected rat was found on June 24, 1913, so that it is now nearly three months since the last case of human plague occurred and two months since the last case of rat plague was detected. The rat catching campaign in the infected district is still being actively carried out; over 5,000 rats per month are being caught in the sections in which plague has heretofore occurred or in places where infection is likely to be found. Twelve sanitary inspectors and 120 laborers are engaged in the work. From the foregoing it would appear that the plague outbreak in the Philippines has been brought to a close and the infection stamped out.

Statements made by a number of hospital physicians indicate that there is reason to believe that there has been a considerable increase in the number of cases of gonorrheal ophthalmia in the City of Manila. This has been attributed to a number of different causes, among the most prominent of which are the rapid spread of public dance halls throughout the city and their increasing patronage by soldiers and by sailors from visiting warships. Recently an ordinance was enacted by the City of Manila which requires all women who dance in dance halls to be provided with a medical certificate issued by a physician of the Bureau of Health which shows that they have undergone a medical examination and have been pronounced to be free from tuberculosis or other dangerous communicable disease. These examinations were begun July 1 and a shocking condition of affairs was revealed. A large percentage of the women were found to be infected with gonorrhea, syphilis, or tuberculosis; and either from reasons of being unable to pass the medical examination or from disinclination to be examined at all, the direct result has been that all dance halls within the City of Manila have been closed because there are not a sufficient number of licensed females to conduct them. But even a greater evil has now come into existence by the opening of dance halls in the suburbs of Manila just over the city line. Steps have already been taken to urge all of the surrounding municipalities of Manila to take similar action, and this is now in a fair way of accomplishment. Cases of gonorrheal ophthalmia were found to prevail quite extensively among young children, and investigation of such cases shows that the infection was in all probability contracted either directly or indirectly from living in the same house with or coming in contact with girls from dance halls. In the campaign against the spread of gonorrheal ophthalmia the public press has been extensively used by the Bureau of Health as an educator. In addition, lantern slides of persons blind from gonorrheal ophthalmia were prepared and a brief description included explaining the manner in which the disease spreads and what measures are to be taken by those who contract it. These have been exhibited during the intermission periods in practically all of the cinematograph theaters in the city.

Colonel Guy Edie, U. S. M. C., who was the first president of the board of health organized by the United States Army in 1898, and who was re-

cently assigned to duty in the Philippines at Zamboanga, has now been transferred, as commanding officer, to the Division Hospital in Manila.

Dr. Louis Schapiro, Chief of the Bontoc Hospital Division of the Bureau of Health, has been suddenly called to his home in Milwaukee on account of illness in his family.

WARNING AGAINST AN APPARENT SWINDLER.

To the Editor of the Medical Record:

Sir:—There co nes to my notice a case of apparent misrepresentation which I deem it best to report to you and if you see fit to give warning to others through the columns of the Medical Record. On August 24 a man came into my office with a very complete line of samples of professional stationery. I gave him a small order which was to be delivered by parcel post by August 30. Inasmuch as it was a small amount and other doctors to whom he had sold had all paid him I did likewise. Needless to say the order has never been delivered; also on writing to the address he was supposed to represent my letter was returned to me marked "Cannot be found." Upon inquiry I find that several other doctors were in the same predicament. The man is of medium height, fairly well dressed, and speaks with a slight German accent. He takes great care in arranging the form of one's order and seems to be all he represents.

W. R. Grunewald, M.D.

Crescent, N. Y.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 25, 1913.

1. Needs of the Future in Hospital Administration. F. A. Washburn.
2. Atrophic Rhinitis with Ozena. Its Etiology and Surgical Treatment. F. P. Emerson.
3. Spinal Abscesses. J. K. Young.
4. Size of Hospitals for the Insane and Feeble-Minded. W. M. Smith.
5. The Classification of Nephritis from the Pathological Point of View. F. B. Mallory.
6. The Significance of Urinary Acidity in Nephritis. W. W. Palmer.
7. Clinical Functional Tests. Methods. E. L. Young, Jr.
8. Nitrogenous Waste Products in the Blood in Nephritis. O. Folin and W. Denis.
9. General Summary of the Significance of Methods of Testing Renal Function. H. A. Christian.

1. **Hospital Administration.**—F. A. Washburn believes that the professional departments of a large modern hospital should each have a single head with an uninterrupted service. Each chief should devote at least a half of each day to his hospital work; his private practice should be secondary. Such men can be obtained only by paying them adequate salaries. The superintendent of the modern hospital should keep in touch with the problems and progress of medicine. There is a tendency in some of the smaller hospitals for members of the staff to attempt surgery for which they have had no adequate training. Too many small hospitals are started without adequate provision for their support.

2. **Atrophic Rhinitis with Ozena.**—F. P. Emerson states that clinically the course of events is as follows: A septal deviation causes a compensatory hypertrophy of the middle turbinal. This is followed by a chronic catarrhal ethmoiditis which interferes with drainage to such an extent that a subsequent active infection results in a sinusitis. The fetor and crusting are probably due to the direct action of a specific pus-producing organism on the tissues, without any preceding true atrophic process. The difficulty in establishing free drainage, where there is an abnormal anatomical development of the bony cells, makes the cure of certain cases of ozena impossible with any intranasal procedure. Whatever aid bacteriology may give us in curing this disease must follow the free drainage of all foci of infection.

3. **Spinal Abscesses.**—J. K. Young notes that psoas abscesses may present themselves at three different periods for the surgeon's consideration, namely, early, intermediate and late. The intermediate period marks the time of surgical inactivity. There is no general rule, however, that can be applied to the abscesses in different regions of the spine. In the cervical region they should be incised early in order to avoid burrowing beneath the deep cervical fascia into the thorax. In the dorsal and lumbar region especially where they are external they should, as a rule, be incised early because of the great pain. In the lumbar region where the abscess has formed a sausage-shaped mass in the iliac region, a delay is sometimes of an advantage as it permits the abscess to elevate the fascia, pushing the peritoneum out of the way and thus avoiding injury to it, and advancing forward toward the inner side of the anterior spine of the ilium, thus avoiding a deep dissection in a region which later might become rapidly infected.

5. **The Classification of Nephritis.**—F. B. Mallory points out that in order to understand the lesions of the kidney it is necessary to separate it into its units and study the effect of injurious agents on each part of the unit. The toxic lesions of the kidney are best classified on an anatomical basis, *i.e.*, according to the part of the renal unit most affected. This classification gives four groups which form the type lesions; they are as follows: tubular nephritis; capsular glomerulonephritis; intracapillary glomerulonephritis; vascular nephritis (arteriosclerosis). Each one of these varieties may occur practically in pure form, but the first three may be, and often are, combined in varying proportions. Whether the first three can be recognized clinically as three distinct types is doubtful. While usually acute, they also occur in subacute and chronic form; vascular nephritis is always chronic.

6. **Urinary Acidity in Nephritis.**—W. W. Palmer reaches the conclusion that mild states of acidosis not infrequently occur in nephritis, and other unsuspected cases, and that the therapeutic use of alkali (in such quantity as to reduce the urinary acidity to that of blood) is often desirable. He also believes that the deviation from the normal of the kidney function in acid excretion is important both in differential diagnosis and prognosis.

7. **The Phenolsulphonephthalein Test.**—E. L. Young discusses the practical value of this test. He finds that it is helpful in cardiorenal cases and serves to place the blame on the organ more at fault. In coma of doubtful origin it casts a strong vote for or against uremia. In acute nephritis it is of less value, as very often a very sick patient eliminates a considerable amount of the drug. In chronic nephritis, inasmuch as a fairly low output is not incomptaible with a considerable length of life if the kidneys can be kept in a state of compensation, some additional fact must be found, which, coupled with this test, will give a more accurate prognosis as regards time. The phenosulphonephthalein test comes nearest to fulfilling all the requirements of a clinically valuable functional test in that it is easy to use, is harmless to the patient, and gives accurate and consistent knowledge of the actual working ability of the kidney, a fact that the practitioner wants more than the knowledge of whether the glomeruli or tubules of the kidneys are affected. In surgery it already has a recognized place.

8. **Nitrogenous Waste Products in the Blood in Nephritis.**—O. Folin and W. Denis conclude on the basis of their study of 50 cases that the accumulation of waste products in the blood varies between figures which are nearly normal to figures which are four or five times as

large as the normal. All the nephritic patients which the authors have examined on high and on low protein diets have shown that on the low nitrogen diets the accumulation of waste products sinks and can be brought down to the normal level. Analytical results have also revealed the fact that the retentions of urea and of uric acid do not go hand in hand. The urea retention is by no means always accompanied by an abnormal uric acid accumulation and considerable uric acid retention may occur without any considerable increase of the urea. These peculiar facts would seem to indicate that in some cases it is more important to exclude meat and other purin food than in others and that a low protein diet does not necessarily imply a meat-free diet. It looks as though by blood analysis it should be possible to determine with a very fair degree of certainty what kind of diet is suitable for each particular case of nephritis. It is already well recognized that the salt content of the food must be regulated in some kinds of nephritis and it seems to us equally clear that similar unequal abilities exist with reference to the nitrogenous products and that in such cases more definite knowledge can be obtained by means of blood analysis than in any other way.

New York Medical Journal.

September 27, 1913.

1. Public Education in Cancer. W. Meyer.
2. Pulmonary Syphilis. A. E. Roussel.
3. Eugenics and the Public Health. C. P. Wertenbaker.
4. Concerning the Etiology of Hypetrophic Pulmonary Osteoarthropathy. H. Brooks.
5. The Surgical Treatment of Monarticular Rheumatoid Arthritis of the Hip. A. M. Forbes.
6. Routine School Disinfection. J. T. A. Walker.
7. Epithelioma of the Lower Lip in a Woman, with the Report of a Case. F. Wise.
8. The Treatment of the Cachexia of Malnutrition. F. Smithies.
9. Prophylaxis of Insanity. H. C. Podall.
10. Obstetrical Experiences of a Country Doctor. C. L. Sigler.

2. Pulmonary Syphilis.—A. E. Roussel quotes from Fowler's summary on this subject as follows: Cough is one of the earliest and most prominent symptoms at first, being laryngeal, tracheal, or bronchial; later it is due to changes within the lung itself; dyspnea is most marked in the cases which have stenosis of the bronchi; it would seem that in these instances it would be of the inspiratory type; hemoptysis is not common but may occur; expectoration may he profuse, purulent, and offensive but free from tubercle bacilli; pain is not prominent; emaciation is not as extreme as in tuberculosis, but with advanced lesions there is not much difference; night sweats are present in some cases; pyrexia is present when there are extensive lesions; it may be considerable and of the hectic type. Diagnosis, look for lesions of the calvarium, sternum, and ribs. The prognosis is grave, but cases are on record of improvement and cure. Areas of pneumonia consolidation may be overlooked because of the absence of bronchial breathing in cases in which stricture of the bronchi exists; gummata and ulcers in most cases readily respond to antisyphilitic treatment. At the present day one may add to the diagnostic signs the Wassermann reaction, and if possible, the finding of *Treponema pallidum*.

4. Hypertrophic Pulmonary Osteoarthropathy.—H. Brooks believes that a quite sufficient explanation of the lesions of pulmonary osteoarthropathy, and their dependence on pulmonary functional limitation or on such mediastinal growths as impede pulmonary circulation, is furnished by the resultant passive hyperemia which these conditions produce in the distal portions of the body. The lesions are most marked and most likely to appear in those instances where the process begins in early youth, because all tissue hyperplasia is most easily excited during this period. They appear in lesser degree, or not at all, when, as in most cases of pulmonary tuberculosis, the pulmonary and circulatory impediment develops at a period of life when hyperplasia of the periosteum and areolar connective tissue is less readily excited.

8. Treatment of the Cachexia of Malnutrition.—F. Smithies refers to a group of individuals who clinically exhibit weakness, langour, pallor, with or without actual anemia, blotchy muddy skin, anorexia, and dyspepsia, often associated with vomiting and prolonged constipation. In these patients the deviation from the normal can be attributed to no actually demonstrable cause, even after the most careful clinical scrutiny. The cachexia in this type of case is often extreme and may progress to the death of the individual. It is usually ascribed vaguely to "autointoxication," due to constipation, without apparent regard to what may be the initial factor in the production of such constipation. The author reports the case of a female patient aged 26, whose height was 5 feet 1½ inches, and who, fully clothed, weighed 69½ pounds. She had previously had an appendicectomy performed elsewhere, with a second operation for the relief of adhesions, but without relief of constipation, sour dyspepsia, and cramp-like, general abdominal pains. During the year preceding her coming under observation, she had lost in weight more than thirty pounds, was extremely weak, and had gradually become bedridden. The following method of forced feeding was resorted to: A duodenal tube was passed upon the patient in the usual manner. Through it, twice daily, were injected in the early progress of the case 100 c.c. and later, increasing amounts up to 1,500 c.c. of a solution of artificially prepared endproducts of digestion, containing aromatic amino-acids and maltose. No ill effects were observed. The patient was permitted to eat the same sort of diet on which she had been previously subsisting. There were a steady gain in weight and strength, an increased mental activity, a clearing up of the blotchy skin, an improvement in hemoglobin, and an amelioration of the distress associated with constipation. At the end of three months the patient weighed 99½ pounds (a gain of thirty pounds), and was engaged, after nearly two years' idleness, in her trade of hair dressing. At the end of 4½ months she weighed 114½ pounds (a gain of forty-seven pounds) and was well physically. From the results of the author's work he feels warranted in suggesting this therapeutic procedure to others for the treatment of cachexia, where surgical relief is not available; where nonobstructing vomiting has become more or less pernicious; where stricture of the esophagus or cardia prevents ingestion of sufficient food to support life; where functional estimations show low pancreatic activity; where grave anemia exists, and in the asthenia following extensive surgical operations. Split peptonemaltose solutions are well borne in the stomach, and there may exist cases in which their ingestion through the stomach tubes may prove valuable.

Journal of the American Medical Association.

September 27, 1913.

1. Ozone: Its Bactericidal, Physiologic and Deodorizing Action. Special Article. E. O. Jordan and A. J. Carlson.
2. The Alleged Purification of Air by the Ozone Machine. W. A. Sawyer, H. L. Beckwith, and E. M. Skolfield.
3. Causes, Types, and Treatment of Diarrhea in Adult Life. R. C. Cabot and H. Emerson.
4. Report of a Case of Acute Nephritis in an Infant with Congenital Heart Disease. H. M. McClanahan.
5. The Nature of Ileocolitis from an Etiological Point of View. C. G. Grulee.
6. Isolation of the Typhoid Bacillus from Milk Which Caused a Typhoid Outbreak. W. R. Stokes and H. W. Stoner.
7. The Treatment of Diphtheria Carriers. H. Albert.
8. Diseases of Porto Rico. E. F. Otis.
9. The Effects of Colloidal Copper and the Therapeutic Criteria in Human Cancer. R. Weil.
10. Skin Rashes Following the Administration of Atophan. J. Phillips.
11. Nerve-Blocking as a Substitute for General Anesthesia in Surgical Operations. M. L. Harris.
12. Manganese Toxicosis. R. Von Jaksch.
13. Report of a Case of Monocular Paralysis of the Accommodation Due to Lues. J. W. Downey, Jr.
14. Three Ophthalmic Questions: Optometry, Conservation, Education. H. Woods.

15. Physiologic Optics the Basis for Teaching Clinical Ophthalmology. W. H. Lancaster.
16. Some Modern Viewpoints of Glaucoma. R. Sattler.
17. Experimental Study of Intraocular Pressure and Ocular Drainage. M. J. Shoenberg.
18. Hydrophthalmos, with a Histological Report of Two Cases, One of Which Presented a Congenital Coloboma. W. Zentmayer.
19. Trachoma: Its Prevalence and Control Among Immigrants. J. McMullen.
20. Trachoma Among the Indians. J. W. Scheresehewsky.
21. Trachoma Among the Natives of the Mountains of Eastern Kentucky. J. A. Stucky.
22. Temperature of the Conjunctiva. L. Howe.
23. Blepharochalasis. Report of Two Cases with the Microscopic Examination. W. B. Weidler.
24. Equivalent Values in Spectacle Lenses. W. E. Shahan.
25. Metastatic Ophthalmia. Report of Three Cases, One of Which Resulted in Recovery of Vision. W. H. Wilder.
26. Phlyctenular Ophthalmia and Episcleritis. A Study of the Bearing of the Newer Research on Their Etiology as the Basis of a Scientific Therapy. W. Walter.
27. Topical Diagnostic Value of the Hemionic Pupillary Reaction and the Wilbrand Hemianopic Prism Phenomenon. C. B. Walker.
28. Preventable Blindness: A Challenge to the Professions. H. C. Greene.
29. Apparent Esophoria and Its Relation to Convergence Insufficiency. H. B. Lemere.
30. Ocular Vertigo. A. Greenwood.
31. Is the Percentage of Myopic Eyes Diminishing? S. D. Risley.
32. Postcataract Extraction Delirium. Report of Eleven Cases. W. R. Parker.
33. The Surgical Treatment of a Certain Type of Penetrating Wounds of the Sclera, by Means of a Double Conjunctival Flap. L. M. Francis.
34. Primary Lues of the Bulbar Conjunctiva. C. N. Spratt.
35. Artificial Illumination, a Factor in Ocular Discomfort. N. M. Black and F. A. Vaughn.
36. Some Comparative Measurements of the Skull and Sella Turcica, with Report of Eight Cases. J. B. Potts.
37. The Dignity of Otolaryngology. R. Levy.
38. Conservative Surgery of the Nasal Septum. I. W. Voorhees.
39. Complications That May Arise During or After Operation for Correction of Septal Deviation. G. W. Mackenzie.
40. Etiology, Diagnosis, Prognosis and Treatment of Sphenopalatine Ganglion Neuralgia. G. Sluder.
41. Chronic Obstructive Middle-Ear Deafness. G. E. Shambaugh.
42. Temporosphenoidal Abscess with Meningeal Symptoms. Drainage Through the Cisterna Magna; Mastoid Operation; Recovery. F. P. Emerson.
43. The Hearing Following the Radical Ear Operation. My Improved Technique; Thiersch Graft vs. Tampon. C. F. Welty.
44. Differential Diagnosis and Treatment of Chronic Laryngitis. E. Mayer.
45. Diagnosis and Treatment of Syphilitic Laryngitis. J. C. Beck.
46. Diagnosis and Treatment of Laryngeal Tuberculosis. F. L. Dennis.
47. Diagnosis and Treatment of Paralysis of the Vocal Cords. E. Fletcher Ingals.
48. The Results of Tonsillectomy under Local Anesthesia. B. D. Sheedy.
49. Technique of Tonsillectomy. G. L. Richards.
50. The Relation of Ophthalmology to Diseases of the Nose and Its Accessory Sinuses. W. R. Parker.
51. The Measurement of Auditory Acuity. W. A. Wells.
52. Tonsillectomy by the Sluder Method. A. M. Corwin.

1. **Ozone.**—E. O. Jordan and A. J. Carlson conclude that the hygienic value of ozone in room ventilation is hardly worth considering. Human beings are injuriously affected by amounts of ozone far less than are needed to produce even a very slight bactericidal effect. As a deodorizer, ozone in practicable concentrations is a failure. It may mask some odors by its own intensive odor, but this can hardly be considered desirable. The human nose is a better guide for estimating defective ventilation, and ozone does not make pure air any more than strong spices make pure food. In concentrations that can appreciably affect man and animals, ozone is uniformly injurious. The toxic action of strong concentrations has been remarked by all observers.

3. **Diarrhea in Adult Life.**—By R. C. Cabat and H. Emerson. (See MEDICAL RECORD, July 5, 1913, page 42.)

4. **Acute Nephritis and Congenital Heart Disease.**—By H. M. McClanahan. (See MEDICAL RECORD, June 28, 1913, page 1191.)

5. **Etiology of Ileocolitis.**—By C. G. Grulee. (See MEDICAL RECORD, June 28, 1913, page 1188.)

7. **Treatment of Diphtheria Carriers.**—H. Albert during the past few years has obtained good results with the use of a spray of a culture of staphylococci. He has obtained his best results by the treatment of the crypts of the tonsils with a solution of silver nitrate (from 5 to 10 per cent.) applied by means of a thin flexible applicator, combined with a mild alkaline and antiseptic spray for the nasal cavity, and a 1 per cent. solution of hydrogen peroxide as a mouth-wash and gargle.

8. **The Diseases of Porto Rico.**—By E. F. Otis. (See MEDICAL RECORD, July 5, 1913, page 39.)

9. **Colloidal Copper in Cancer.**—R. Weil administered the preparation described by Loeb as colloidal copper in twelve cases of malignant disease, in eight of which the treatment was thoroughly carried out. In most of the cases the treatment resulted in the production of mild constitutional effects, such as fever, chills, nausea, some loss in weight, slight reduction of hemoglobin, and occasional albuminuria or hemoglobinuria. Chemical analysis of two tumors from treated patients failed to reveal the presence of copper, while in a liver obtained at necropsy it was present in appreciable quantity. Judged by certain clinical criteria, which have been adopted as a reliable standard of therapeutic effectiveness, the treatment has not appeared to exert a destructive action on the tumor tissue in any of the cases.

16. **Glaucoma.**—R. Sattler believes that there is a kinship between congenital and senile glaucoma, and that the remote causes of the latter may date back to the pathological conditions in the former. From his experience with glaucoma simplex, surgery is indicated only when an eye still possesses some of its natural compensating properties of the sclera and uveal tunics, but surgery is as successful now for acute inflammatory glaucoma as it has ever been. A pseudoglaucomatous condition should be differentiated from the true type. These conditions have only the cardinal symptoms of high tension in common, and surgical treatment for it alone is not justifiable and miotics have little effect on inevitable conditions in pseudoglaucoma which occurs most frequently as the result of hidden or unsuspected degenerations of the ocular circulatory system, almost always as the expression of pronounced cardiovascular and renal causes. When one can make a positive diagnosis of such cases, one can temporize with anodynes and later, if necessary, perform enucleation.

31. **Myopia.**—S. D. Risley reports his studies on the percentage of myopic eyes, as shown by examinations of school children and others. These studies show that there has been a steady fall in the percentage of myopic eyes in Philadelphia. They also demonstrate the evils of uncorrected errors of refraction. They show that the efforts of the ophthalmic surgeons in the correction of the congenital defects have well-nigh banished from the well-to-do portion of the community malignant myopia and its sequels.

44. **Chronic Laryngitis.**—E. Mayer describes the symptoms and treatment of chronic laryngitis. First among the etiological factors come the obstructive conditions of the nose, causing mouth-breathing and preventing properly warmed air from entering the larynx. Chronic catarrhal conditions of the naso-pharynx may extend to the larynx, but one of the most frequent causes is either the elongated uvula or its papillomatous tip. Hypertrophied lingual tonsils may have to be treated first and follicular pharyngitis and pressure in the auditory canal may cause irritation and trouble. Constitutional, digestive, and cardiac disturbances and the pressure of new growths and enlarged glands may have to be relieved before a cure can be obtained, and dusty occupations or exposure to gases may be a cause. Alcoholics are specially susceptible, as are also males at the age of puberty. Continued use of tobacco often retards a cure. Sudden changes of temperature are very common causes. Improper use of the voice by actors, singers, or public speakers produces some of the most difficult cases to treat. The condition is usually a local hypertrophy, the singer's node occurring at the point between the anterior one-third and the posterior two-thirds of the cord. After removal of the causal factor, the first order must be rest, the more complete the better. Of definite value is the use of sprays and local applications of tincture of the chloride of iron, iodine, alum, etc. Medicated lozenges containing benzoic acid

or krameria during the day are useful. Medicated steam inhalations of compound tincture of benzoin and camphor and iodine, etc., are recommended. The patient should remain indoors fifteen or thirty minutes after each application. Tobacco should be prohibited and faulty methods of speaking corrected. Often a complete change of air and scenery is useful. Cold sponging of the upper part of the body, proper clothing, regularity as to meals and regulation of the bowels are measures recommended.

The Lancet.

September 20, 1913.

1. The Dynamic Side of Biochemistry. F. Gowland Hopkins
2. The Necessity for International Reforms in the Sanitation of Crew Spaces on Merchant Vessels. J. Howard Jones.
3. The Detection of Small Amounts of Glucose in Urine. S. W. Cole.
4. The Incidence of Inherited Syphilis in Congenital Mental Deficiency. J. L. Gordon.
5. The Treatment of Cholecystitis by Cholecystectomy. J. O'Conor.
6. Ether Anesthesia in Nose and Throat Operations. R. E. Apperly.
7. Three Cases of Infantile Convulsions. J. Gilroy.
8. Ovarian Cyst Exposed Per Vaginam During Delivery by a Midwife. D. C. Kemp.
9. New Methods of Ventilation. J. Keith.
10. Methods of Measuring Atmospheric Pollution by Suspended Matter. J. S. Owen.

1. **The Dynamic Side of Biochemistry.**—F. Gowland Hopkins presents an elaborate exposition of the thesis that in the study of the intermediate processes of metabolism one has to deal, not with complex substances which elude ordinary chemical methods, but with simple substances undergoing comprehensible reactions. By simple substances the author means such as are of easily ascertainable structure and of a molecular weight within a range to which the organic chemist is well accustomed. He emphasises the fact that it is not alone with the separation and identification of products from the animal that present studies should deal, but with their reactions in the body, with the dynamic side of biochemical phenomena.

3. **The Detection of Small Amounts of Glucose in Urine.**—S. W. Cole points out the fallacies of Fehling's test and details the advantages of his own method. There are two fundamental principles underlying this method: (1) Charcoal in a certain percentage absorbs the greater part of the non-saccharine reducing substances of normal urine, the greater part of any lactose that may be present, and also a certain amount of the glucose normally present. (2) The filtrate is boiled with sodium carbonate, and thus converted to a reducing substance which reacts with copper when subsequently added. Owing to the great ease with which sugar can be detected in the filtrate after absorption with charcoal, the author had considerable difficulty in finding the exact conditions so that the normal sugar of urine should not give a positive test. He believes that he has succeeded in his object and has also found a simple method for distinguishing lactose from glucose. The details of the method are as follows: In a dry boiling tube or large test-tube place about 1 gram of Merck's pure blood charcoal. Add 10 c.c. of the urine and shake from side to side to mix thoroughly. Heat to boiling point, shaking the whole time. Cool thoroughly under the tap and shake at intervals for about five minutes. Filter through a small paper (9 to 11 centimeters in diameter) into a rather wide test-tube containing about half a gram of anhydrous sodium carbonate. When the fluid has filtered through add 6 drops of pure glycerine, shake and heat to boiling. Note the time when boiling commences. Maintain active boiling for 50 seconds, shaking from side to side to prevent spurting. Immediately add 4 drops of a 5 per cent. solution of crystallized copper sulphate. Shake for a moment to mix the solutions, and allow the tube to stand without further heating for one minute. With normal urine the fluid remains blue, with a variable amount of a greyish precipitate of the earthy phosphates. If glucose is present to the extent of 0.02 per cent. or more above the average normal amount the blue color is discharged, and a yellowish precipitate of cuprous hydroxide forms. The rapidity with which the precipitate forms is a rough measure of the amount of glucose present. With 0.05 per cent. it appears in a few seconds. With 0.02 per cent. it may not appear till 50 seconds. A yellowish precipitate or coloration appearing after 60 seconds must not be taken as evidence of any degree of abnormal glycosuria. It may be due to the normal amount of sugar in urine.

5. **Treatment of Cholecystitis by Cholecystectomy.**—J. O'Conor believes that nothing short of cholecystectomy effects a permanent cure in the great majority of cases commonly known as attacks of gallstones. He has formed a plan of attack which has resulted in rendering removal of the gall-bladder a very simple ten minutes' performance. Making use of the Robson position, and a free vertical semilunar incision, (1) the liver is drawn forward and upward, a superficial incision is made with a knife along the line of attachment (generally adhesion) of the gall-bladder to the under surface of the liver, with the handle of the knife a space is rapidly made for insertion of the left index finger, and in a few moments the gall-bladder is freely detached from its hepatic connection—separation is carried right down to the level of the cystic duct. In order to control oozing a gauze pad is placed in the fossa fellea. (2) Having next carefully isolated the whole operative field, the gall-bladder is aspirated, then seized and incised between two of Lane's forceps, the interior mopped dry, and calculi removed. The gall-bladder is then vertically split down to the level of the cystic duct by a few strokes of the knife, the tip of the left index finger is inserted into the cystic orifice, and the divided gall-bladder, with forceps attached to cut edges, is gathered up firmly, in one grip, in the left hand, and pulled forward. This maneuver renders the operation practically a bloodless one, and greatly facilitates subsequent separation of deep adhesions and examination of ducts. (3) The cystic and common ducts are then carefully palpated with the right hand, and the tip of the left index finger removed from the opening of the former for passage of a small sound. If no calculi are discovered the tip of the finger is replaced, and the assistant applies a strong catgut ligature, just below it, around the cystic duct; this ligature generally occludes the cystic artery. The two flaps of the gall-bladder are then cut away by a few transverse snips of a scissors, about half an inch in front of the ligature. When it is considered expedient to drain the bile-ducts no ligature is applied; the cystic artery and other bleeding points are ligated, and the edges of the cystic duct sutured to the upper angle (peritoneum) of the wound, and a smal drainage-tube fixed in the duct. Before closing the parietal wound by three or four through-and-through strong silk sutures, the author usually inserts a large drainage-tube, which is left *in situ* (fossa fellea) for two or three days.

British Medical Journal.

September 20, 1913.

1. The Dynamic Side of Biochemistry. F. Gowland Hopkins.
2. Abdominal Surgery. W. F. Cholmeley.
3. Suggestions for the Technique and Performance by a New Method of Wertheim's Abdominal Panhysterectomy. C. P. Childe.
4. Carcinoma of the Pelvic Colon, Ovarian Tumor, and Appendicitis, Necessitating Repeated Abdominal Section. L. McGavin.
5. Three Successful Operations for Perforative Typhoid Ulcer. A. B. Mitchell.
6. Operation for Intussusception Complicated by Measles and Bronchopneumonia. S. T. Irwin.
7. True Total Enucleation of Two Hydatid Cysts from the Same Liver. J. P. Buckley.
8. A Method of Operating for Radical Cure of Inguinal Hernia. W. T. F. Davies.

1. **The Dynamic Side of Biochemistry.**—By F. Gowland Hopkins. (See the *Lancet* abstract.)

2. **Abdominal Surgery.**—W. F. Cholmeley states that the uncertainty of what the surgeon is likely to find is one

of the chief fascinations of abdominal surgery. Experience in this branch demands of the surgeon the following important qualities: the knowledge of when to operate; rapidity of operating; deftness and delicacy of touch; coolness; quick decision; and the knowledge of when to stop and when to continue.

5. **Surgery of Perforated Typhoid Ulcer.**—A. B. Mitchell emphasizes the following points: The modern treatment of typhoid fever in well-equipped hospitals is eminently favorable to surgical success. It is very desirable to operate as rapidly as possible, and to avoid all unnecessary handling and exposure of intestine. These patients are totally unable to bear much manipulation. The quickest way to find the perforation is to go straight for the ileo-cecal valve and trace the ileum upwards. It will rarely be necessary to handle more than 2 to 3 feet of bowel. All sutures should be of catgut, as silk or linen is almost certain to become infected and give rise to a troublesome sinus. The catgut the author uses is prepared by boiling in absolute alcohol for thirty minutes, and stored in 10 per cent. tincture of iodine. These patients bear the Fowler position and continuous rectal saline quite well. Coliuria being a very likely complication, it appears wise to put these patients at once on alkaline treatment.

Berliner klinische Wochenschrift.

September 15, 1913.

Renal Function in Mercurial Nephritis.—Ghiron after a practical study of this subject concludes that in the earliest stages of acute mercurial nephritis, with absence of any spontaneous increase of pressure, the kidneys draw a certain advantage from an artificial increase of the latter. This last was worked out by Grocco in 1892 for nephritis in general. More particularly he saw in this law the rationale of cyclic albuminuria which might or might not develop into nephritis. The author hopes to be able to show in time the reason why the increased tension which develops after nephritis may be conservative. In regard to mercurial nephritis the author experimented on rats, and found that at first injections of sublimate were quickly eliminated by the intact kidneys. An hour later, however, the glomeruli and tubes showed structural change. Following up with anilin injections it became apparent that certain zones of the kidney were alone compromised. This distribution appeared to be due to certain methods of accelerating the renal circulation. We obtain the idea that by increasing the tension of the blood traversing the kidney a certain amount of mercury is expelled before it can do harm. No plan of treatment seems to have been evolved to verify this hypothesis.

Apical Disease and Spinal Percussion.—Rüde speaks of this overlooked resource with especial reference to the increasing use of the *x*-ray in this connection. Recently Orszag has studied the value of spinal percussion in the diagnosis of special emphysema. His predecessors in this field were Krönig and von Korányi, and Orszag made use of their results in his work. The author now follows with forty cases of phthisis in which spinal percussion was carefully performed; and in this series there were but three cases of spinal emphysema, the lungs being otherwise free from this affection. This recognition of air content in the apices through spinal percussion does not lead to any practical conclusion and doubtless will not until suitable cases come to autopsy.

Cultivation of the Microorganism of Epidemic Poliomyelitis.—Flexner and Noguchi sum up their long article in part as follows: Cultivation of the central nervous system of men and apes affected with poliomyelitis epidemica (including experimental cases) shows the uniform presence of an extremely minute spherical organism, occurring in pairs, chains or clumps according to the methods of treatment. Various broods show differences in toxicity, and nontoxic broods may give rise to toxic ones. The highly cultivated laboratory germs did not appear to coincide with those already present in the tissues of infected cases, and in some instances could not be made to give rise to the disease. We know that virulent germs cultivated in the laboratory may soon lose their virulence, whereas germs of low toxicity become highly toxic when passed through a succession of animal hosts. It appears well from this study that it is far easier to lay hold of the pathogenic germ of a disease than to make it breed along the wished for lines. The authors will shortly publish the details of the strains of germ bred by them, the modes of cultivation and staining, and the results of animal inoculation.

Münchener medizinische Wochenschrift.

September 9 and 16, 1913.

Two Years of Experimental Study of Beriberi.—C. Funk, a Fellow of the Beit Memorial Research foundation, began his studies of beriberi at the Lister Institute in 1911; after two years' work his report appears followed by his own conclusions. We are still in complete darkness as to the nature of beriberi. The rice alleged to cause the latter is defective in so-called vitamins and addition of the latter to the diet causes involution of beriberi. However, we are in complete ignorance as to the rationale of this cure. Recovery is so prompt that we naturally think not of a food cure but of an antitoxin which neutralizes a toxin. The neuritis or neurodegeneration of beriberi also suggests the original presence of a toxic substance. But the nerve implication is best regarded as a complication of some primary disease. By eliminating vitamins from the diet of sound subjects a whole train of disease pictures results—scurvy, Barlow's disease, and very likely pellagra, and rachitis. If a subject is deprived continuously of the vitamins he will surely die. These bodies have been recently isolated from nitrogen residues, and we know nothing of the manner in which nitrogen enters into combination. They occur only in the vegetable world, for the animal organism is apparently unable to form substances which are absolutely necessary to its existence.

Contribution to the Causation of Infantile Paralysis.—Bruno insists that when cases of this affection have been recognized one should investigate the household and environment for the presence of domestic and semi-domestic animals. He names especially geese, ducks, and fowl, sheep, cattle, and dogs. The next thing to determine is the state of health of all such animals, and a veterinary should make an expert investigation. The author cites two cases in one family of which the father was a zoöphile who maintained nearly all kinds of domestic animals. The children, aged 2 and 3 years respectively, were attacked simultaneously by a stippling of the tonsils and slight fever, which phenomena were at once followed by disorders of locomotion, which presently assumed the type of infantile paralysis. The ducks appeared to have acted as hosts, and when delivered were ill. One died soon of no discoverable disease. Later three were attacked by a sort of lameness called rheumatism. Hens and geese were not attacked. The three ducks are being studied and their origin traced. Aside from the two cases in the family with acute poliomyelitis the entire family showed a syndrome which while devoid of paralysis exhibited marked involvement of the gastroenteric tract, fever, and in one case severe pains in the back and nuchal region. We naturally look for cases of this origin in rural districts where domestic animals are common; and a colleague of the author has had a similar experience. One child developed poliomyelitis after the death of a steer from a paralytic

affection; there was also a paralyzed fowl among the live stock. The child's father held an official position as tender of live stock in his residential city. Another child treated by the same colleague had associated with a goat recently dead of paralysis.

Diagnosis and Treatment of Syphilis.—No less than four important articles on these subjects are contained in this number. One by Benedek is upon the cutaneous reaction in paralytics with Noguchi's luetin. One series of fifty-two paralytics was tested also with the Wassermann in favor of the last named, as far as end results are concerned. In outspoken tertiary syphilis the luetin reaction is positive in 100 per cent., and always pronounced, while it is much less in evidence in secondary syphilis as well as in parasyphilis. Luetin therefore possesses a special value in tertiary syphilis of the nervous system. Luetin appears from the characteristics of the reaction to behave in a two-fold manner. First it causes an ordinary allergistic reaction, or in other words is an example of anaphylaxis. A wheal is followed by a reddened area and papules develop in the latter. But even in negative cases we may see similar phenomena, in milder degrees, so this reaction cannot be regarded as positive for syphilis unless a certain degree or quality of reaction is present. The second result of a luetin test is the formation of a nodule which presents the histological structure of a gumma or tubercle, and may be spoken of as "provocative" in character. It is proper to regard this sort of lesion as the acme of the various allergic reactions and in no wise a superinfection. Jakob and Weygandt have made a communication on experimental syphilis of the nervous system and find that even in animals the pest can diffuse itself through the body and constitute a generalized infection which special manifestations on the central nervous system, for which the spirochete has a great affinity. The initial manifestation is often a meningitis. Meirowsky continues his studies on living spirochetes and concludes that they proliferate only by budding, the buds breaking off and becoming new units. He therefore believes that we ought to reopen the question, "Is the spirochete an animal or plant?" Finally, Swift and Ellis, of the Rockefeller Institute, New York, conclude their article on the combined local-general treatment of syphilis of the central nervous system. This is best summed up in the case histories appended. A patient with tabes had been receiving intramuscular injections of mercurials without improvement. The authors injected 93 c.c. of normal human serum into the subarachnoid space. This availed nothing, as it was found impossible to clear up the spinal fluid. Nevertheless, the Wassermann reaction showed weakening. Salvarsan was added to some of the injections. In comparatively recent cases both salvarsan and neosalvarsan were injected into the veins and spinal fluid. As patient had shown precocious symptoms of nervous syphilis the permanent recovery in this quarter is looked upon as a successful prophylactic effort.

Abderhalden's Seroreaction in Psychiatry.—Mayer relates numerous experiments made at the Tübingen clinic on patients with dementia precox, progressive paralysis, manic depressive insanity and Korsakoff's psychosis. His conclusions are as follows: The cases investigated and hereby published are not numerous but the observation period has been a long one, and cases of the worst types have been included and frequently tested. Final conclusions cannot yet be drawn. Results are either paradoxic or clean cut. It appears certain that the blood of precox cases contain ferments which invariably antagonize the sexual glands, and also in a majority of cases the cortex and thyroids. In the functional psychoses, on the other hand, there are no such ferments in the blood. The serum of paralytics contains ferments which are defensive against various organs, especially from the cortex. These enzymes do not enter the cerebrospinal fluid. In conclusion we have here a possibly valid method of separating dementia precox from manic depressive insanity and the functional psychoses.

Deutsche medizinische Wochenschrift.

September 4, 1913.

Causes of Pneumonia.—Kruse states that much less time is devoted by the sanitary authorities to pneumonia than to the more infectious diseases, because the latter are regarded as essentially preventable. But pneumonia claims more victims than tuberculosis. Ascher has sought the efficient cause of pneumonia in the "smoke and soot plague" which makes the lungs vulnerable. This view is opposed by facts. Deadly pneumonia is largely a disease of the very young and the old; the four decades between 20-60 showing a lowered incidence and mortality. It is also a disease much more common in the male. The smoke theory, therefore, can throw no light on these groupings. The pneumococcus is not universally regarded as the efficient cause. Many forms of microorganism can cause pneumonia, and if the pneumococcus predominates it may do so because it is a natural denizen of the mouth. If we suppose that man develops pneumonia because of self-infection through activated pneumococci, this is, of course, but a partial explanation. Chill and exposure have always been recognized as leading causal factors. Perhaps equally important are the aspiration of irritant substances and wounds of the thorax. Statistics appear to show that smiths, molders, coachmen, gardeners, and masons—all exposed to cold and sudden changes of temperature—suffer much more frequently from penumonia than those having indoor occupations. When women have outdoor vocations, such as gardening, they seem to be quite as susceptible to the disease as men. All these figures apply to adults during the decades of relatively low incidence. In certain localities in Germany the disease is literally endemic and spares hardly any class. This seems to demonstrate infection as a cause. We know all too little about pneumonia in childhood, but wherever we find the usual infectious diseases of that period markedly in evidence we may count upon finding a high incidence and death rate from pneumonia. Even then it is probable that the number infected falls far short of that which *might* be attacked by carriers of virulent germs.

On the Metamorphosis of Primary Efflorescences.—Herxheimer believes that the organism strives to do away with the acute efflorescence so that if the latter does not vanish it tends to pass into a chronic phase. The papule after its first evolution has always been found by the author to present a lymphocytic infiltration. If an organized virus like the tubercle bacillus penetrates into the skin a proliferation takes place about it. Chemical substances formed during penetration cause the formation of urticarial wheals. The genesis of secondary, chronic papules must be regarded as essentially protective. Practical deductions are afforded by this hypothesis. Thus we have light thrown on Duhring's disease. The multiform lesions may be looked upon as all secondary to some unknown primary manifestation. The author suggests that the latter may be a vesicle. These may be readily infected and form either blebs or pustules. They may run together and form herpes-like areas. The presence of wheals may be due to some toxin formed in the blood by reflex action. Eczema vesicles may become lichenoid papules.

Congenital Lipoma of the Sole of the Foot with Hypertrophy of the Second and Third Toes.—J. G. Saner reports the case of a child, aged 2 years, in whom the condition had been noticed since birth. The tumor appeared to have grown at the same rate as the foot. Operative interference was postponed owing to ill-health. —*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SELF SELECTION (*Continued*).

Self Selection Under Policies for Large Amounts.—The mortality among policyholders who have taken out large amounts of insurance on single applications is too high as a rule, and it is generally recognized that the excessive rate is due chiefly to the presence of adverse selection, especially when the subjects have not previously carried a reasonable amount of insurance.

The following table illustrates the rate of mortality on policies of $20,000 or over, each of which was issued on one application:

Ages at Entry	Insurance Years		
	1–5	6–30	1–30
15–29	145.5	132.4	139.9
30–44	133.2	135.1	134.0
45 and over	109.7	107.9	108.8
Total	120.2	119.0	119.4

This table is based upon data derived from two sources. The number of entrants and the number of actual deaths used in the computation are taken from data collected on lives exposed during the period 1870 to 1900 by the Specialized Investigation of the Actuarial Society of America. In determining the ratio of actual and expected deaths, as exhibited in the table, the M. A. select table of standard lives is employed. The M. A. table was compiled by the combined Medico-Actuarial Investigation Committee which is making an exhaustive study of the vast quantity of material that has been lying practically unused in the files of the various companies.

It is seen in the table that the death rate as a whole is excessive, the total actual deaths in the first to thirtieth year exceeding the normal by 19.4 per cent. Contrary to the belief that has been entertained by many insurance men, the mortality is greater among the young than in the elderly ages, this difference being accounted for, largely, by the deductions of the Medico-Actuarial Investigating Committee which indicate that the expected mortality has been hitherto rated too high among the young and too low in the advanced ages. This difference must be attributed partly, however, to greater care in the medical selection of elderly risks.

A table constructed in the present period should be based upon policies of $50,000 or over, as a $20,000 policy is not considered so large as it was twenty years ago by either the applicant or the companies. Judging from unpublished individual opinions of representatives of the various companies, the ratio of mortality still tends to be unsatisfactory among holders of policies of the larger denominations and a strict medical selection is called for to keep it near the normal.

It cannot be denied that pressure, as well as self selection, is a factor in raising the mortality ratio. It is quite natural that the agency forces should exert every atom of pressure they can summon whenever an application for a large amount of insurance is up for judgment and there is a correspondingly large commission at stake. The exhibition of results showing the mistake of yielding to pressure will undoubtedly have a salutary effect whenever it is needed.

It is unwise for a company to undertake the business of writing large policies unless it can issue enough of them to make up a class which will be sufficiently extensive to support itself and will not have to depend upon the normally low mortality among the holders of small policies to make up deficiencies. The chances for wide fluctuations are too great when dealing with a small experience. The average amount of policies in a large company is in the neighborhood of $2,300, and these form the backbone and strength of the organization.

Nearly every known experience shows that mortality is higher by amounts than lives, which is another way of saying that the mortality on large-sized policies is heavier than on those of moderate size. There is a difference in the relative distribution of numbers and amounts according to age and exposure and part of the favorable mortality for numbers over amounts arise from this difference, not merely because the policy is larger or because there has been selection against the company by the insured or carelessness by the company in selecting risks. There is no question, nevertheless, but what the tendency of men who feel shaky about their hold on life is to over-insure. The mortality shown in the table demonstrates that many applications of a speculative character were approved in spite of the usually careful medical examination and it becomes quite evident that, in addition to the most rigid scrutiny of the physical qualities of such risks, it is highly important to find out if there is a valid reason for acquiring so large an amount of insurance and, furthermore, if the financial condition of the applicant is unimpaired and he is personally able to pay for the insurance. It should always be established that there is a proper relation between the applicant's income and the amount of insurance applied for. A large amount of existing insurance, taken out at intervals during a good many years, is a favorable indication. Suspicion should, however, be aroused when the issuance of a policy for a large sum is soon followed by the application for another. In a very recent and notable case of a speculative character, the individual continued applying for additional insurance as soon as he had the policies previously applied for firmly in his possession until he had nearly a million dollars of insurance in different companies. His death ensued promptly under circumstances which point to premeditated suicide.

Getting After Good Risks.—W. A. Lindly, President American Life Convention, says that agents should be instructed to look after good risks, for there are many written by them that never should have been presented. This makes expense for the company, does no good, and should be controlled in a great measure by the medical directors. Another suggestion is that the medical directors form some sort of a combination by which they can use the same examiners practically in all communities.

Demands on the Insurance Examiner.—A man can be a good practitioner and get along well in his work, but unless he is a student, unless he is a careful examiner of every case brought to him, he will fall down, and this class of men is not wanted as medical examiners.—Dr. Stowell, American Life Convention, February, 1913.

Book Reviews.

Surgery of the Lung. By C. Garrè, Professor of Surgery at the University of Bonn, and H. Quincke, formerly Professor of Medicine at the University of Kiel. Translated from the German by David M. Bancroft, M.D. Second Edition. With one hundred and fourteen colored and other illustrations, and two colored plates. Price $4.00. New York: William Wood & Company, 1913.

Since the publication of the first edition in 1903 the surgery of the lung has made considerable progress, necessitating altering and re-writing to a very great extent, and the addition of many illustrations. An anatomically trained eye in surgery of the lung is absolutely necessary and the anatomical topographical introduction will not be unwelcome to the surgeon. Chapter II deals with the pathology of the pneumothorax and Chapter III with the methods of maintaining a difference of pressure which has enlarged the sphere of surgical operation to an extent hitherto unimagined. For sixteen years surgeons have sought for means to prevent the collapse of the lung when the thorax was opened and a history of this work is given. Descriptions and pictures are given of Sauerbruch's cabinet, the universal differential cabinet of Willy Meyer, Engelken's apparatus for increasing the pressure, Tiegel's simplified mask apparatus, Schoemaker's apparatus, Dräger's combined apparatus, Lotsch's apparatus, the simple apparatus for increasing pressure by mens of hydraulic bellows, constructed by Steinmann, Elsberg's apparatus for intratracheal insufflation, etc. The following chapters deal with general surgical technique, injuries of the lung, pulmonary suppurations, tuberculosis of the lung, actinomycosis of the lung, pulmonary fistulas, Trendelenburg's operation for embolism of the pulmonary arteries, tumors of the mediastinum, the pleura and the lung, pulmonary echinococcus, foreign bodies in the lung and bronchi, hernia of the lung and pulmonary emphysema, the surgical treatment of rigidity of the thorax. The book is a handsome one, the text is clear, the pictures admirable, and the getting up of this work reflects great credit upon the publishers.

Medical Union Number Six. By William Harvey King. Price Fifty Cents. Philadelphia: Boericke & Tafel, 1913.

This novelette is the story of a physician who is shipwrecked on a desert island and is cut off from civilization for thirty years. He returns to New York to find the medical and clerical professions under the domination of a medical union which makes a fetish of union principles, beside which all claims to human sympathy or service fall into insignificance. The people finally rebel against the outrages of organized medicine, and the medical union retaliates by turning loose in the nation 2,000,000,000 rats infected with bubonic plague and, as a result, 60,000 human beings die, but the power of the union remains unbroken. The story is simply the vehicle for demonstrating that any attempt to apply the principles of the labor union to the profession must result in commercializing the profession and degrading professional ideals, paralyzing individual effort and destroying the scientific spirit.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. IX, July, 1912. Edited by John S. Thacher, M.D., and George Woolsey, M.D. New York: Corlies, Macy & Company, Inc., Printers, 1913.

Some doubts may be raised as to the real utility, commensurate with the expense of publication, of the annual medical and surgical reports of hospitals. The articles contained in these reports, in most instances, have already appeared in the various periodical journals. These doubts will be dissipated if one glances over the pages of the present volume, which, in the beauty of its typography and illustration, and in the fine quality of its paper, justifies, from the esthetic viewpoint alone, the gathering together in a single volume of the scientific contributions of those connected with one institution. But there are other reasons why such work should be preserved in this form. The sense of loyalty to the institution, the *esprit de corps* of its members, the stimulating influence on the younger men, and the demonstration to the world at large of the vast amount of scientific work that may be carried out in a single institution—all these more than justify the publication of such reports. The following are a few of the articles in this volume: Visceral sarcomata, by W. Gilman Thompson; transfusion of blood in pernicious anemia, by David Bovaird; the Cammidge reaction in diseases of the pancreas, by the late Francis P. Kinnicutt; and purpura, by John S. Thacher—all of which are reprinted from the Medical Record; the electrocardiogram in clinical medicine, by Walter B. James and H. B. Williams; acute pericarditis in children; the absorption of food in typhoid fever, by Eugene F. Dubois; the operative treatment of fractures, by Joseph A. Blake; the clinical features and treatment of acute gastric and duodenal ulcer, by Ellsworth Eliot, Jr., J. A. Corscaden, and J. W. Jameson; postoperative intestinal obstruction, by George Woolsey; intestinal diverticula, by John A. Hartwell and Russell L. Cecil; operations upon the appendix, by Clarence A. McWilliams; and the surgical treatment of spinal cord tumors. The editors are to be complimented upon the splendid manner in which they have acquitted their task.

Transactions of the American Pediatric Society. Twenty-fourth Session, held at Hot Springs, Va., May 29, 30, and 31, 1912. Edited by Linnaeus Edford La Fétra, M.D. Vol. XXIV. Chicago: American Medical Association Press, 1913.

The yearly volume of transactions of the American Pediatric Society is awaited by the student of pediatrics as a valuable addition to his special library, for he is sure to find in it a mirror of the latest advances and trend in the study of children's diseases. The present volume amply fulfils this expectation. The opening address by W. L. Carr discusses the relation of the American Pediatric Society to the reduction of mortality in infancy and childhood. In the domain of infant feeding there is an article on the dextrins and maltose by Southworth, one on maltose by Morse, one on the effect of heated and superheated milk on nutrition by Coit, one on the method of studying and teaching the principles of infant feeding, with special reference to the importance of the energy line, and one on the problems of infant feeding by Eaton. The articles pertaining to infectious diseases are as follows: Epidemic sore throat, by Ruhräh; inclusion bodies in scarlet fever, by Nicoll; typhoid fever in infancy, by Griffith; serum treatment of pneumonia, by Freeman; the Wassermann reaction in children, by Churchill; the use of salvarsan in children, by Le Fétra, and the mode of infection in cerebrospinal meningitis, by Bovaird. Other articles are the following: Coagulation time by Carpenter and Gittings; congenital obstruction of the posterior urethra, by Knox and Sprunt; metabolism in amaurotic family idiocy, by Crohn; infant metabolism, by Benedict and Talbot; delayed development treated by thymus gland, by Kerley and Beebe; diabetes mellitus in an infant, by Eaton; chondrodystrophy, by La Fétra; the pyloric reflex in pyloric stenosis, by Cowie; acute yellow atrophy of the liver, by Huber; infantile scurvy and modern conditions, by Northrup, and milk commission standards, by Coit. The volume is handsomely illustrated.

Pathological Inebriety: Its Causation and Treatment. By J. W. Astley Cooper, Medical Superintendent and Licensee of Ghyllwood Sanatorium, near Cockermouth, Cumberland. With introduction by Sir David Ferrier, M.D., F.R.S. Price, $1.50 net. New York: Paul B. Hoeber, 1913.

In this small volume the subject of inebriety is considered in a very rational manner. After presenting his classification of the different types of inebriety, the author discusses its etiology, emphasizing the fact that defectives are liable to become inebriates and that inebriates are very apt to produce defectives, thus developing a vicious circle, the importance of whose recognition is very great. In the section on treatment he divides it into treatment by isolation, treatment by specific drugs, and treatment by suggestion, and insists that the inebriate must receive the benefit of all three if his "cure" is to be permanent. He agrees with other writers that the inebriate must remain a total abstainer or else he is practically certain to relapse. In view of the present unsatisfactory treatment of inebriates in this country the book is timely and its lesson is one that could be learned with profit by our authorities.

Grundriss der psychiatrischen Diagnostik. Nebst einem Anhang enthaltend die für den Psychiater wichtigsten Gesetzesbestimmungen und eine Uebersicht der Gebräuchlichsten Schlafmittel. Von Prof. Dr. Julius Raecke, in Frankfurt a. M. Mit 14 Textfiguren. Vierte vermehrte und verbesserte Auflage. Preis, 3 marks. Berlin: August Hirschwald, 1913.

The present, the fourth, edition of this excellent little book has followed the previous one within a matter of months. It is slightly enlarged, and improved, and brought up to date. It even mentions, for example, the finding of spirochetes in the brain in general paresis, and the more important newest hypnotics. The plan and classification remain the same.

The Tonsil and the Voice in Science, Surgery, Speech, and Song. A Comprehensive Monograph on the Structure, Derangements, and Treatment of the Tonsils, and of the Relation to Perfect Tone Production. A Research Study with Original Contributions from the Highest Medical and Voice Authorities. By Richard B. Faulkner, M.D. (Columbia University). With an Introduction by Prof. George M. Sleeth, Instructor in Elocution, Western Theological Seminary. Ten Illustrations. Pittsburgh, Pa.: The Presbyterian Book Store, 1913.

The object of this book is to present known facts, the latest views of the most eminent authorities, and the indications which denote safe lines of treatment as against the apparent indiscriminate and reckless disregard of tonsillar function. Six medical and six voice questions are answered by renowned artists, and teachers, and scientific investigators. These questions are: Have the normal faucial tonsils any function? (Addenda from original sources and addenda showing wide diversity of views are presented.) What are they? What effects are directly due to their removal? Have phonetic changes been noted? Would you advise the removal of normal tonsils? Remarks. Are the normal faucial tonsils of any use to singers? How, or in what manner, are they of use to singers? Do you know of any instances in which the voice was impaired or ruined after their removal? Is removal of tonsils advisable in singers? Remarks. In concluding his work Dr. Faulkner adds a few "don't forgets," of which the following is an instance: Don't forget that the tonsil is a natural organ; that you have no right to destroy a natural organ; that the physiologico-biological values of the tonsils have not been proved; that by enucleation you destroy values of which you have no knowledge; that the tonsil has important mechanical functions, a buffer, a cushion, a fulcrum, a compensator; don't forget that Young found all *prime donne* with extraordinary voices had big tonsils; don't forget that among 8,000 pupils examined by Neustaedter, tonsils are largest in the best pupils, and that the best singers have 50 per cent. more tonsils than the poorest. Professors in Columbia University, Harvard, Pennsylvania, Johns Hopkins, McGill, and other universities, from whom he received responses, evidently do not grant *carte blanche* permission to their students for the promiscuous performance of tonsillectomy. The author strikes a timely note of conservatism, which it is to be hoped will reach the ears of the many who are given to operate on every slight pretext.

The People's Money. A Brief Analysis of the Present Position in America, with Some Observations on the World-Organization of Labor. By John W. de Kay. Price, one shilling. London: Effingham Wilson, 1913.

The author opens his tractate with a scathing indictment of the hitherto unbridled money power in the United States. He indicates the broad lines along which this power may be effectively controlled in such a manner as to avoid unjust interference with capital or unreasonable restrictions of individual endeavor. He advocates federal control of corporations and a central bank. Himself a "captain of industry," he shows a broad humanitarian spirit in dealing with the problems of labor and advocates not only a nation-wide, but a world-wide, organization of labor as offering the only well-founded hope of securing justice from capital.

Therapeutics of the Gastrointestinal Tract. By Dr. Carl Wegele. Adapted and Edited, with additions on the Diagnosis of the Diseases of the Esophagus; Diagnosis of the Diseases of the Gastrointestinal Tract; Duodenal Tube and Its Uses; Diseases of the Pancreas, and *X*-ray Examinations of the Gastrointestinal Tract. By Maurice H. Gross, M.D., Attending Gastroenterologist to the Har Moriah Hospital, and I. W. Held, M.D., Attending Physician to the Har Moriah Hospital. With 52 illustrations in the text and two figures in colors on one plate. New York: Rebman Company, 1913.

This book is a specially conscientious and thorough treatise upon the therapy of stomach and intestinal diseases, and comprises, in short systematic arrangement, many important facts which are scattered in specialized works too exhaustive for the busy practitioner; it lays main stress upon and consistently carries out the dietetic, physical, and hygienic treatment of gastrointestinal diseases. Extensive additions have been made to the German work, such as a separate chapter on the esophagus, and one on the *x*-ray diagnosis of stomach and intestinal diseases. There has also been added a chapter upon the comparatively new subject of the "Duodenal Tube." There is an important chapter on the diagnosis and treatment of diseases of the pancreas, beside minor chapters such as parasitic diseases and diseases of the intestinal blood vessels. It is hoped that the more complete form of book will be found useful to those engaged in general practice.

Müller's Serodiagnostic Methods. Authorized translation from the third German edition. By Ross C. Whitman, B.A., M.D., Professor of Pathology, University of Colorado, School of Medicine. Price, $1.50. Philadelphia and London: J. B. Lippincott Company, 1913.

This is a collection of all the more important methods of serum diagnosis now in use. The description of the various methods has been made exceedingly exact and a complete and detailed list of reagents and apparatus is given for each test. Theoretical considerations have been omitted entirely since many of the methods are so new that their value is yet unknown. The book will save many weary hours in the library and will prove a valuable addition to the library of any laboratory in which serum diagnosis is attempted.

Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and subjects. Second Series. Vol. XVII. Washington, 1912.

This volume contains titles from Suaheli to Testut, to the number of 5,928 author and subject titles of books and pamphlets and 36,898 titles of articles in periodicals. Of particular interest is the catalogue of tests illustrating the history of medicine in a library of the Surgeon-General's Office, which fills 90 pages of this volume.

Treatment of Tuberculosis. Ordinary Therapeutics of Medical Men. By Prof. Albert Robin, of the Faculty of Medicine of Paris. Translated by Dr. Leon Blanc, of Aix-les-Bains, assisted by Dr. H. de Meric, of London. Price, $7.00 net. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co., 1913.

This English edition of Professor Robin's book is dedicated by the translator, Dr. Blanc, to the late John Pierpont Morgan, the great American financier and philanthropist, in token of gratitude for the creation of a tuberculosis annex in connection with the hospital at Aix-les-Bains, which is likewise a gift from Mr. Morgan. Aside of the sentiment expressed in the dedication, by reason of which this book should be of interest to the profession as well as to the laity of the United States, the work gives a thorough survey of the medical aspect of tuberculosis, consecrates an excellent chapter to the social defense against this disease of the masses, and merits careful study by all interested in the tuberculosis problem. This chapter referred to is intended to inspire the non-medical world with the desire to do its duty in the fight against tuberculosis, either by philanthropic gifts or personal service. In the chapters devoted to the treatment of tuberculosis *per se* one finds an excellent review of what is known up to date concerning predisposition. To the enthusiast of specific treatment by culture products, the statement that "the discovery of the bacillus has not as yet ameliorated the treatment of pulmonary phthisis" must seem discouraging. Professor Robin does not, however, entirely disapprove of tuberculin therapy. In his own practice he uses only the freshly prepared solutions of the purified tuberculin made by the Paris Pasteur Institute. He cautions practitioners to use tuberculin only in such patients whose organism is still resistant and capable of an effort toward reaction in pulmonary foci. In all other cases he urges the "hygieno-dietetic medication for the repair of waste, remineralization, and direct antisepsis." Under remineralization he emphasizes the treatment of acid dyspepsia or gastric stasis, the giving of food containing but very little acid, and the administration of lime and magnesia. As valuable medicinal agents to counteract demineralization he recommends cod liver oil (providing it is well digested) and the various arsenical preparations (cacodylate of sodium and arrhenal). Among the local medications highly endorsed by Professor Robin we must mention the method of revulsion, which the translator might have done well to call counterirritation. This local therapy has been virtually abandoned in modern phthisiotherapy, yet the reviewer agrees with the distinguished author that counterirritants are of inestimable value in not a few cases of pulmonary tuberculosis to relieve pain and congestion. The book abounds in numerous valuable prescriptions for the symptomatic treatment of pulmonary tuberculosis and the extra pulmonary tuberculous affections. Hydrotherapeutics and climatotherapy receive due mention. In short, this volume of 600 pages contains much of interest to the phthisiotherapeutist, the patient, and all others interested in tuberculosis. Aside from rather numerous typographical errors, for which perhaps the proofreader alone is responsible, only praise can be bestowed upon author and translators for having given to the profession so valuable a treatise on an important subject.

Society Reports.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

Twenty-third Annual Meeting, held in New York City, September 2, 3, and 4, 1913.

THE PRESIDENT, DR. F. HOWARD HUMPHRIS OF LONDON, ENGLAND, IN THE CHAIR.

President's Address.—Dr. HUMPHRIS discussed the relation of electrotherapeutists to each other, to their professional colleagues and to the public at large. He urged careful study and modesty, and the recognition of the fact that electrotherapy was but a segment in the great chain of scientific discoveries. Electrotherapeutists should not trespass outside the bounds of their own specialty. Their duty to the public at large could be summed up in the one great word "honesty."

Report of Committee on Induced Current, Including Alternating and High-Frequency Currents and Apparatus.—Dr. FREDERIC DE KRAFT of New York said that so much mystery seemed to be attached in the minds of many as to the action of high frequency currents, and more especially to the heat effects attending their passage through the body, that it seemed not inopportune to inquire into the matter somewhat in detail. It had long been an established fact that every electric current warmed the conductor through which it passed. The resistance which the current encountered in its passage through a conducting medium was to a large extent responsible for the conversion of a part of the electrical energy into warmth. Last year he had spoken of a new series multiple spark gap. The sparks in this were discharged unmuffled in the open air. With this method the silver points were rapidly oxidized. After many experiments, he had induced the manufacturer to exclude the air, and in the new series multiple spark gap the sparks occurred practically in a vacuum. Low frequency alternating currents had electrolytic properties. With currents of very high frequency no electrolytic effect was noticeable. The warming effect ofauto-condensation was different from that obtained by any other artificial method. It occurred from within, in the interior of the body, in which every single cell participated. As a result of the heating of the blood and muscles the entire heat regulating apparatus of the body was exercised, probably brought about by a direct stimulation of the sympathetic nervous system. The blood rushed to the surface of the body and venous congestion was relieved. Anemia of the splanchnic area ensued. Visceral congestion was relieved. After this subsided the blood stream returned again to normal channels, and diseased organs and areas received a fresh supply of oxygenated blood.

Phototherapy and Apparatus.—Dr. HERBERT F. PITCHER of Haverhill, Mass., said there had been nothing new in the way of apparatus reported during the past year. Heliotherapy had received some attention in the manner of treating laryngeal tuberculosis and tuberculous glands. The red light had been used in the treatment of pleural effusions. Of the many methods used in the treatment of alopecia the ultra-violet light was one of the most cleanly and convenient. Fluorescence in the tissues was a question which had not been satisfactorily solved, and he suggested the systematic trial of the method in the treatment of diseases amenable to all forms of light.

Static Currents and Apparatus.—Dr. FRED H. MORSE of Boston said that much more work was being done with the static current than for several years past. The improvement in apparatus and some new modifications of the older methods of application came in the line of marked advancement. For instance, the multiple spark gap advanced by Dr. Bishop, the pencil brush discharge electrode for producing a violet spray from the positive side of the machine, without a possible chance of getting the hitherto unpleasant spark, advanced by Dr. de Kraft, and the increased efficiency of the positive brush discharge, where a many pointed metal electrode is attached to the positive side of the machine, the patient holding the negative electrode, a powerful anode spray being produced which is applicable in the treatment of joint affections, inflammations of the middle ear, and in various cutaneous diseases, the efficiency being greatly increased by interposing a multiple spark gap in the circuit on the positive side.

Roentgenology.—Dr. G. E. PFAHLER of Philadelphia reviewed the advances made during the past year in Roentgenotherapy and *x*-ray diagnosis.

Mechanical Vibration Therapy, Exercise Therapy and Apparatus.—Dr. MARY ARNOLD SNOW of New York said the therapeutic application of mechanical vibration had been greatly broadened during the past year by its use in cases of high blood pressure and in the treatment of splanchnic neurasthenia.

A Plea for the Scientific Teaching of Electrotherapeutics.—Dr. WILLIAM BENHAM SNOW of New York read this paper. There were three distinctive features of electricity characteristic of its employment in art, commerce, and medicine—(1) electrolytic, (2) thermic, which included light production, (3) mechanical. Employed with a distinctive recognition of these peculiar effects, the currents best adapted for each were respectively: the constant current for the electrolytic effects, the static currents for the mechanical effects, and the high frequency currents of d'Arsonval and Tesla for the thermic effects. The constant current could be employed for other effects, but it was essentially the current employed for the removal or destruction of redundant or neoplastic growths by the method of Gautier, Massey, and others. The static current possessed peculiar qualities capable of producing tissue drainage, removing the infiltration from swollen glands, joints, and other structures as no other measure would. The action by which this was accomplished was purely mechanical and largely due to its high voltage and diffusion, and to its peculiarly energetic effect in producing tissue contraction; when, by the induction of intrinsic activity in the structures of a part, the products of inflammation or defective metabolism were expelled and circulation reestablished. The high frequency current produced the thermic effects by heating the tissues, and particularly so when passed between electrodes placed at opposite sides of the body or part. This was accomplished without the production of any electrolytic action whatever, and might be regulated to the tolerance of the patient and employed with practical safety for the induction of local hyperemia and restoration of local metabolism in the field through which it passed. Several currents, as the sinusoidal, induced and constant currents, produced mechanical effects which were valuable in selected cases by special technique. The constant current was the only current capable of causing electrolysis. While other currents produced heat, the high frequency current was the choice in all cases for the production of thermic effects with hyperemia. From this point of view the choice of electrical methods to meet definite therapeutic indications was placed upon a scientific basis, which was demonstrable and readily understood by the beginner. No one should presume to use electricity as a therapeutic agent without understanding the methods and indications for its employment—how, when, and why to use it. Otherwise success was impossible, because the element of dosage, which included time, current strength, and method of employment, was vitally important.

Emphysema: Allied Conditions and Their Treatment.—Dr. ERNEST KINGSCOTE of London, England, read this paper. He said that increase of the chest excursion and reduction of the hyperresonance in emphysema were obtained by a new method of exercise consisting of first binding a large towel tightly around the lower ribs during forced expiration, then taking three very slow forced inspirations in succession, breathing through the nose. The maneuver was repeated three times a day for three months. Improvement was noticeable in a week. Between the emphysematous cavities were millions of disused air cells with all their elastic tissue intact. By means of these exercises the disused air vesicles were once more brought into action and as they expanded they gradually squeezed up the emphysematous cavities and the patient became once more endowed with movable elastic lungs. This opened the door to the treatment of a number of otherwise intractable conditions, such as asthma, angina pectoris, diabetes, tuberculosis, chronic dyspepsia, myxedema and the goiters, all of which were characterized by stasis of blood in the brain and abdominal organs. The brain and the abdomen depended largely on the expansion of the upper thorax for getting rid of their venous blood. Therefore the increase in the chest excursion by the method described was of vital service combined with other methods. Improvement was noticeable within a week.

Appendicitis: Its Treatment and Prevention.—Dr. S. ST. JOHN WRIGHT of Akron, Ohio, presented this communication. The anatomical similarity of the appendix and the colon with its circular and longitudinal muscles led the writer to believe that the appendix might be kept in a normal condition by the frequent use of the slow sinusoidal current. The necessary apparatus cost less than an appendectomy, could be made fool-proof, and might safely be used by almost anyone. The daily use

of this current was recommended instead of the incessant use of laxatives, and it was considered best to have the patient install the apparatus in the home and use it regularly.

Ionic Medication: a Neglected Treatment in America.—Dr. F. B. Granger of Boston, Mass., in this paper outlined basic rules for the correct polarity and choice of drugs in ionic medication, giving the best percentage strength of solutions and of current strength. The results of experiments and of clinical work were given in detail.

The Continuous Current and Some of Its Advantages as a Therapeutic Agent.—Dr. Francis B. Bishop of Washington, D. C., read this paper. When applied to nerve centers or nerve tracts the functions of distant organs were readily influenced by the constant current. All physiological functions of the body were associated with definite body electrical currents and those currents were absolutely necessary to the proper action of all such functions. In disease the body currents of the affected part became weaker. Any form of stimulation applied to a muscle or nerve or to the surface of the body produced body currents proportional to the degree of stimulation and to the physiological activity of the tissues. The effect of treatment by any physical agent depended upon its power to stimulate the activity of these body currents. The constant current had *par excellence* the power to supplement the action of the normal body currents. Numerous diseased conditions were cited wherein its use was particularly recommended.

Osteosarcoma of the Inferior Maxilla; a Clinical Report.—Dr. F. C. Tice of Roanoke, Va., reported a case diagnosed clinically as osteosarcoma of the inferior maxilla successfully treated by the *x*-ray.

A Plea for the More Extensive Use of the Sinusoidal Current.—Dr. Fred H. Morse of Boston read this paper. In the treatment of certain pathological conditions results obtainable by the sinusoidal current differed considerably from what was to be obtained by the static, galvanic, faradic, or high frequency currents, or any of their modifications or combinations. Owing to the character of the current, it was possible to use a considerable amount of current and produce vigorous muscular contractions on both voluntary and involuntary muscles without the usual painful effects that would result from the galvanic, faradic, static, or induced currents. It was very useful in the treatment of dilated stomach, with or without gastroptosis. In any place where the faradic or static currents were indicated and could not be tolerated, we had in the sinusoidal current an agent of greater value than was generally understood or appreciated by the great majority of physicians.

Deforming Arthritis and Intestinal Stasis.—Dr. A. B. Hirsh of Philadelphia, said that physicians trained in physical treatment methods had with such full satisfaction relieved or cured chronic arthritis with enteric torpor, that it came rather as a surprise to learn that the intimate etiological relation thought to exist between the two symptom groups was now being denied by some authorities. Their position seemed to rest on laboratory studies rather than on clinical results. Until more dependable tests were found, the conflicting views of authorities as to the diagnosis of urinary extractives in arthritis must make the physical therapist continue to depend on the presence of indicanuria and on the fractional proportion between the conjugate and preformed sulphates as guides to intestinal proteid putrefaction, both as the cause of the joint trouble and as indications for its treatment. Other sources of infection should not be overlooked. The treatment included regulation of the bowels, a suitable dietary, exercises and hygiene, artificial support of ptosed abdominal organs, and the application of the static sparks to the joints for the removal of abnormal deposits and to the muscles for the relief of spasm.

Some Ideas Fertaining to Electrotherapeutics.—Dr. Anthony Bassler of New York said he seriously questioned the advisability of a great quantity of the literature that had been advanced in connection with electrotherapeutics, because some of it had hampered the progress of the specialty in the estimation of the best men in medicine. Numerous articles had appeared in which a large series of a certain line of cases were mentioned where the diagnosis was stated without as much as a qualifying symptom justifying the diagnosis. How could we ever hope to arrive at a definite opinion of the value of any measure of therapeutics unless the very closest minutia had been employed in the diagnosis, and all of the methods of treatment described. Instead of adopting the enthusiastic standard, the standard of work, experience and personal questioning should be installed, and such statements as might be made should always be accompanied with the reasons for the diagnosis and matters pertaining to the treatment.

Curability of Certain So-Called Incurable Chronic Diseases by Modern Methods.—Dr. Byron S. Price of New York said that chronic noninfectious disease conditions had long filled a conspicuous place in the list of "incurable diseases." In these conditions oxidation was always below par, stasis existed, and hyperemia, if present, was of the venous or congestive type. The result tended to one of scar tissue production, as in spinal-cord lesions, arteriosclerosis, chronic interstitial nephritis, chronic neuritis, etc. This class of cases required some means of direct tissue-cell stimulation for the production of oxidation and elimination of waste. These diseases had been left without hope of cure until William J. Morton conceived and made possible the application of the high frequency currents in their treatment. The indications were to end or modify the toxin production, and to eliminate as rapidly as consistent the waste products already retained in the tissues.

The Use of the Series Spark-Gap on the Static Machine in Roentgen Therapy.—Dr. George E. Pfahler of Philadelphia described an addition to the muffler of the static machine which introduced a series spark gap on either the positive or negative side of the circuit. It answered the requirements of being able to adapt the spark when the machine changed its polarity; it was noiseless; it could be adjusted from an adjoining room; and it did not furnish a path for leakage of current.

Food as a Factor in the Causation and Cure of Disease.—Dr. J. W. Torbott of Marlin, Texas, read this paper. The balanced ration from the true standpoint of caloric needs of the body was not commonly followed by either doctor or patient. The high protein diet so largely used now formed more toxic products, overworked the thyroid, liver, and kidneys more than any other diet, and thereby invited infections and the sequelæ following infections in the form of arthritis, nephritis, arteriosclerosis, neurasthenia, neuritis, and many other chronic diseases. One of the greatest factors then in the cure and prevention of such diseases was the adoption of a balanced ration of clean, well-prepared, nutritious, low protein food, laxative enough in character because of the cellulose and fruits to maintain intestinal drainage without irritation and give at the same time proper nutrition. The doctor should be the leader of this movement in educating the people through his patients by precept and example as to the great importance of dietetics from the standpoints of economics, as well as the cure and prevention of disease, to the end that they may know how to maintain health on a balanced, varied ration for the least amount of money.

The Indications and Contraindications of Electrotherapy in Gynecology.—Dr. H. F. Pitcher of Haverhill, Mass., said that after treating diseases of the pelvic organs for over thirty years he had yet failed to find a remedy which would replace electrotherapy in many of the diseases of women. Pelvic diseases in which he had found electrotherapy as the remedy of choice were gonorrhea, dysmenorrhea, menorrhagia, ovarian congestion and inflammation, chronic catarrhal and exfoliative endometritis, endocervicitis, chronic metritis, subinvolution, and the absorption of adhesions and exudates as the results of old inflammatory troubles.

Electrical Massage.—Dr. C. O. Files of Portland, Me., read this paper. By electrical massage by means of the hand of the operator the value of the massage was vastly intensified and the field of its use greatly broadened. In the anemic condition introducing many wasting diseases this modality had proved its efficacy. Static electricity had ben useful in this class of cases, but electrical massage had secured speedier and more brilliant results. There was no form of electricity that could be compared with electrical massage in hastening circulation and giving strength to muscles.

The Storage Element in the Therapeutics of the Constant Current.—Dr. Alfred T. Livingston of Jamestown, N. Y., related the case of a man on whom he had applied the constant current at frequent intervals and for long periods of time, in which there seemed to be a storage of electricity. A test was made and demonstrated that this was the case.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. George E. Pfahler, Philadelphia; *Vice-Presidents*, Dr. Albert C. Geyser, New York, Dr. Frank B. Granger, Boston; Dr. J. W. Torbett, Marlin, Texas; Dr. William L. Clark, Philadelphia; Dr. Fred C. Tice, Roanoke, Va.; *Treasurer*, Dr. Emil Heuel, New York; *Secretary*, Dr. J. Willard Travell, New York; *Registrar*, Dr. Frederick M. Law, New York.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 15, 1913.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

Cancer Research Institute.—Dr. J. G. ADAMI of Montreal, Canada, read this paper. He said that he found himself in rather an uncomfortable position because he was, despite the best of intentions, able to utter only mere commonplaces. The more he had thought the matter over, the more it had impressed itself upon him that the recommendations he could make were such as were already being carried out at the present moment in New York City. His conclusions must, therefore, be familiar to all who were interested in this subject. He wished to emphasize that the primary object of cancer research was the discovery, not of the cause of malignant new growth, but of the means whereby humanity might be protected against this awful scourge. Keeping this in mind it would be seen that there were two methods of attacking the problem, both logical and scientific, and it was for them to determine which promised the better results. These were the direct and the indirect method. Of the former Ehrlich had afforded a unique and triumphant demonstration in his discovery of salvarsan. This method of research might be most laborious, hundreds of compounds having to be devised, tested, and rejected, but it was a reasonable expectation that gradually certain groups of radicals would be encountered presenting definite specific action upon one or other phase of the particular morbid process, and that eventually some permutations or combination of such substance or substances would be discovered, which would definitely destroy the causative agent within the tissues, or arrest the morbid process without coincident grave injury to the tissues of the individual. This was the method that was being followed by Wassermann and his coadjutors and with a certain measure of reported success as regarded the cancer of animals of the laboratories. It was a purely therapeutical method, even if at the same time purely experimental. It was by means of the indirect method that scientific medicine in their generation had scored its most noted successes. It was the method based on the old Baconian aphorism, "Vere scire est per causas scire"; this was the etiological method. The treatment and control of tuberculosis, diphtheria, and other infections during the past thirty years dated from the moment at which the causative agents were determined, or, failing that (as was the case of yellow fever), dated from the time when, employing rigid analogy, the nature of the disease became realized, that was the detection of the cause threw light upon the mode of prevention of an allied disease. Even in Ehrlich's hands the direct method could not have succeeded but for the previous discovery of the causative agent of syphilis. Applied to cancer he had grave doubts whether the "Ehrlich method" could promise anything of the nature of a full control of the situation. It seemed to him that the majority of scientific workers must be with him when he made the proposition that the indirect method must be that which should be selected and that ideal cancer research must approach the solution of the problem by investigation into the nature of the process of normal tissue growth, into the life history of malignant growths, and so into the cause or causes of neoplasms. Admitted that an institute along the latter lines would be the better and also admitted that despite the labors of a generation of investigators the cause of cancer was still undetermined, how were they to proceed?. The energies of the institute must not be devoted to immediate endeavors to determine the cause, but the position had to be invested from all sides and thoroughly undermined. It was better for an institute to concentrate on one line of attack, though this required no little strength of mind with the full knowledge that it might very possibly turn out to be futile. Cancer research to be well conducted necessitated heavy expenditure, so heavy that the institute was most likely to be of service if it took up one or at most two lines of work. An instance of such concentration of effort might be mentioned in the work of the Imperial Institute for Cancer Research in London which had done valuable work by the accumulation of statistics of cancer incidence in different parts of the world, or that of the Ehrlich Laboratory devoting itself to the transplantation of tumors in the lower animals. If Dr. Gaylord and his associates had failed to discover the causative agent of cancer they had done yeoman service by the methods of exclusion. As a result of such work they had a much fuller knowledge of very many aspects of the problem than they had ten years ago; they were in a position to direct their efforts far more methodically and more serviceably than at any previous period. If, however, there were abundant funds the ideal institute would be in such a center as this, where there were abundant research workers in the various branches of biology and where experts of all orders might be gathered to make a combined attack from many sides. The plan outlined by Columbia College under the Crocker bequest seemed to him admirable, though he was not acquainted with it in all its details. His ideal of a cancer research in a great wealthy city was a combination of an institute such as in Harvard was termed a "commission." There must be a central institute or administration bureau which should contain a library where was collected all modern literature bearing on cancer research, a director's office, and a suite of laboratories and animal rooms for the use of those making investigations under the immediate direction of the head of the institute. There should be a conference chamber, for in his opinion informal conferences had a great value. It was by combined effort that success was most likely to be attained, where individuals were working for the reputation of the institute and for the good of humanity and not for their own glory and advancement. The development of this *esprit de corps* depended essentially upon the influence of the head of the institute. A desideratum of equal value was a hospital or certain wards in a hospital already existing. Failing this, there was danger that the work would become too academic, too remote from practical needs. In such hospitals which offered facilities for the treatment of patients it must be laid down that in return the families must consent in case of death to a post-mortem examination. Beyond these two central sections there was no need to duplicate special laboratories in physics, chemistry, physiology, cytology, and general biology, pharmacology, and experimental therapeutics. Where these were present it was both economical and practical to use them to the fullest. Make the heads of such laboratories members of the executive of the institute and develop the spirit of cooperation so that there may be free consultation between the members of the executive. Let these laboratories be thrown open to those willing and anxious to conduct investigations along any particular line under the direction of the head of each laboratory, the maintenance of the investigators, and the cost of the investigation being paid by the institute. Let the work thus done be brought together and focused by the periodical conferences already referred to. All this depended upon the spirit in which the work was entered into, and above all things on the spirit and enthusiasm of the director.

Cancer Statistics.—Mr. WALTER F. WILCOX of Ithaca, N. Y., read this paper, in which he summarized the conclusions of Messrs. King and Newsholme in their notable paper written in 1893 supporting the conclusion that "the increase in cancer is only apparent and not real," and outlined the objections that had been raised to this conclusion. He called attention to the large body of new evidence which had been accumulated in the intervening twenty years, especially that to be found in the international summaries published by the French government in 1907, and by the Amsterdam statistical bureau in 1911-1912, and in the annual mortality statistics of the registration area of the United States, 1900-1911. After analyzing this and other evidence he concluded that "probably the larger part of the increase, and possibly all the increase, in the mortality from cancer is apparent rather than real. Those who doubt this statement and hold that most of the increase is real may interpret the evidence as showing that the real increase is not at a geometrical or even an arithmetical rate, but diminishes as the death rate from cancer rises, and a few cities, it is already approaching its maximum." and that perhaps in certain limited areas, like Switzerland

Public Education in Cancer.—Dr. WILLY MEYER said he would approach his part of the symposium, "Public Education in Cancer," from the standpoint of the general surgeon. There were three questions of importance, viz.: What was the cause of cancer? Was cancer infectious or contagious, or both? Was cancer curable? These were the questions that were continuously placed before the general surgeon by patients who came to consult him.

1. What was the cause of cancer? He did not think that this was the time or the place to consider this. Still the question had some bearing on the subject of public education in cancer. It was an interesting fact that pathologists in discussing this problem were absolutely opposed to the theory of the cause of cancer being due to a parasite or a microorganism, whereas many general surgeons by clinical observation come to this conclusion. Plain logical thinking in examination of patients could hardly make one think otherwise than that the cause of cancer was a living organism. Take, for instance, a tumor of the breast that did not show the typical symptoms that are suggestive of carcinoma, nor point to a benign tumor. The differen-

tial diagnosis lay between tuberculosis, syphilis, and actinomycosis. We know that tuberculosis is caused by the tubercle bacillus, syphilis by the spirochete, and actinomycosis by the *Actinomyces bovis*—all living organisms. Why should a tumor of this kind, which proved to be carcinoma, have an origin of an entirely different character? Dr. Meyer asked that he be permitted to report two personal observations that had some bearing on this question. In the early nineties the treatment by the injection of methyl violet, particularly fuchsin, was in vogue in patients suffering from inoperable cancer. In one patient with an inoperable regionary carcinoma after amputation of breast this treatment was carried out in the office in the summer. She returned two days later saying that she had an itching sensation over the entire region of the breast. On removing the dressings he found a condition which ordinarily would be diagnosed as an acute eczema. There were innumerable minute elevations near the area that had been injected. It appeared to him as an acute eczema which occurred so frequently under a dressing during the hot weather. He was surprised, in the course of the further observation of this case, to find that every one of these small elevations developed into a carcinoma. He could find no other cause or any other explanation of this phenomenon unless it was that he injected the fuchsin into a nest of local carcinoma, liberating something which was carried by a local artery into the adjacent field in the shape of multiple emboli as in miliary tuberculosis. This something could hardly have been cells. They could not produce by multiplication visible elevations within 24 hours. Further, not long ago Dr. Meyer was called upon to operate upon a patient who seemed to have tuberculosis of the peritoneum, all the symptoms of this condition being presented. He operated and found a large amount of fluid in the peritoneal cavity and the typical signs of tuberculosis, with the one exception, that the minute nodules appeared somewhat more solid than tubercles. A portion of the omentum was excised and he was very much surprised at the pathologist's report, miliary carcinosis. The clinical signs of carcinoma in this case so closely resembled those of tuberculosis that he was confused in his diagnosis. He could not imagine any other cause of carcinoma than a living microorganism and he thought that this would be found some time in the future. If cancer was due to some other cause, biological, chemical or otherwise, why should it happen that after a primary early excision of a cancer, apparently curing the patient, with the same cause persisting, the tumor did not promptly reappear? As mentioned above, many surgeons had come to this conclusion. He said he was very much interested in the report of Professor Georg Klemperer of Berlin, an internist, director of the Institut für Krebsforschung, who also believed that some living organism would be found to be the cause of carcinoma. He said they should just keep on searching and it would be found. He thought it of great importance that the public should be taught and be made to understand that real progress in the cure of cancer could be made much faster if the cause of cancer had been found. Consider the immense progress that had been made in tuberculosis after the demonstration of the tubercle bacillus by Koch and in syphilis after the discovery of the *Treponema pallidum* by Schaudinn. The great trouble with reference to cancer was the fact that there was not sufficient money, no large endowment fund available in every country of the world. If millions of dollars were available for this work on cancer, there would be without doubt rapid progress made in learning its cause.

2. Was cancer infectious, contagious, or both? This was the second important question usually put to the doctor by the patients. One had never seen nor heard of a patient afflicted with the disease conveying it to his wife. Nor did they ever hear of a nurse caring for a patient with carcinoma for months ever becoming stricken with the disease. Dr. Meyer had never heard of a surgeon who, for instance, had injured his finger during the performance of some operation on a cancerous subject ever developing cancer. It did not appear that cancer could be conveyed from one person to another in this way, and therefore the disease could not be considered infectious. An observation he had made was perhaps of some slight interest. He had operated upon a patient years ago by suprapubic cystotomy for a large papilloma of the bladder, cancerous at its base. The disease recurred. The cystoscope showed an involvement of the prostate gland, and the patient was again operated upon and the bladder had to be left open. During the time of treatment he was called to examine the wife and he found she had a carcinoma of the cervix uteri. She was operated on by a gynecologist and died from carcinosis a year later. This was an interesting case to him and one which he often had in mind, although he was unable to state positively that the disease was conveyed from one to the other.

3. Was cancer curable? This third question was always primarily in the patient's mind and he was glad that he could answer this question in the affirmative. Yes, cancer was curable by the surgeon's knife if the growth was radically removed at an early stage. The whole question resolved itself into early diagnosis and early operation. They all knew the clinical aspects in the development of the three stages: (*a*) Cancer was an entirely local disease. (*b*) It was still a local disease with the regionary lymphnodes involved. (*c*) There were metastases.

All had seen that if the cases were diagnosed in time many of such patients could be cured by operation, and absolutely cured. Many observations also demonstrated the fact that cancer in the secondary stage had been cured. Dr. Meyer wished to call special attention to cases of cancer of the breast. Many times had he been called upon to operate on such cases when there was far-reaching involvement of the axillary glands as well as of the infraclavicular glands. Yet these cases, if treated radically, in from forty to fifty per cent., had lived and been under observation for five years and longer. Observations by Wertheim with his operation in five hundred cases of cancer of the uterus showed more than forty per cent. cures. Also the personal statistics of Koeher in resection of the stomach for carcinoma showed twenty per cent. permanent cures. And so it went. Their statistics showed that they were not only able, by means of the knife, to cure carcinoma in the first, but in the second stage. For the after-treatment they were greatly helped by the *x*-ray serum treatment, etc. Therefore, the whole question resolved itself into early diagnosis and early operation. It seemed to Dr. Meyer that it was absolutely necessary to educate not only the public but also the profession in these questions. Undergraduate as well as post-graduate students ought to be taught the importance of an early diagnosis of cancer and its management in special classes, so that they should bear in mind certain symptoms that made these cases suspicious. As one instance he called attention to blood in the urine, vaginal, or rectal discharges. The fact that blood was found in the urine, as a symptomless hematuria, was very important and should always create the suspicion of carcinoma of the kidney. These suspicious cases should be promptly and as early as possible submitted to a cystoscopic examination, especially during the time of the hematuria in order to determine the affected side. The same thing held good in the diagnosis of cancer of the uterus. If there was a bloody discharge from the vagina, especially after the time of the menopause, there should be the suspicion of a beginning carcinoma. This also applied in bleeding from the rectum. This was so often forgotten by the busy general practitioner; if blood appeared in the stools, patient and doctor usually thought first of hemorrhoids. Even if these could not be excluded the individual should be subjected to a digital examination and rectoscopy. Cancer of the esophagus was most benign; the glands in the neighborhood were little involved and there occurred but little in the way of metastases. These patients came early to the doctor because of the difficulty in swallowing, and this occurring many times day after day was the reason that the doctor often had the opportunity of seeing patients with this complaint during the early stage of the disease. The fluoroscope, the *x*-ray sounding with special instruments and esophagoscopy were valuable adjuncts in the diagnosis of cancer of the esophagus and should be used in such cases without delay. If the case was in doubt the surgeon should go ahead and make an exploratory thoracotomy, being prepared for radical work, and so possibly save the patient. Dr. Meyer insisted upon teaching undergraduates and those in post-graduate schools the necessity of making an early diagnosis of these cases of carcinoma. Those who had lived through the times when there was so much discussion on appendicitis knew that patients nowadays frequently came and said, "Take out my appendix." Such was the result of the education of the public in this matter. And the same should result from educating the people regarding carcinoma and the early symptoms of this disease. Of course one should not always blame the general practitioner; many times there would occur carcinoma of the rectum, or of the pylorus, or other organs, and when the general practitioner was consulted it would be too late. Much good was to come from the education of the public. Only today he had seen a woman far advanced with cancer of the breast and she brought as an excuse that the tumor had never been painful. We know that painless tumors

of the breast are very suspicious of being malignant. The public should be educated; they should be told that as soon as blood appeared in the urine, for instance, they should at once consult a doctor and insist upon a diagnosis. It was hardly necessary to call the attention of this audience to how far advanced they were in their warfare against cancer and in the education of the public. It was well known that there were various associations that had taken this matter in hand; committees had been formed for instance in New York for educating the public in this matter. A cancer campaign committee had been created by the Congress of Surgeons of North America last fall, and so on, all working along the same lines and in the same direction. It could not be denied that the work that was already being done was a good one. According to the laws of medical ethics it was hardly permissible for a doctor to write articles for the weekly or monthly magazines, still less for the daily press, in order to so educate the public. But it was a splendid idea and nicely possible for a man like Samuel Hopkins Adams to publish in *Collier's Weekly* articles which tended to educate the public regarding cancer. Dr. Meyer said he was very much interested in hearing in a paper just read by Dr. Cullen of Baltimore how the daily papers had reprinted this article and that the doctor had received letters stating how the husband who had read this article had induced his wife, affected with a tumor, to consult her doctor at once; how another lady had told her husband to do the same. In closing his remarks Dr. Meyer said that they hoped to attain the same results and to save as many lives in patients afflicted with cancer by this general publicity campaign as they had succeeded in doing in those afflicted with tuberculosis.

Dr. Robert Abbe said that a debt of thanks was due to Dr. Wilcox for presenting more comforting statistics than any reviewer of the last decade. Those of Mr. Hoffman, statistician of the Prudential Life Insurance Company, lately presented in Washington, were illustrative of the recent tendency to build up world statistics magnifying the numerical evidence of increase in the cancer plague. Dr. Wilcox's analysis, however, based on smaller groups of well selected statistics, was more in keeping with his own personal observations. Dr. Abbe had felt that in spite of the greater number of cancer cases presenting themselves to the surgeon, coming out of the dark, as it were, the memory of large surgical clinics of thirty years ago recalled about the same proportion of cancer cases as at present which were the subject of clinical lectures. Dr. Adami deserved thanks for the "push" his address would give the work of the cancer research, to study more the cause of cancer than the treatment. Dr. Abbe said that he, himself, had worked more along the lines of treatment, especially local treatment. The remarks of Dr. Meyer that all tendency was now to regard the causation as microbic did not agree with the speaker's observations. The argument of analogy was offered, that "in considering a breast tumor one thought of four possibilities, syphilis, tuberculosis, actinomycosis, and cancer, of which the first three were acknowledged to be microbic, and it was probable that the fourth would be found to be." The fallacy of this was apparent when one showed that easily 95 per cent. of these tumors were disorders of the glandular structure of the breast, wholly unlike any of the others. In addition one saw that Dr. Carrel's growth of cells *in vitro*, carrying on generation after generation of cell development in culture tubes, demonstrated that living cells were not microbes, though they might act like them. A further and very strong argument against the microbic origin of cancer had developed in Dr. Abbe's mind in the fact that radium had a powerful influence on cancer cells, but not through its bactericidal action. The alpha rays emitted from radium were strongly bactericidal, but the gamma were not so. All workers in radium knew that the alpha rays were destructive of tissue as well as bacteria brought in intimate contact; while the beta rays were stimulating, and only the gamma rays were efficient in causing retrograde changes in malignant cells. Hence one must admit that cancers destroyed by radium where no access of alpha rays was permitted were altered by the non-bactericidal gamma rays, which entirely altered their life course and rendered them inert and atrophied. After ten years' study on radium in cancer work it was now evident that men who had sneeringly criticised its beneficent action as limited to small superficial epitheliomas, easily taken care of by other surgical means, must admit that as new evidence was accumulating to show that larger doses than had been hitherto available and new ideas about filtering out burning and stimulating rays by heavy lead or distance filtration had demonstrated a greater efficiency on larger growths and gave promise of a broader field of usefulness. The effects of radium rays on seeds, whose vital forces might be justly compared to that of animal cells, demonstrated that seeds kept for a while close to radium were killed, those at a slight distance were stimulated, and at a greater range they were devitalized and grew with less and less vigor up to a certain distance in comparison with unradiumized seeds planted under similar conditions. This coincided with the results seen in tumors. The failure of radium to cure certain growths urged on the study of cause and effect. It was becoming evident that the use of small or weak doses of radium had been efficient, because of the lack of knowledge of filtration to obtain the more competent penetrating gamma rays in massive doses. This was shown in no better way than by the destruction of epitheliomas caused by the use of Röntgen rays stimulating the skin to develop cancer which the rays of radium cured. This cure was not brought about by any action like cautery or caustic, but by restoring to the aberrant cell growth some lost power of self-control, restoring it to normal lines of growth. It seemed to the speaker that even with the small amount of radium available to the surgeon such progress had been already made to apply this subtle and unique power as gave promise of increasing future value.

Dr. Greenough of the Harvard Cancer Research said that he was more interested in the surgical side of the cancer problem, and was heartily in accord with what Dr. Meyer had said regarding the treatment of cancer by surgical means. He could not accept the views expressed by him in regard to the etiology of cancer. There was no doubt that the public should be educated to understand the meaning of early symptoms pointing to cancer; the general practitioner should be instructed in this matter as well. It was well known that a poor person living in a large city received good treatment; the wealthy were also able to get good treatment and advice, but the bulk of the population living in the country had to depend on less good medical treatment and advice. Only the day before he had operated on a woman for cancer of the breast who had noticed the tumor eight months before consulting him. It was not painful, but she was concerned because of its presence. She had consulted a general practitioner, who had said: "Let it alone until it bothers you." The pathologist's report showed that this was a cancer of the breast. The public should be educated especially along the lines of the early symptoms of cancer in the different localities in the body. The laity should be taught to consult the surgeon or the family physician when any tumor was noted.

Dr. Howard C. Taylor presented the following resolution which was seconded and unanimously carried: *Whereas*, A movement has been started in New York City to educate the people at large on the subject of cancer, and *Whereas*, Sufficient influence in this work by laymen has been shown to raise money to start the campaign of education, Be it *resolved*, That the New York Academy of Medicine give its approval of the movement.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held May 22, 1913.

Dr. George Gray Ward, Jr., in the Chair.

Beneficial Effect of Renal Decapsulation as Shown by Functional Tests Before and After Operation.—Dr. Henry Dawson Furniss reported this case. The patient was a woman who had been married three years, and who soon after marriage had had a plastic operation on both ovaries for a cystic condition. Shortly after this she became pregnant and during the latter months of her pregnancy she had a large amount of albumin in her urine. At the time of labor she had forty-one convulsions, which were followed by loss of memory for three months. Since that time her health had been poor. The urine was constantly of low specific gravity. She missed two periods and since missing the first had felt worse. Phenosulphonephthalein was injected intravenously; 15 per cent. was eliminated in the first hour and none in the second. Because of her previous history, the constant low specific gravity, and the increased headaches, it was decided to empty the uterus, which was done under gas oxygen anesthesia. The patient made an uneventful recovery. While in the hospital the potassium iodide test was given, 0.5 grams being eliminated in forty hours. Twenty c.c. of 10 per cent. lactose injected intravenously was eliminated in four hours; with phenolsulphonephthalein, 0.6 mg. having been injected intravenously, five per cent. was eliminated in the first hour and only a trace in the second.

The blood pressure was 135. The patient after returning home had a great deal of headache and did not improve as she should have done. Under gas oxygen ether, Dr. Lloyd operated on the left side and Dr. Furniss on the right, both kidneys being decapsulated. So far as could be determined they appeared to be normal in size and appearance; the capsule was not thickened or adherent. Within four days after this the headache had disappeared and the patient felt better than she had for a year or more. A week after the operation phenolsulphonephthalein was again injected intravenously and the elimination during the first hour was 90 per cent. and 10 per cent. in the second hour; from this they knew that too much had been given. A second test showed 65 per cent. in the first hour and 15 in the second. Two weeks after the same results were obtained. The patient was slow in regaining her strength, but complained of no more headaches, and the phenolsulphonephthalein test given about six weeks after the operation showed an elimination of 55 per cent. during the first hour and 10 per cent. during the second. The only time that he had obtained any albumin was immediately after the first operation and then there was a very large amount with many hyaline and granular casts.

Dr. Harold Capron Bailey asked Dr. Furniss what were the indications which caused him to operate and whether the benefit was theoretical or actual. He could not understand the indications in the case which called for this operation.

Dr. Henry Dawson Furniss, in answer to Dr. Bailey's inquiry, said that the patient had had eclampsia and had never been well since, suffering from headaches, which were constant, and there was a low elimination of phenolsulphonephthalein, which showed that there was some derangement of the kidneys. After the operation the elimination of phenolsulphonephthalein which previously had been about 5 per cent. during the first hour increased to 65 per cent. Since the operation the patient had been free from headaches and felt better than she had done for two years. He suspected a contracted kidney and thought some operation should be done.

Specimen of Early Ectopic Gestation.—Dr. George Gray Ward, Jr., presented this specimen. The patient from whom the specimen was removed was twenty-five years of age and had been married five months. Her last period was on November 26 and the following one was four days late, and was more painful than usual, and spotting continued. As she had some pain in the left side an ectopic gestation was suspected. A vaginal section was made on January 24 and free blood was found in the abdomen; an abdominal section was then made and a very early unruptured pregnancy found. The uterus was of the infantile type and contained an interstitial fibroid, the size of a small marble, in the fundus. As the husband had an uncured syphilis and the patient herself had a tuberculous history, and as there was a uterine fibroid, a supravaginal hysterectomy was done, leaving the right ovary *in situ*. The appendix was found to be tuberculous and was removed. A nodular mass was found in the wall of the ileum, which was evidently tuberculous; therefore, a resection of the gut was made and an anastomosis completed. The patient made a good recovery.

Epithelioma of the Clitoris.—Dr. George Gray Ward Jr., reported this case. The patient was 46 years of age, had been married 30 years, and had had six children, all normal labors and no miscarriages. A year previous to presenting herself she noticed a small pimple in the region of the clitoris which had steadily increased in size. Three months before entering the hospital the growth had ulcerated. The patient was cachectic and a blood examination showed hemoglobin 30 per cent., and 1,150,000 red cells. There was no leucocytosis, and the patient complained of loss of strength and pain. The size of the growth was about that of a silver dollar, the clitoris, vestibule, and a portion of the left labium being involved. There was a complete excision of the growth together with a considerable area of normal tissue down to the periosteum of the pubic bones. The edges of the wound were brought together with silkworm sutures. The patient made a normal recovery and the blood picture rapidly improved.

Occlusion of the Cervix and Partial Obliteration of the Uterine Cavity Following Puerperal Sepsis.—Dr. E. A. Bullard of Brooklyn reported this case. The patient was sent to the Long Island College Hospital on August 27, 1910, in a desperate condition during her fourth labor. On August 27 a stillborn baby was delivered. Puerperal sepsis and neuritis affecting both legs ensued. The sepsis was severe and the patient was in a more or less dangerous condition for a month. The treatment of the sepsis consisted of intrauterine douches during the first few days, the Murphy drip, and stimulation when required. The patient finally recovered and was discharged on December 25, though she still has some leucorrhea and a slight neuritis. About two years later she returned in apparently perfect health except that she had never menstruated since leaving the hospital. Every four weeks she had the menstrual molimen for a few hours, but no pelvic pain and never a drop of menstrual fluid. Examination revealed a slight cystocele and a moderate laceration of the perineum. The cervix was normal in size and mobile, but very hard. The site of the external os was replaced by scar tissue. A sinus which admitted a probe for about one-half an inch was seen on the right side of the cervix. Bimanually the uterus seemed about normal in size, retrocessed, but mobile. There were adnexal enlargements and no tenderness was present. The cervix was split up bilaterally. The little sinus was found to be about one-half inch in length, with a blind end. An opening was made into a cavity in the left side of the fundus; this cavity was about one inch long and one inch wide, and contained a little mucus, but no blood. It was not curetted for fear of destroying whatever chance the patient might have of menstruating. The cervix was sewn up and a hard rubber stem pessary was put into the uterine cavity emerging into the left lateral fornix. The abdomen was opened through a low median incision and the uterus was found to be about normal in size and appearance. The tubes were occluded in their inner thirds. The ovaries appeared about normal and one contained a Graafian follicle about to rupture. The patient made an uneventful recovery and left the hospital in about ten days. Three weeks later she returned and it was found that the sutures holding the pessary had cut through and the pessary had been lost. However, a sound could be passed into the uterine cavity. The patient was told to come to the clinic every other day in order to have sounds passed, but she neglected to follow these instructions and by the end of a month the little canal was closed up. At no time after the operation was there any suggestion of a menstrual flow. He had seen the patient at intervals of from two to four months and she was always in the same excellent health. He believed that the sepsis was responsible for the entire destruction of the endometrium, the partial obliteration of the uterine cavity, and the total occlusion of the cervical canal. It was interesting to note that so little damage had been done to the tubes, and no discoverable harm to the ovaries. In an extensive search of the literature he had found that atresia of the fundus or cervix was much more rare than that of the vagina. He had found the records of about 100 cases. The etiology of these cases was interesting, the condition being attributed to puerperal sepsis in 18 cases, to atmocausis in 10 recorded cases, to cicatricial contraction of obstetric lacerations in 12, to congenital causes in 13, to acquired but unknown causes in 9 cases, to the application of caustics to the uterus and cervix in 14, to defective amputation of the cervix in 3, to the continuous use of the pessary for many years in 2, to tuberculosis of the fundus in 1, and after a severe leucorrhea of gonorrheal origin in 1. In the early days of the use of steam for controlling uterine hemorrhage Pincus, Duhrssen, and others had several cases of partial or complete obliteration of the cervical canal until they learned that about thirty seconds of atmocausis should be the maximum time. Most of the congenital cases were of the cervix only and were cured by trachelorrhaphy or puncture of the cervix. In only a few of the septic cases was the endometrium hopelessly destroyed, as in the speaker's case.

Dystocia Following an Interposition Operation, Complicated by Placenta Previa.—Dr. George W. Kosmak reported the case of a multipara, seven months pregnant, who was admitted to the Lying-In Hospital April 19 last with a history of sudden bleeding without cause which began a few hours previously. She was not in labor. An examination made about two hours after the hemorrhage began showed the vagina filled with large blood clots. A search for the cervix disclosed the same at the extreme upper end of an elongated vagina in a position above the brim of the pelvis. It was very rigid, admitted one finger, and the canal was about two inches long. The cervix could not be pulled down and further exploration showed the presence of a centrally situated placenta previa, which had separated from the lower uterine segment. In view of the necessity of an immediate delivery, as the patient was bleeding freely, an abdominal cesarean section was decided on as offering the most favorable outcome for the patient. The fetal heart could be heard, but it was faint. A gauze pack was temporarily inserted and the patient prepared for operation. After the removal of the gauze a vaginal douche of plain sterile water was given on account of the previous vaginal manipulation. Cesarean

section was done and a small fetus, which breathed for a short time, was extracted by the breech. The placenta was found to be almost separated in the lower segment of the uterus over the cervix. It was readily extracted with the membranes. There was comparatively little bleeding and prompt contraction occurred. The patient was returned to bed in fairly good condition. She made a good recovery and was discharged from the hospital in three weeks, although she was up on the tenth day. Her anemic condition was largely benefited by keeping her on the roof of the hospital during the greater part of the time. A more complete history obtained subsequently showed that the patient was thirty-five years old, married seventeen years, had had six children, and four early miscarriages. In her fourth confinement instruments were required because of a large child, and she dated her uterine prolapse from this time. It was evidently complete, as she stated that the ulcerated cervix projected entirely beyond the vulvar opening. She was operated on in August, 1912, and made a good recovery following the interposition operation. Her last regular period was normal. During her pregnancy she was well except for an inability to urinate readily and catheterization had to be resorted to several times. She stated that she had worked all through her pregnancy and did not observe anything abnormal until she began to bleed on the morning of her admission to the hospital. An examination made on May 21, 1913, showed her to be in good general condition, with but a small abdominal scar. The uterus was in a very good condition, with the fundus below the bladder and well involuted.

This case was reported by Dr. Kosmak as showing the possibility of a dystocia following this operation. It was unfortunate that the condition was complicated by the presence of a placenta previa, although with the lack of mobility of the cervix it was doubtful whether labor could have taken place at term without resort to interference and with the greater distention of the uterus at this time a rupture could readily have taken place. Sterilization of the woman was not permitted at the time of the operation because her condition of shock prevented any extension of the time necessarily required by the same.

SECTION ON MEDICINE.

Stated Meeting, Held May 20, 1913.

DR. JOSEPH C. ROPER, CHAIRMAN *pro tem.*

Adherent Pericardium—Exhibition of Specimens and Cases; also One Case of Cardiolysis.—Dr. GEORGE MONTAGUE SWIFT read this paper and showed specimens and cases from St. Mary's Free Hospital for Children. By adherent pericardium he understood a condition following an acute process involving the external and internal surfaces of the pericardium, and the adjacent tissues in the mediastinum, causing adhesions to the chest wall as well as to the soft tissues. The term chronic pericarditis, adherent pericardium, mediastinitis, mediastinopericarditis were used practically synonymously. Between January 1, 1909, and January 1, 1913, there had been at St. Mary's Free Hospital for Children 30 cases showing this condition, and there were admitted annually 750 medical cases. Since October 1, 1912, there had been eight cases of chronic and three cases of acute pericarditis. These figures showed that the condition was not an infrequent one and that pericarditis occurring among children was common. The average age was found to be about nine and a half years.

In speaking of the etiology he said that several investigators had shown that pericarditis was due to bacterial infection; there were found diplococci, pneumococci, streptococci, staphylococci, and mixed infections. They had not met with any cases of tuberculous infection. Different germs probably caused some variation in the character of the effusion and the later developments of the condition must also be influenced by the character of the exudation. The important fact was that the disease was due to an infection and that the infecting organism probably gained entrance to the circulation through, most commonly, the tissues of the nasopharynx, tonsils, gums about decayed teeth, etc., and also from any point of infection. This was a most important point as regarded prophylaxis, as well as treatment. It was essential that they should seek to remove all possible sources of infection, and abandon the idea of "rheumatism" as a cause or, indeed, as meaning anything. Symptoms and signs of chronic pericarditis, adherent pericardium, were mainly those of dilated heart; the one characteristic sign, present, however, only when the heart muscle was in fairly good condition, was a retraction of the intercostal spaces over the heart during systole. One found also a bulging of the precordial area, frequently an impulse almost in the axillary line, which impulse was not altered by changing the position of the subject. In cases where the heart muscle was weak there might be an impulse. There was also great enlargement of cardiac dullness. By auscultation, ordinarily one heard loud double murmurs, but in the chronic cases there was nothing especially characteristic. In many of the cases autopsy had shown the valves of the heart to be without lesion, though the murmurs during life were loud and persisting, and apparently valvular. The *x*-ray plates had been of the greatest aid in diagnosis. Several cases unrecognized by ordinary methods had been demonstrated by Dr. Busby to be cases of adherent pericardium. Without the *x*-ray one might suppose that he had to deal with a heart enlarged only from valvular disease. If the individual survived the acute process, as many did, the later course and development must depend upon the location and character of the adhesions formed, and the extent of the involvement of the myocardium. In many cases there seemed to be a continuing growth of connective tissue which gradually by its contraction pinched the nutritive blood vessels and a gradual degeneration of the heart muscle followed, so that upon autopsy one found a mere bag of connective tissue with almost no remaining heart muscle. In other cases there was such a retraction of the new tissue forming the adhesions that the large vessels in the chest were pulled upon so that there was much interference with the return circulation, and hence great enlargement of the liver and fullness of the veins of the neck. There might be an excessive cough due to the involvement of the laryngeal nerve. The possibility of signs produced in this way were many; in one instance a boy of nine years had a bruit over the base of the heart, suggesting the presence of an aortic aneurysm, but the *x*-ray showed no dilatation of the aorta. Though the ultimate prognosis was bad one of the patients exhibited appeared to be in excellent condition; three years ago his state was most deplorable.

One patient in private practice whom he had known for twenty-seven years had such firm and extensive adhesions as to embarrass the movements of the heart and also the movements of the chest wall and diaphragm in respiration. Operation had been devised by Brauer to free some of these adhesions and had been done by several surgeons with varying degrees of success. During the past winter one of the cases in St. Mary's was adjudged to be an appropriate case for operation, and this operation of cardiolysis was done by Dr. Dowd. The case was exhibited, but Dr. Dowd did not think that so far it had materially benefited the boy.

A Case of Graves' Disease with Scleroderma and a Positive Wassermann Reaction Treated with Salvarsan.—Dr. H. F. L. ZIEGEL read this paper. (See MEDICAL RECORD, Vol. 83, page 1124.)

Dr. HOWARD FOX said that he had first seen the patient about two years ago, when she had come to the clinic to be treated for scleroderma. He had made a Wasserman test, which proved to be negative. He had made the test because at that time the possibility of a connection between scleroderma and syphilis was being discussed. In a number of cases of the generalized form of scleroderma, positive Wassermann reactions were obtained. This applied particularly to the sclerodactylia type of the disease, which began in the fingers and extended up the arms, and was at times associated with Raynaud's disease. In the localized type of scleroderma, the so-called morphea, he had always found the Wassermann reaction negative, an experience which practically coincided with that of others. He was not inclined to think that the skin lesions in this case stood in any relation to syphilis. Whether the generalized type of scleroderma was specific in origin or whether it represented another class of diseases in which at times non-specific inhibitions were obtained he could not say. Dr. Fox thought that the chief point of interest to the members of the medical section was doubtless the improvement in the symptoms of Graves' disease that had followed the injections of salvarsan. From this standpoint the improvement of the scleroderma was of special interest. This could be seen in the photographs which he had taken at an interval of two years. The large area of solid infiltration had broken up into small islands of sclerodermatous tissue. Of course, such an improvement might have been spontaneous. As, however, the treatment of scleroderma was notoriously unsatisfactory, the improvement shown after Dr. Ziegel's treatment was at least interesting and suggestive.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Surgical Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago, August, 1913. Volume 2, No. 4. Paper; illustrated. W. B. Saunders Company, Philadelphia and London.

Anatomy, Descriptive and Applied. By Henry Gray, F.R.S. Illustrated; cloth; 1,502 pages. Lea & Febiger, Philadelphia and New York.

Clinical Surgical Diagnosis. By F. De Quervain. Illustrated; cloth; price $7 net; 779 pages. William Wood & Company, New York.

Orthopedics in Medical Practice. By Prof. Adolf Lorenz and Dr. Alfred Saxl. Illustrated; cloth; price $3 net; 288 pages. William Wood & Company, New York.

Acute Abdominal Diseases. By Joseph E. Adams, M.B., M.S., Lond.; F.R.C.S., Eng.; and Maurice A. Cassidy, M.A., M.D., B.C., Cantab., F.R.C.P., London. Illustrated. Cloth; price $4.50 net; 571 pages. William Wood & Company, New York.

Headache. By Dr. Siegmund Auerbach. Cloth; price $1.50; 208 pages. Oxford University Press, London.

Infection and Immunity. By Charles E. Simon, B.A., M.D. Second Edition. Illustrated; cloth; 325 pages. Lea & Febiger, Philadelphia and New York.

Malaria. By Graham E. Henson, M.D. With an introduction by Charles C. Bass, M.D. Illustrated; cloth; price $2.50; 190 pages. C. V. Mosby Company, St. Louis.

Zeitschrift fur Geburtshülf und Gynäkologie, LXXIV. Band 1, Heft. By Various Authors. Paper; Illustrated; 450 pages. Ferdinand Enke, Stuttgart.

Offentliche Ruhehallen. By Prof. Dr. R. Sommer. Paper; 49 pages; price 1.20 mark. Carl Marhold, Halle a. S.

Modern Ophthalmology. By James Moores Ball, M.D., LL.D. Third Edition, Revised and Enlarged. Illustrated; cloth; 911 pages; price $7.50 net. F. A. Davis Company, Philadelphia.

Studies in Cancer and Allied Subjects. The Study of Experimental Cancer, a Review. Vol. I. By William H. Woglom, M.D. Cloth; illustrated; 288 pages; price $5.00 net. Columbia University Press, New York.

Studies in Cancer and Allied Subjects. From the Departments of Zoology, Surgery, Clinical Pathology, and Biological Chemistry. Conducted under the George Crocker Special Research Fund at Columbia University. Vol. III. Cloth; illustrated; 308 pages; price $5.00 net. Columbia University Press, New York.

Titan, Son of Saturn. By Joseph Birkbeck Burroughs, M.D. Ninth Edition. Cloth; 452 pages; price $1.50. The Emeth Publishers, Oberlin, Ohio.

The Diseases of Children. By Henry Enos Tuley, M.D. Illustrated; second revised edition; cloth; 684 pages; price $5.50. C. V. Mosby Company, St. Louis.

The Doctor in Court. By Edwin Valentine Mitchell, LL.B. Cloth; 152 pages; price $1.00. Rebman Company, New York.

Studies Concerning Glycosuria and Diabetes. By Frederick M. Allen, A.B., M.D. Cloth; illustrated; 1,179 pages. W. M. Leonard, Boston.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by Leighton F. Appleman, M.D. Vol. XV, No. 3. Paper; illustrated; 310 pages; price $6.00 per annum. Lea & Febiger, New York and Philadelphia.

Über Cystitis. By Dr. R. Hottinger. Paper; 29 pages; price 1 mark. Carl Marhold, Halle a. S.

Die Röntgendiagnostik der Darmkrankheiten. By Dr. M. Faulhaber. Paper; illustrated; 59 pages; price 1.50 mark. Carl Marhold, Halle a. S.

A Handbook of the People's Health. By Walter Moore Coleman. Illustrated; cloth; 307 pages; price 70 cents. The Macmillan Company, New York.

The Changing Girl. By Caroline Wormeley Latimer, M.D., M.A. Cloth; 61 pages. Fleming H. Revell Company, New York, Chicago, Toronto, London, and Edinburgh.

Minor and Operative Surgery, Including Bandaging. By Henry R. Wharton, M.D. Eighth Edition. Illustrated; cloth; 700 pages. Lea & Febiger, Philadelphia and New York.

Miscellany.

Literature and Medicine.—J. W. Ballantyne believes that there is room for a periodical that would deal with the literary aspects of medicine and the medical aspects of literature. Among the many topics that claim attention would be the question of how far a training or a partial training in medicine influenced the afterlife and the literary output of certain distinguished writers. To this group belong Conan Doyle, Samuel Smiles, Goldsmith, James Hutchison Stirling, Andrew Wilson, and Gordon Stables. Another group includes men who continued to practise medicine and surgery, and who nevertheless attained positions of literary eminence. Such men were Sir Thomas Browne, Oliver Wendell Holmes, John Brown, and Mark Akenside. There were a number of literary men who had a smattering of medical knowledge, men who had been no more than first- or second-year students. To this class belonged Keats, Southey, and Abraham Cowley. Another important aspect of literary medicine is furnished by those books for medicine which are also literature. Besides, general literature has certain medical aspects. One of these is the frequent use and abuse of medical metaphors. Shakespeare was particularly adept in his medical allusions. There are works full of medical facts, such as Burton's "The Anatomy of Melancholy," which were written by authors who were not doctors. It was said of Burton that he was "by profession a divine, by inclination a physician." John Wesley was no doctor, yet his "Primitive Physic," written in 1747, reached its thirty-sixth edition in 1840. Defoe's "Journal of the Plague Year" was written by a wholly literary man. Goethe made contributions to anatomy, physiology, and embryology.—*Edinburgh Medical Journal*, August, 1913.

A Clear View Through a Wet Wind Shield.—Harold Snipe describes in the *British Medical Journal*, September 20, 1913, a method of obtaining a clear view through the wind shield of an automobile even in the wettest weather. The following solution is applied to the wind shield:

℞ Sodium chloride, 1 dram.
Water, 1 ounce.
Glycerine, 2 ounces.

A little of this is placed on gauze and wiped over the glass in a very thin layer, but always in a downward direction. This is a boon on a wet night on a dark road.

Napoleon and Hypopituitarism.—Of late there has been considerable speculation as to the actual cause of death of Napoleon Bonaparte. Chaplin's recent study has tended to confirm the original official report that the exile of St. Helena died from cancer of the stomach, unrecognized during life. Keith, however, has advanced the view that Napoleon died as the result of a hepatitis and perihepatitis secondary to some form of undulant fever. Still another theory has been proposed. Leonard Guthrie in the *Lancet*, September 13, 1913, points out that there is evidence that Napoleon towards the end of his career suffered from a deficiency in the secretion of the anterior lobe of the pituitary body. The evidences of this form of hypopituitarism were genital atrophy, sexual alopecia, skeletal and tissue changes of feminine type, and lowered body temperature. Obesity and a sluggish metabolism indicated a deficient activity of the posterior lobe.

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Original Articles.

THE CURE THROUGH GENITOURINARY SURGERY OF ARTHRITIS DEFORMANS AND ALLIED VARIETIES OF CHRONIC RHEUMATISM.*

By EUGENE FULLER, M.D.,

NEW YORK.

The solving of surgical problems through experimental or, perhaps better, pioneer work is the interesting or absorbing feature of one's professional life, while the work along beaten paths is the bread-winning feature. Many confine themselves to the beaten track and never tread on a new path until it has been, as it were, asphalted. Such men are perhaps the more popular from being the least criticised. Still, if a surgeon does not interest himself in new problems he rarely preserves his alertness, but tends to become stale and lacking in resourcefulness.

As many of the profession know, I have for a considerable period devoted much of my time allotted to research to surgery in connection with the seminal vesicles—important organs which hitherto had received almost no special attention. As a result, at the present time, of an operative experience in connection with 346 cases, much of the work which originally was experimental and research is no longer so but has been relegated to the beaten path of surgical routine. In numerous articles I have, from time to time, acquainted the profession with the various groups of subjective symptoms which have been found to be curable as a result of the removal of lesions connected with the seminal vesicles through a resort to seminal vesiculotomy. The present paper is to deal with one group only of cases representative of a very chronic and advanced form of rheumatism which I have found to be likewise curable. My experience with and knowledge of these cases came as a sequel to preceding work in connection with typical gonorrheal rheumatism, so-called, in its acute forms (*Annals of Surgery*, June, 1905; Medical Record, October 30, 1909, and June 15, 1912). In the last paper referred to, entitled "The Management of Gonorrheal Rheumatism," read at the 1912 meeting of the American Urological Association, much of this subject was considered, and, should one be interested, I would recommend a reading of that article, since the attempt will here be made to supplement rather than to reiterate the preceding communications. In that article much fault was found with the term gonorrheal rheumatism, especially as applied to the more chronic forms of the affection, and the opinion was positively expressed that a toxemia independent of the gonococcus systemically absorbed from infected seminal vesicles was the cause for such forms of rheumatism.

Up to that time, owing to the depth of the wound leading to the opened seminal vesicles, and to its narrow path, I had found it difficult to obtain accurate smears from the interior of the sacs. Since then, however, thanks to Dr. Bradbury, assistant visiting physician at the City Hospital, I have employed a smear carrier enclosed in a glass tube, the further end of which, as the tube is introduced, is plugged. A thread attached to the plug is pulled as the end of the tube enters the open seminal vesicle, after which the smear carrier is quickly pushed down so as to wipe the interior of the sac.

Dr. Larkin, pathologist to the City Hospital, in making cultures from these smears, has not discovered the gonococcus in these chronic conditions, but uniformly the streptococcus, and on one occasion a streptococcus of a peculiar pink or reddish hue, from which he made many cultures, all the progeny being characterized by the same coloring. The gonorrheal fixation test has also been tried on very many cases representative of acute, chronic, and intermediate grades of rheumatism associated with gonorrhea, and subsequent to gonorrhea. In the acuter forms of the affection, the test was usually positive, and oftentimes in cases showing a marked tendency to chronicity the test would be positive a year or two after the time, according to the clinical history, the gonorrheal infection had occurred. In one case a weakly positive test was found somewhat over five years after the stated occurrence of the infection. In most chronic cases, however, where there is evidence that a recurrence of gonorrheal infection has not occurred, seminal vesiculitis persisting as a resulting lesion, the fixation test was found to be negative. The streptococcus could always be counted upon as existing in such cases.

When one considers that this genital lesion lies next to the rectum, the natural habitat of the colon bacillus, it is plain that such infection must finally take place by direct transmission through the intervening tissues, even though it may not have apparently ascended by way of the ejaculatory duct. In certain old chronic cases a marked seminal vesiculitis and characteristic rheumatism would be found, wherein all questions as to the previous existence of a gonorrhea would receive negative answers. In such cases it was observed that the rheumatism would disappear with the post-operative disappearance of the seminal vesiculitis, just as in the cases wherein there was a preceding history of gonorrhea. It is, of course, probable that in some of these latter cases—and perhaps in most of them—gonorrhea had previously existed, notwithstanding answers to the contrary; still, in some of them it seemed most likely that the clinical answers were correct, and in a few it was highly improbable that they were not so.

*Read May 6, 1913, at the Washington meeting of the American Association of Genito-Urinary Surgeons.

In the diagnostication of rheumatic conditions gonorrhea as an etiological factor is commonly dismissed from consideration if not then actually present, or if it had apparently not been present during the incipiency of the affection. In order to avoid error it is advisable, especially while considering chronic cases, to determine the condition of the seminal vesicles as a matter of routine.

Prognosis as regards the cure of absorptive rheumatism through seminal vesiculotomy is decidedly good. In the paper on "Management of Gonorrheal Rheumatism," MEDICAL RECORD, June 15, 1912, the following statements bearing on this point were made: "In the article already referred to, which appeared in the MEDICAL RECORD, October 30, 1909, I reported my first 126 cases of seminal vesiculotomy. Of these 35 represented cases of rheumatism. Since then I have performed seminal vesiculotomy 125 more times, so that at present my total operative cases number 251. Of these last 125 cases 87 represented rheumatism. With most of these the rheumatism, acute or chronic, was of a very severe grade, and it was for the relief of the rheumatism only that seminal vesiculotomy was performed. A minority of the cases had other clinical symptoms due to seminal vesiculitis, coexisting with rheumatism, as a reason for operation. In this last series a much larger proportion represented rheumatic conditions than pertained to the first series. This is largely because rheumatism is the clinical symptom of seminal vesiculitis which usually, by incapacitating an individual, brings him to hospital, and, in my experience at the City Hospital, when those suffering from rheumatism see the rapid cures resulting with little post-operative discomfort in those who have been subjected to seminal vesiculotomy, there is such a scramble for operation that no time has to be wasted in persuasion. Out of 251 cases there has been no mortality, so argument against the operation on that score cannot be very impressive. In my last series the results with rheumatic cases have been uniformly good. I attribute the better results in the second series to a more thorough performance of the operation and to improved post-operative details."

Since the preceding report of last year I have performed seminal vesiculotomy 95 times, making my present total of cases 346. In this last series the operation was undertaken for the relief of rheumatism in 69 cases. In connection with these last cases I had one death, my first fatality. In this instance the subject was an alcoholic with granular kidneys. Death occurred two weeks after operation, due to renal disease. I was aware of the fact that this patient was a bad surgical risk before operation was performed, and had I in mind only the avoidance of the risk of possible post-operative death, such a case could well have been denied operative relief. Many of my successful cases, however, have apparently been much worse surgical risks than this one. In these bad surgical risks it has been found that, as a rule, the cure of complicating rheumatism has been of such systemic benefit that a recovery to a marked degree from independent coexisting ailments has frequently followed.

In this last series of 69 cases, between twenty and twenty-five have represented extremely chronic or most advanced conditions of rheumatism. In a number of them sufficient time has not as yet elapsed since operation for the end result to be attained. The acuter cases, aside from the one who died—and that patient stated a week after his operation that all his rheumatic symptoms had disappeared—were all discharged from hospital in a very satisfactory condition. All were told to report at the clinic after discharge in case any disturbing symptoms occurred. Very few were seen afterward in clinic.

Of the chronic cases of this last series, there is one, wherein true bony ankylosis of both hip joints had occurred, in which I am doubtful if the operation of seminal vesiculotomy has done any good. This is the first instance in which I have found true bony ankylosis instead of firm fibrous adhesions. I have had many other cases, however, wherein bony ankylosis had supposedly existed. In all such instances, forcible manipulation previous to operation, while the patient was fully under the influence of an anesthetic, had demonstrated that no true bony ankylosis did exist, tendonous adhesions alone accounting for the fixation. Whereas in acute cases a cure of rheumatic complications following operation is rapid, it is natural in connection with chronic ones that the end result should be slower. In both phases of the disease, the operation, by draining the septic focus, puts an end to systemic toxemia. In the chronic cases, the toxemia may produce certain secondary lesions or results, which remain after the sepsis has disappeared, and it is not until these secondary lesions have vanished that a cure is usually reckoned.

The secondary lesions which require the most time for post-operative resolution are firm, fibrous adhesions of joints and tendon sheaths, exudations of hard plastic lymph, and marked muscular atrophies. In the chronic cases, where the feature of the lesions is fluid exudation into movable joints, complete cure following operation is rapid. In very chronic cases, wherein the lesions resulting from the systemic toxemia are most marked, it usually requires six months, and it may require two years before the final benefit following operation is attained. Formerly, in connection with chronically fixed joints and atrophic muscles, I prescribed massage and joint manipulation at the end of a month or thereabouts after operation. Experience has shown, however, that it is not advisable to prescribe such after-treatment. Much better results are attained when the patient is left to himself, with directions to gradually exercise and move more and more the parts involved. Massage and movements, when not applied by the patient himself, are apparently apt to be overdone, and consequently productive of too much reaction.

As the operation of seminal vesiculotomy is productive of a cure, by reason of the fact that it frees the individual affected of the septic focus accounting for the rheumatism, it naturally follows that the operation, to be successful, must accomplish its purpose. In my first series of 35 cases results were not as uniformly good as those attending later operations, for the reason that septic foci in these early cases were not treated surgically as radically as in the later operations. This was observed chiefly in connection with chronic cases which call especially for radical surgery.

As I have frequently remarked, a temporary and usually slight return of rheumatic symptoms may show itself a month or six weeks after operation, in cases wherein all such symptoms had promptly disappeared after operation. This simply means that the external tract of the wound has healed pre-

maturely before the deep portions have been thoroughly drained, the toxins so pent up accounting for the rheumatic recurrence. On this account, it is very important not to allow such premature external closure but to maintain drainage tubes in position until the deep portion of the wound has thoroughly granulated and healed. Another essential surgical point lies in a thorough and free opening throughout their entire length of the affected seminal vesicles. In very chronic conditions the sac walls are lined with pyogenic granulation tissue. Such tissue should be removed. Then, again, in such conditions wherein there exists much periseminal vesicular sclerosis, it is necessary to free the organs from surrounding adhesions, and oftentimes to make a counter incision into the sac opposite the cut which first opened the cavity. This counter incision divides the sac wall lying next the floor of the bladder, and should it be made to include tissue beyond the sac cavity it is probable the bladder cavity would be opened. Although care should be exercised not to cut beyond the sac cavity, thus opening the bladder, still it not infrequently happens that urine leakage to a greater or less degree will take place into this genital wound, even though the bladder floor has not been incised. Such an occurrence as this may be observed in cases where the bladder wall lying over the sac has become adherent, infiltrated, perhaps riddled with sinuses, or attenuated by chronic sclerosis—all such lesions having extended to the bladder wall from the primary focus in the seminal vesicle. Urine leakage of this character does not interfere with a final good result from the seminal vesiculotomy. Sometimes, in cases such as these, where the bladder wall in contact with the seminal vesicle is extensively involved, the necessary surgical manipulation of the part after the counter incision into the seminal vesicle has been made will result in a tear or perforation through the bladder floor sufficient to admit a catheter of 20 French calibre, or thereabouts. If a perforation of such size occurs, post-operative drainage of the bladder should be established by the passage through the opening of a catheter. The treatment in this manner of cases so complicated led me on a number of occasions to drain the bladder along this post-prostatic route, independently of conditions in the seminal vesicles. In such cases, the incision through the floor of the bladder was made in the middle line between the seminal vesicles. Consequently, in this procedure the genital organs are not disturbed. I have published an article entitled "Post-prostatic Cystotomy," MEDICAL RECORD, October 22, 1910, devoted especially to the subject.

Another important operative feature after the diseased area has been thoroughly exposed is the introduction of the packing. Each seminal vesicle should be treated with a separate long strip of gauze, which should be so crowded in as to firmly and completely fill the open cavities. It is over this packing and between it and the rectal wall that the drainage tubes are placed. (For a description of the operative technique, see MEDICAL RECORD, October 30, 1909). In the way of description, a brief clinical record of a number of cases will be given, which illustrate different phases of chronic rheumatism.

CASE A.—Man, 42 years of age, came to me four years ago. His rheumatism commenced sixteen years previously and had been so progressive that for the last seven years he had most of the time been bedridden. He had largely lost the motion and use of his fingers, and both wrists were fixed by adhesions, as were also the elbows. Ankles and knees were likewise involved. There was partial movement only of the hips. The spinal vertebræ were stiff and immovable, and the ribs so fixed that breathing was wholly diaphragmatic. The neck was fixed. There was a history of gonorrhea twenty years ago. Urine contained some pus and bacteria, chiefly streptococci. For his bladder condition there had been much treatment without beneficial results. There was a marked seminal vesiculitis, very sclerous in character, and besides this there was a deep false passage leading from a tear in the floor of the membranous urethra under the anterior margin of the prostate. Seminal vesiculotomy was first performed, and two months later a perineal cystotomy for the cure of the false passage. Six months after the seminal vesiculotomy the patient had gained thirty pounds and had in a large degree recovered the mobility of his joints. One year after the operation he was actively at work, and has continued able-bodied ever since.

CASE B.—Man, 47 years of age, transferred to my ward at the City Hospital a year and a half ago from the medical side where he had been for three years confined to bed or at most sitting in a chair beside his bed. Patient could not walk, owing to rheumatic involvement of both feet and knees. These joints were also greatly swollen and there was much fluid in both knees. On first inspection one would be apt to think the case one of dropsy. He had been a sufferer from rheumatism in feet and knees for ten years. For the first seven years he had been able to work part of the time between exacerbations of his affection. There was an indefinite history of gonorrhea fifteen years, or thereabouts, before. There were no genitourinary symptoms complained of. Examination showed the existence of a marked seminal vesiculitis. Seminal vesiculotomy was performed, resulting in a quick cure of the existing rheumatic conditions, together with the accompanying swelling. In less than three months the patient left the hospital fully recovered. The rapidity of the cure in this case was due to the fact that there was no fixation of the joints and no resulting muscular atrophy.

CASE C.—A young man, 22 years of age. This and the following case are reported because of the severe and precocious type of the affection. In these cases in a few months conditions were reached which in many, and in fact, in usual conditions would only have been observed where the affliction had progressed for years. The patient was brought to the hospital in an ambulance. The left thigh was sharply flexed and immovable. The vertebræ were also fixed. The right knee and ankle were involved. The least movement affecting any of these parts caused so much suffering that none was attempted, the result being extensive bedsores. There was much emaciation. The rheumatism commenced four months ago, having been preceded two months by gonorrhea. There was a marked and active seminal vesiculitis. Rapid and radical relief as regards pain followed seminal vesiculotomy. The patient was up with fair motion a month after operation. In two months after operation he was discharged able-bodied and well, and has so since remained.

CASE D.—Young man, 23 years of age. Progressive and precocious rheumatism for three months. In this case, there was a general involvement of joints and tendons. On entering the hospital the patient could not move except slightly in any direction, nor could he feed himself. He could open his jaws but little, and so could not chew food. There was great emaciation, bad color, and a marked appearance of cachexia. There was a history of gonorrhea between two and three months before the commencement of the rheumatism. The seminal vesicles were rigid and sclerous, and bound down by outside adhesions, showing that the septic process had extended extensively into the surrounding fibrous tissues. The condition of this patient was so grave that no one thought he could live longer than two weeks with existing conditions remaining. Without loss of time, seminal vesiculotomy was performed, a quick cessation of symptoms resulting. A month after the operation the patient had gained twenty pounds. In two and a half months after operation he left hospital fully recovered and able to work. This patient could have been discharged much sooner, but was kept for observation.

CASE E.—Man, 46 years of age. There was marked swelling of the right knee with some flexion and immobility of the joint. There was no fluid in the joint but a hard boggy infiltration. There was much pain on manipulation. The appearance presented was that usually classed as "white swelling." The use of the right hand had been lost by a progressive rheumatic affection which had caused a fixation of the wrist and the digital joints. Tendinous

adhesions had so drawn the fingers as to cause considerable deformity. There was no evidence of gonorrhea in the clinical history or as the result of examination. There was, however, a marked sclerous seminal vesiculitis. Seminal vesiculotomy was performed. Gradual and progressive resolution quickly commenced in connection with the joint

Fig. 1.—Case F. From a photograph by Dr. H. H. Janeway.

lesions. Six months after the operation the patient had entirely recovered aside from the fact that the movements of the right fingers and wrist were slightly less free than those of the left.

Case F.—Man, 30 years of age. There was fixation of the right hip with much contraction and deformity, as seen in Fig. 1, Case F. These conditions had existed for over a year. There was a history of gonorrhea three or four years previously. In the patient's opinion, that affection had caused him little trouble, and had promptly gotten en-

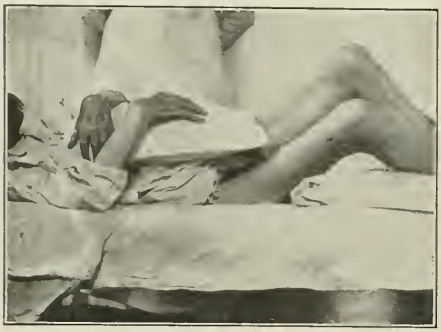

Fig. 2.—Case H. From photograph by Dr. H. H. Janeway.

tirely well. There was considerable discussion as to the true diagnosis in this case. As a chronic sclerous seminal vesiculitis existed, these organs were subjected to surgical operation, followed by a progressive and gradual improvement in the condition of the hip. Four months after operation patient could move hip joint freely, and stand straight. He then walked easily, with scarcely a difference between the movements in the affected and the corresponding joint.

Case G.—Man, 35 years old. Complete fixation of lumbar, dorsal, and cervical vertebræ. The ribs were also fixed and immovable. The back was not bent, but was perfectly straight and rigid. There was complete fixation of the head at a considerable lateral angle. Owing to the fixation of the ribs, the breathing was wholly diaphragmatic. There was complaint of great pain the length of the spine, together with headache. When first seen, the patient was wearing a steel frame jacket to guard him against jarring sensations. His rheumatic affection had begun four years previously and had been steadily progressive. There was a history of gonorrhea seven years before the commencement of the rheumatism. It was supposed that the gonorrhea had ended in resolution in two or three months. Marked sclerous seminal vesiculitis was found to exist. Seminal vesiculotomy was performed, followed by a gradual and progressive resolution of the rheumatism and the resulting joint fixations. When last seen, two months ago, one year after operation, the patient was regularly at work as a laborer. The ribs were movable, the head could be freely rotated. There was still some remaining fixation in connection with the lumbar and dorsal vertebræ. Headaches and pain had not been a feature since operation.

Case H.—Man, 47 years of age; bedridden and unable to move or to feed himself. There was much stiffness or fixation of all joints. The only joints in the whole body which could be functionated were those of the jaws. There was considerable muscular atrophy. The head was fixed to one side and forward. Fig. 2, Case H, shows general conditions. Pains in connection with the joints were paroxysmal and severe. The rheumatism began sixteen years before and had been constantly progressive. This patient, when first seen by me, five months ago, had been a patient on the medical side of the City Hospital for three years. There was a history of gonorrhea when a young man, but of no subsequent trouble. In this case there was a marked sclerous seminal vesiculitis. Seminal vesiculotomy was performed four months ago. Five days after that operation, a condition of strangulated hemorrhoids developed which required operation. This hemorrhoidal operation unfortunately disturbed the drainage tubes in connection with the seminal vesiculotomy, so that they were prematurely forced out. I feared that the wound in connection with the seminal vesicles would consequently heal prematurely, before sufficient time for drainage had elapsed. There was a rapid improvement in rheumatic conditions. Six weeks after operation the patient could feed himself, and considerable movement had returned in his joints. Now, four months after operation, there is some return of the muscular pains and some restiffening of the joints, though he can still feed

Fig. 3.—Case I. From a photograph by Dr. H. H. Janeway.

himself. The wound closed prematurely, as I had feared. If the present relapsing conditions are not temporary, I propose to open the track of the wound for more and sufficient drainage.

Case I.—Man, 36 years of age. This case was of especial interest. The man entered the hospital on a

stretcher, running at the time a rather high fever. There was swelling of both hands and forearms, and both legs to well above the knees were swollen. These swollen areas, besides being edematous, were red, infiltrated, and very tender to the touch. Any movement of the parts caused so much pain that none was attempted. The trunk was marked with a late secondary syphilitic eruption, many of the lesions being rupial in character, indicative of a severe form of infection. There was also an urethral discharge containing gonococci. The clinical history was that four months, or thereabouts, previously gonorrhea and a chancre appeared at or about the same time. A month or so ago the systemic symptoms already described commenced, and quickly increased in severity. Two full intravenous injections of salvarsan were administered without apparently any special relief except as regards the eruption. Then, as the Wassermann reaction was still strongly positive, three more full injections of salvarsan were given at ten-day intervals. The fever gradually disappeared. The blood count showed only a slight degree of leucocytosis. The Wassermann reaction was negative after the five salvarsan injections. The gonorrheal fixation test, however, was very positive. For a time after the salvarsan there was some renal congestion and some puffiness of the face. After a few weeks the renal condition became normal. Although edema had disappeared from the extremities, still the rheumatic condition of the hands, wrists, and knees remained very active, as seen in Fig. 3, Case I, which was taken at this time. To account for the rheumatic condition a marked seminal vesiculitis existed. These organs were embedded in an inflammatory exudate, which was extensive enough to fill the post-prostatic cellular space. After the salvarsan treatment the patient was observed for two months, during which time there was no improvement. His heart action and general condition seemed too feeble to make a seminal vesiculotomy warranted. Finally, however, at the urgent request of the patient the operation was performed. He withstood the procedure without any undue reaction. The improvement after the seminal vesicles were drained was very rapid. Patient left the hospital well and active six weeks after operation.

The above results, which are only a few of many, give an idea of the wide field of usefulness which seminal vesiculotomy opens in the relief of rheumatic complications; and when one considers that there are numerous other resulting groups of symptoms which the operation in like manner relieves, it is not difficult to estimate its great value.

252 Lexington Avenue.

THE SCOPE OF RADIOGRAPHIC METHODS, FROM A CLINICAL VIEWPOINT, WITH SOME ILLUSTRATIVE CASES.

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Radiographic methods have at present a wide spread field of usefulness as an aid in diagnosis. On account of the constant advance both in technique and in skill in interpretation, the possibilities and also the limits of usefulness of radiographic methods are still rather difficult to state definitely. From the clinician's viewpoint, the chief interest lies in the positive results obtained in diagnosis, and in their application. The writer's observations are based chiefly on experiences in Cornell University Medical College, Medical Clinic, where opportunity has been given him to gauge the relative importance of radiographic data in over 600 consecutive cases, covering a considerable variety. These cases were used largely for teaching purposes and had been carefully observed clinically.

Without going into an elaborate discussion as to the relative importance of the radiographic data in certain types of cases, the writer feels that the *x*-ray is almost indispensable in a thorough examination of the following types of cases.

1. *Fractures.*—The advent of the *x*-ray has shown us the great difficulty of an exact diagnosis in certain groups of fractures, particularly those in the region of, or involving joints, as there are so

Fig. 1.—Patient C. H. The lesion is indicated by the arrows.

many atypical varieties. All fractures should have a radiographic examination. Doubtful cases should be radiographed without a dressing; positive cases,

Fig. 2.—Patient J. P. An oblique radiograph of the thorax; the outline of the aneurysm is indicated by the arrows

after the adjustment and dressing are completed, to verify the correctness of the position.

2. *Types of Arthritis.*—The clinical evidence is of greater value in most cases than that afforded by the *x*-ray, unless the joint disease is secondary to

bone involvement. As an example, in early tuberculous disease of the hip joint; in cases where the epiphyseal involvement is the chief feature, the *x*-ray may give positive evidence while the clinical symptoms are still uncertain. If the synovia is

FIG. 3.—Patient J. I. Postero-anterior view of the aneurysm; the outlines of the aneurysm are indicated by the arrows. There is also a tuberculous involvement of the right apex, with a cavity (c).

chiefly involved, the symptoms are usually quite definite, and the radiograph will show very little.

3. *Diseases of Bone in General.*—A radiograph will show the location and extent of a bone lesion. It is diagnostic in sarcoma, syphilis, and subperiosteal hemorrhage. Anomalies and deformities are usually well shown. In all other bone lesions, the clinical evidence must be carefully considered, and one should not be tempted to make too positive a diagnosis on the radiograph alone.

Figure 1 is from a radiograph which shows the typical appearance of an early luetic periostitis, involving the lower third of the shaft of the humerus. This patient, C. H., age 40, a sailor, gave a history of a recent fall in which he bruised the arm rather severely. A few days later he noticed a tender swelling in the inner and posterior aspect of the arm about four inches above the elbow. This increased somewhat in size during the following ten days, and was accompanied by dull aching pain in the whole arm. After seeing the radiograph, close questioning brought out an indefinite luetic history. The Wassermann was strongly positive. The local condition disappeared promptly under treatment.

4. *Foreign Bodies in the Tissues.*—Stereoscopic and angulation methods have made the localization of foreign bodies more accurate. If deeply embedded, they are frequently difficult to find at operation, even with the best of radiographs as an aid. Some foreign bodies do not show on an *x*-ray plate; in case of doubt, a body similar to that suspected may be tested by radiographing it through an equivalent amount of tissue.

5. *Calculi in the Kidney, Ureter, and Bladder.*—Any stone of sufficient size to warrant surgical procedure, should show in a radiograph with good technique, with the occasional exception of a small soft calculus in front of the sacrum, or just above the brim of the pelvis. A positive diagnosis of calculi should always be confirmed by repeating the plates, to rule out an artifact. Special methods of examining the tract by means of radiographs taken after the passage of instruments, or after the injection of certain solutions, are sometimes valuable. Since the advent of dependable radiographic methods, it would appear that calculi are more frequent than was formerly supposed. The symptoms are often indefinite or misleading. The *x*-ray is our most valuable aid in deciding these cases.

6. *Pulmonary Cases.*—In the diagnosis of pulmonary tuberculosis, particularly in early cases and in cases where the involvement is chiefly about the root of the lung, good radiographs are of great value. They are also of value in more advanced cases in following the progress of the lesion. In pleurisy with effusion, and in empyema, the clinical symptoms and signs and the needle are usually quite sufficient for the diagnosis. There are cases, however, where the fluid collection is small in amount and localized, and the needle may fail to show it. These small collections show readily in a radiograph. On account of the permeability of the chest wall to the *x*-ray, foreign bodies, even of soft density, will show. In lung abscess, the location and size of the lesion are readily observed in a radiograph.

7. *Aneurysm, and Dilatation of the Arch of the Aorta.*—Radiographs are indispensable in making an early diagnosis in these cases. Aneurysms may attain considerable size without giving positive signs, and it is a matter of common observation that a majority of these cases are well advanced before a diagnosis is made on clinical evidence alone.

The following case illustrates the value of a radiograph in a doubtful case:

J. P., age 56, colored, porter. This patient gave a history of chronic cough lasting several years. He was found to have pulmonary tuberculosis in a rather advanced stage. The cough was persistent and loose, the sputum abundant and contained many tubercle bacilli. Arteriosclerosis was fairly marked, and the heart enlarged. The area of cardiac dullness extended upwards as well as in other directions, no murmurs were heard. There were varicosities of considerable size in both legs, and varicosities extending upwards over the abdominal wall to a rather marked degree.

Pulmonary tuberculosis was at first believed to be the chief condition present, and the extension of the area of

cardiac dullness upwards, and the evidence of mediastinal pressure on the venous trunks were both thought due to tuberculous involvement of the mediastinum. The large aneurysm of the arch, the clinical evidences of which were pretty completely masked by the pulmonary condi-

Fig. 4.—Patient H. P. Above the arrows, the lumen of the esophagus is shown dilated by the bismuth; below, the area of encroachment on the lumen of the esophagus is indicated by the defective bismuth outline, showing the area involved with carcinoma (c).

tion, caused the patient's death about three months later. (See figures 2 and 3.)

8. *Lesions of the Esophagus.*—Clinical evidence, obtained by special examination and instrumentation, is supplemented and confirmed by radiographic examination. In doubtful cases, the latter is frequently diagnostic. The x-ray is of great assistance in the study and differentiation of the following conditions: Spasm of the esophagus, stricture, either benign or malignant, and diverticulum.

The accompanying illustration shows the typical appearance of a fairly advanced case of carcinoma of the esophagus, the clinical history of which was kindly given by Dr. Morris Zucker, as follows:

Mrs. H. P., Russian, age 50, married, 7 children. 1 miscarriage. Father died of old age. Mother of cancer of the stomach. The patient has had bronchial asthma for the past 20 years. She has never had any gastric symptoms nor constipation. About six months ago she began to complain of peculiar uneasy burning choking pain in the chest, referred particularly behind the ensiform cartilage. This developed into sharp burning pain during the swallowing of solids. Later she complained of difficulty in swallowing solids. At this time a stomach tube passed easily, but with a peculiar grasp on withdrawal, giving the sensation of cardiospasm. (This was the diagnosis made at this time by a well-known internist.) A gastric analysis made a little later showed blood cells present, total acidity increased, undigested starch granules. Radiographs made at this time (Fig. 4) during the passage of bismuth through the esophagus, enabled a positive diagnosis of carcinoma to be made. Up to this time the patient had lost very little weight or strength. The subsequent course of the case confirmed the diagnosis. There was no operation.

9. *Conditions Involving the Colon.*—Two methods of investigating the colon radiographically are of value: (1) To follow the food through with bismuth, to determine the motor efficiency of the colon. (2) By bismuth enemas to determine the size, shape, and position of the colon and the condition of the lumen with reference to the presence of strictures or new growths. A positive or negative diagnosis of organic obstruction can be made in this way, and usually the type of obstruction. In any case, the surgical indications can be determined more definitely. It appears to the writer that too much stress has been laid on the so called prolapse and angulation of the colon as a pathological condition, as the same anatomical condition appears frequently in healthy individuals. If bismuth passes through the colon within 36 hours, there should be great hesitation in considering the function abnormal, regardless of the anatomical position.

10. *Gastric Cases.*—The investigation of various gastric conditions is a field in which radiography is proving increasingly valuable, and particularly so when the methods are applied in close cooperation with the other clinical methods and the data obtained thereby. A few plates made after the ingestion of bismuth are sufficient to show the size, shape, position, and evacuation time of the stomach.

A series of plates will give in a great majority of cases, a positive or negative diagnosis of early carcinoma, or of indurated ulcer of the stomach or duodenum, and will also give valuable evidence in certain other lesions, which may or may not require surgical procedure; among these are spasm of the pylorus and types of adhesions, with or without obstruction. Doubtful gastric cases in which there is a possibility of early carcinoma, should certainly be investigated radiographically, the only alternative being an early exploratory operation.

The following two carcinoma cases, of different types clinically, illustrate some of the difficulties which may be met in making a diagnosis early in these cases, and the aid which can be given by radiography.

Case I.—Chronic gastric ulcer, hour glass contraction, carcinomatous change at the base of the ulcer. A. J., age 42, watchman, born in Scotland. Family history negative. Past history: heavy drinker of whiskey; venereal history negative; chronic cough for the past 12 years. Six years ago had the entire left shoulder girdle removed by Dr. John Douglas, for sarcoma of the humerus. Present history:

Fig. 5.—Patient A. J. C., area of constriction of the hour-glass stomach; U. P., upper pole overdistended with bismuth meal; L. P. lower pole defectively filled with bismuth meal, due to the small caliber of the stenosed portion.

desultory attendant at the clinic for the past 18 months, during this time he frequently drank heavily. During the past 5 months he has had a good deal of epigastric distress and dull pain, and has taken much less alcohol during this time. There have been occasional attacks of nausea

and vomiting, which have recently become more frequent. He has not noticed any blood in the vomitus. There has been a loss of 10 pounds in weight in the past 5 months, and considerable loss in strength. The appetite has become poor, and the bowels constipated, and at present the dull epigastric pain is very persistent, and apparently made worse by taking solid food. Physical examination shows a rather poorly nourished man, 5 feet 9 inches tall, and weighing 141 pounds; skin and mucous membranes are pale. The entire left shoulder girdle has been removed, there are no local evidences of any recurrence of the original tumor. Lungs show signs of a chronic bronchitis. Heart is normal. Abdomen is thin walled and flat. Liver and spleen are not palpable. There is tenderness and some rigidity on pressure in the epigastric region. No masses can be felt. Blood examination shows red cells, 4,040,000; hemoglobin, 55 per cent.; white cells, 13,000; polynuclears, 79 per cent. Urine showed a faint trace of albumin, otherwise was negative. Sputum was abundant, mucopurulent, tubercle bacilli not found. Gastric analysis was not made, as the patient objected. Radiographs were made after a bismuth meal. These were believed to show evidence of an hour-glass contraction of the stomach (Fig. 5); probably due to chronic ulcer, with extensive adhesions involving the lower segment. Operation was advised. A few days later the patient consulted Dr. John Douglas, who operated, and kindly gave me his findings, as follows: Extensive adhesions were found between the posterior surface of the lower segment of the stomach and the pancreas

Fig. 6.—Patient M. M. The defect in the filling outline of the stomach is due to encroachment on the lumen by a carcinoma of the greater curvature. The outline of the carcinoma (c) is indicated by the dotted line.

and adjacent structures. A large callous ulcer was present in the posterior wall of the stomach at the site of the adhesions, the tissue was very friable and necessitated an attempt at removal. A partial gastrectomy was done. Sections made from the area of the ulcer were reported by Professor Ewing as showing early carcinomatous change at the base of the ulcer.

Case II.—A gastric carcinoma of considerable size, producing very slight gastric symptoms. M. M., age 56, clerk, born in Germany. Family history good. Past history: total abstainer, regular habits, no venereal history. Excellent health until 9 months ago. Present history: for the past 9 months has had attacks of giddiness which have been increasing in frequency, and this has caused him to consult a physician. His appetite is fairly good, though not as good as formerly, and he frequently belches gas after eating, and has a slight feeling of weight in the epigastrium. The bowels are regular. He has lost a little weight. Physical examination: the man's pallor is rather striking, though his nutrition is good. Palpable arteries are moderately thickened. The heart and lungs are practically normal for a man of his age. Abdomen: walls fairly thick, soft, no tenderness, no masses. Liver and spleen, not palpable. Blood examination shows red cells, 3,800,000; hemoglobin, 65 per cent.; white cells, 8,000; polynuclears, 70 per cent. Urine showed a very faint trace of albumin, no casts; examination otherwise negative. Gastric analysis showed: Free HCl—0. Combined HCl—0. Total acid, 12. Occult blood, negative. Radiographs of the stomach were made after a bismuth meal, and showed a typical shadow of a gastric carcinoma of the greater curvature, towards the pyloric end (Fig. 6). The pylorus was apparently not involved, and the growth was not ulcerating, which seemed to explain the absence of more severe gastric symptoms. The patient declined operation, and was eventually lost sight of.

There are certain other types of cases in which radiography is of value, but these belong rather closely to various specialties, and do not fall within the scope of general diagnosis, and will not be discussed.

Conclusions.—The *x*-ray should not be regarded as something apart from other methods of physical examination, but as a supplemental method, and often a very valuable one.

It should be employed more frequently, and clinicians in general should be more familiar with its scope of usefulness, including its limitations.

It is very desirable that the radiographer and the clinician be in close relation in the matter of radiographic interpretation, so that the entire evidence in a given case can be weighed in a consistent manner.

The writer is indebted to Dr. Lewis G. Cole and Dr. Arthur F. Holding for the plates shown in these cases.

375 Park Avenue.

SYRINGOMYELIA; WITH PATHOLOGICAL FINDINGS*

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Syringomyelia in its literal meaning signifies a tubulation of the spinal cord. As such this lesion was described as early as the middle of the 16th century. As a clinical entity, however, it was not recognized and studied until the middle of the 19th century when Kahler and Schlutze presented their classical paper on this subject. This pioneer work gave an impetus to a host of celebrated neurologists and pathologists and resulted in a wealth of literature.

From a critical study of numerous cases it was found that cavitation of the spinal cord may arise in diverse ways. Thus in a number of cases the tubulation is of congenital origin, being due to a failure of union of the walls of the primitive neural groove and the neural canal posteriorly. In its most pronounced form this condition gives rise to what is known as a myelocele which protrudes above the level of the skin through a spina bifida. In such cases, as might be expected, the cavity is lined with apendyma cells throughout its entire extent. Again it is possible for a dilatation of the central canal to be acquired through some disorder of the flow of cerebrospinal fluid. In these cases too, the cavity is lined with apendyma cells, and a process of gliosis in the neighborhood is absent. These conditions are not included in the class of syringomyelias. They are termed hydromyelias. Aside from dilatations of the spinal canal, cavities may also arise by a process of softening and absorption following a thrombosis of the supplying artery, or a traumatic hemorrhage (hematomyelia), or inflammatory destruction of tissue. These conditions, however, are not true syringomyelias. By syringomyelia in the strict sense of the word we now understand a progressive pathological process result-

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ing in cavity formation in the substance of the cord, usually occurring in the gray commissure and associated with a gliosis or proliferation of glia tissue. It is commonly accepted that the gliosis is the primary lesion occurring as a new growth, and that as

Fig. 1.—Section of cauda equina, glioma. *gd*, Gland-like cavity, lined by apendyma cells *ep*; *bl*, extravasated blood; *ph*, phagocytic cells laden with pigment derived from area *bl*. These cells can be followed up into the lymph spaces of the connective tissue *ct*, which is seen to invade and replace the tumor parenchyma.

a result of degeneration of the tumor tissue cavities are formed.

Clinically the disease may present an immense variety of symptoms, which for convenience we may arrange in the following groups:

1. Motor Disorders: muscular atrophy, paresis, rigidity, increased tendon reflexes.

2. Sensory Disturbances: manifesting themselves by a dissociation of sensation, that is, a loss of pain and temperature sense with preservation of the tactile and deep muscular sense.

3. Trophic Disorders: panaritium swellings, bullæ formations, anomalies of sweat excretion, spontaneous bone fractures, arthropathies, kyphoscoliosis, chiromegaly.

4. Should the process involve the medulla we may get bulbar symptoms as hemiatrophy of the tongue, recurrens paralysis, nystagmus.

As any combination of the above symptoms may exist, the disease may give quite dissimilar clinical pictures, thus:

1. Motor symptoms predominating, the case would resemble spastic spinal paraplegia or amyotrophic lateral sclerosis.

2. With sensory symptoms most prominent, the case may simulate leprosy.

3. A tabetic type of the disease.

4. The disease may resemble pachymeningitis.

5. Finally, the classical cases with involvement of the upper extremities, wasting of the interossei, and dissociation of sensation of the upper extremities, as described above.

This diversity of symptoms will not be wondered at when it is remembered that the cavity may vary in its situation, level, extent, and configuration and also that there may be a number of cavities present.

When single, the lesion most commonly involves the cervical enlargement, though it may be found in any part of the cord and even in the medulla.

As a rule the disease arises in the posterior commissure, behind the central canal and usually involves the anterior parts of the posterior columns and posterior grey horns.

The cavity may be so small as to give rise to but few symptoms. It may on the other hand, by extension, compress or destroy the posterior columns, posterior grey horns and even the crossed pyramidal tracts. Then again the cavity may be of various shapes with irregular extension in various directions, thus giving rise to most irregular symptom complexes.

With regard to the association of the cavities with gliosis, some observers are inclined to consider the gliosis a secondary process, a sort of inflammatory reaction peculiar to some disease of the cord. Thus it is found that in tumors of the cord a cavity may be found at, above, or below the level of the tumor (Schlesinger). Still such association is not constant as would have to be the case if gliosis is a reaction process of glia tissue to abnormal conditions. On the other hand, the view in accord with the greatest number of observations and the one accepted by most observers of today is that the gliosis is the primary process and that cavitation is a result of degeneration occurring in the glia neoplasm—a sequel not uncommon in other tumors.

This theory further assumes that in the process of closing in of the posterior part of the neural canal during embryonal life some primitive cells or nests of cells (spongioblasts or neuroblasts) endowed with the capacity of proliferation were included and preserved. These embryonal cells may lie dormant for many years and then, whatever the determining stimulus may be, resume their property of proliferation. This theory of the origin of this lesion will further account for its location at or behind the central canal. For it will be recalled that the central canal represents but the anterior portion of the primitive neural canal.

With these preliminary remarks on the present status of syringomyelia, we are ready to analyze the following case:

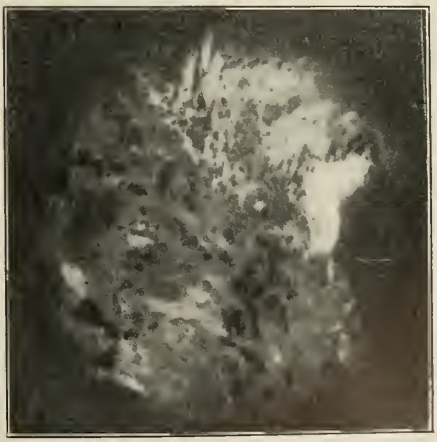

Fig. 2.—High power of area *ph*, in Fig. 1.

R. M., female, 49 years of age, admitted to the Lebanon Hospital, service of Dr. Leszynsky, February 23, 1912. Previous history, negative. Present history began nine years before admission with attacks of pain over sacrum and left leg. Attacks gradually became more frequent.

Then both legs became involved. On admission, root pains over both legs and sacrum, both extremities helpless, flaccid paralysis; anesthesia; areas of dissociated sensation; extensive bedsores, with deep ulcers over both buttocks. Died from toxemia and exhaustion, March 19, 1912.

FIG. 3.—Section from cauda equina glioma, showing adenomatous character. *c*, Gland-like cavity; *s*, secretion; *ep*, ependymal lining, columnar cells; *gl*, polyhedral glia cells.

Autopsy, March 19, 1912. (Unfortunately permission for only a spinal cord incision was obtainable.) Vertebral column showed a right lumbar scoliosis.

Spinal Canal.—From tenth dorsal vertebra down, the spinal canal shows considerable dilatation. Bony and ligamentous structures look healthy. Dura externally shows no exudates, adhesions, or thickenings; internally, dura becomes adherent to inclosed structures at the level of the conus (first lumbar vertebra).

Cord.—Marked increase in diameter of lumbar enlargement. Looks distended. On transverse section this is found to be the site of a longitudinal cavity of irregular shape, differing at different levels. The lower part of the lumbar enlargement shows an extensive cavity to the left of the median line, behind the site of the central canal. To the right of the median line is an area of dense whitish tissue occupying the columns of Goll and Burdach. In the right anterior portion of this whitish area is a small cavity. In the upper part of the lumbar enlargement the cavity is more symmetrical, being oval in shape, occupies the region of the posterior commissure and the anterior portions of the columns of Goll and Burdach, and the anterior portion of the posterior horns. At each lateral wall of the cavity is a rim of dense whitish tissue. A section in the cervical enlargement shows a small cavity, to the right of the middle line. A little lower down another small cavity to the left of the middle line. While at a still lower level the two are seen to unite by a narrow strait. Then the site of the cavity is seen to be filled with a brittle yellowish material sharply sequestrated from the surrounding cord tissue.

Cauda Equina.—The interior of the dural sheath is here occupied by tumor tissue, which in the upper part is of a fibrohyaline consistency, including some nerve fibers of the cauda equina in its substance, and crowding others peripherally. The lowermost portion of the dural sheath, at its sacral termination, is occupied by a mass the size of a pigeon's egg, reddish grey, mottled, granular, and friable. The nerves are coursing between it and the dura.

Microscopical Findings.—The portion occupying the lowermost parts of the dural sheath presents three chief histological elements—cellular tissue, fibrous connective tissue, and hyaline masses. The cellular tissue is found to be made up of cell units of the nature of young glia cells. Their nuclei are large and vesicular. Some nuclei are unusually large. The rim of protoplasm appears larger than in the mature glia cells. Glia fibers are scant, and there is no evidence of a glia reticulum, such as is seen in the areas of gliosis, in the neighborhood of the syringomyelia cavities to be presently described. The conglomerations of cells are penetrated and invaded by strands of connective tissue. In some areas the fibrous tissue seems to spring from the blood vessels. The walls of the latter are thickened and hyaline. In other parts the glia cells are differentiated into ependymal cells which line gland-like cavities (neuroepithelioma adenomatosum gliomatosum). Intercellular extravasation of blood is only occasionally seen. But there are numerous areas of hyaline or slightly fibrillar structure which represents masses of blood and fibrin changed beyond recognition. The fibrous tissue bundles are seen to be invaded by wandering cells which are heavily laden with blood pigment from the extravasates. Sections from the cauda equina, where the tumor appears in the gross as fibrohyaline, show microscopically a dense fibrous tissue structure with here and there a pigment-bearing phagocyte, but with no neural elements at all. (Figs. 1, 2, and 3.)

The lumbar enlargement in its lower part shows in some sections the central canal with an ependymal lining completely preserved. In the immediate neighborhood of the latter, posteriorly, is to be seen a collection of large glia cells, with comparatively little intercellular fibrils, resembling the cellular tissue seen in the gliomatous tumor at the lower extremity of the cauda described above. Other sections fail to show the lumen of the central canal, but the area of glia proliferation is present. (Fig. 5.) In either case, behind the collection of these young glia cells is situated an area of gliosis, consisting of a dense reticulum of glia fibers with an increased number of mature glia cells possessing a dark staining nucleus with a very thin protoplasmic rim. The mass of gliosis occupies the anterior half of the left columns of Goll and Burdach. At the left and anterior angle of this mass is a small cavity encroaching slightly on the adjacent portion of the posterior horn. On the right side there is a large cavity with but a small area of gliosis bordering it. The glia masses are not sharply delimited from the surrounding tissue. The blood-vessels in their neighborhood show hyaline changes and thickening. The cavities are nowhere lined by ependyma or any other cells. The anterior horns are distorted. The posterior horns are largely destroyed. The nerves cut at this level show increase of perineural fibrous tissue. (Fig. 4.)

In the upper lumbar region there is a large single cavity, of oval shape, the longer diameter being transverse. It occupies the region behind the posterior commissure and involves the posterior columns and the posterior horns. Here, too, a central canal with a neighboring area of glia cell proliferation is found. Each lateral boundary

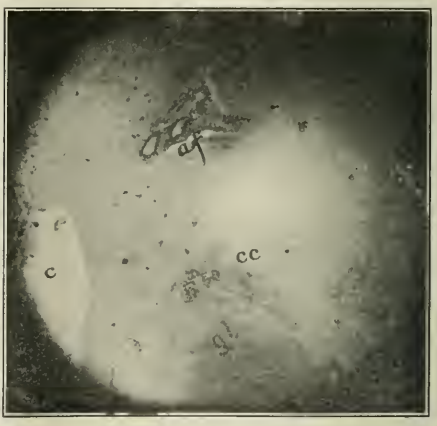

FIG. 4.—Section middle lumbar region. *af*, bottom of anterior fissure, showing blood vessels; *cc*, central canal surrounded by area of proliferation of fia cells; *gl*, area of gliosis—dense texture of glia fibers with few cells; *c*, cavitation.

shows a dense texture of glia tissue, the cells being small and the intercellular fibers predominating. (Fig. 6.)

In the cervical region areas of gliosis have not been found. An irregular cavity was found at one level, consisting of two lateral parts joined by a narrow transverse

strait. Examination of serial sections showed how this strait gradually grew narrower and finally disappeared, leaving two separate cavities, one on each side of the middle line. These cavities also grew smaller and finally disappeared. The erstwhile central canal is indicated on

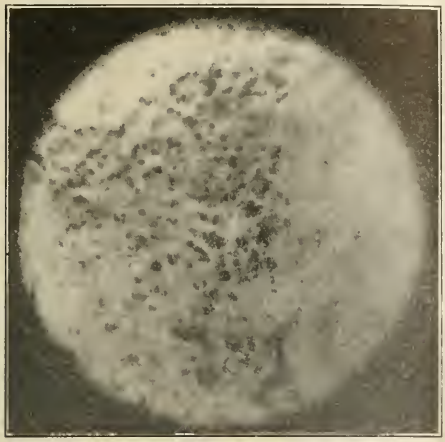

Fig. 5.—High power of area (c.c) in Fig. 4.

the posterior border of the right side cavity where it is lined over a small portion of its extent by ependymal cells. Here again there is a proliferation area of glia cells behind the ependymal rim. In sections where neither a cavity nor an area of gliosis was found there was still found proliferation of glia cells in the immediate neighborhood of the central canal.

To sum up, the cavities found at all levels of the cord were not dilatations of the central canal. In every instance, however, they were situated close to it. In the lumbar region, where the central canal is in part preserved, the cavities and islands of gliosis are seen to be located behind and in close proximity to it. And while the areas of gliosis are composed of small glia cells, with a thin rim of protoplasm, the region immediately sur-

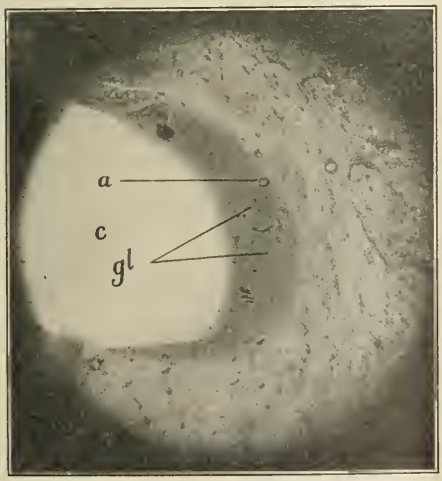

Fig. 6.—Upper lumbar region. *c*, cavitation—no ependymal lining; *gl*, rim of gliosis surrounding cavity; *a*, artery—note hyaline degeneration of walls.

rounding the ependymal cells is seen to contain younger, less differentiated glia cells, with larger nuclei and wider protoplasmic rims. In the cervical region, no areas of gliosis, such as were found in the lumbar sections, were seen. Cavities are here found in segments. The cavities are seen at some levels to have broken into the spinal canal, which explains their partial ependymal lining. Here again, close to the ependyma cells is seen an area of prolifeated young glia cells. Some of the cells contain large vesicular nuclei and brush-like processes at two poles, thus resembling in form the spongioblasts of the embryonal cord. In the cervical region also there is seen a stage preliminary to cavity formation in which the cells in the affected area are distended, polygonal, hydropic, and on the road to disintegration. The cauda equina is occupied in its upper part by fibrous tissue, while the lower part consists of a gliomatous neoplasm, where the glia cells are of the young undifferentiated type, with glia fibers and processes but little developed (glioma molle). Some of the glia cells, however, are differentiated into columnar ependyma, similar to the cells which line gland-like cavities. The tumor is seen to be invaded by fibrous tissue strands.

The blood-vessels are generally found to have thickened walls and show various grades of hyaline degeneration.

Conclusion.—The pathological findings just enumerated appear at first sight dissimilar. The disparity however does not concern the essential underlying principle of the origin of the lesion. The origin of all the diverse lesions seem to lie in neoplastic proliferation of glia cells. In the cauda equina this proliferation has resulted in a gliomatous tumor mass. Here it is in part invaded by fibrous tissue and extravasations. In the upper part of the cauda equina tumor there was originally in all likelihood a gliomatous tumor which in time has been entirely replaced by fibrous tissue growing from the dural coating. Within the spinal cord proper, there is cell proliferation close to the central canal. In the lumbar region there are seen areas of gliosis which perhaps may bear towards the tissue we called glioma a relation similar to that which a fibroma bears towards sarcoma (leaving out of consideration the question of malignancy). In the cervical region there is proliferation of glia cells close to the ependymal cells. Cavities are found at some levels and none at others. Whether the cavities resulted from callequefaction of a gliomatous area or whether it arose in some other way as a response to the pathological proliferation of cells close to the central canal would be hard to say. Another disparity in the end results of the cauda tumor and the lesions in the cord proper is that in the one the neural tissue after destruction is replaced by fibrous tissue, while in the other no such attempt is seen. To explain this difference it should be remembered that there is too little fibrous tissue found in the cord substance to serve as a starting point for scar formation. Pathological defects in the brain, as for instance non fatal hemorrhage, usually results in cyst-like cavities and not, as in other organs, in scars.

A HITHERTO UNDESCRIBED FORM OF POLYCYTHEMIA AND ITS POSSIBLE RELATION TO DUODENAL ULCER, CHRONIC PANCREATITIS, AND A DISTURBANCE OF INTERNAL SECRETIONS (ADRENALIN).*

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Polycythemia, polyglobulia, erythremia, erythrocytosis, are the usual terms for an increased number of red blood corpuscles. The two latter terms were fittingly chosen in analogy with leucemia

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and leucocytosis. If the number of red cells exceed five and one-half millions in a cubic centimeter of blood, the condition of polyglobulia can be spoken of. (Aubertin.)[1] A marked increase in erythrocytes may occur physiologically in new-born children[2] and in adults who are living in high altitudes. Pathologically it occurs in starvation and in losses of fluid from the body as from persistent vomiting, profuse sweating, severe diarrheas. Cholera Asiatica may serve as the best instance of the occurrence of polyglobulia, due to losses of body fluid. A numerical increase of red blood corpuscles occurs in congenital and acquired heart disease with disturbed compensation, in emphysema and in edema of the lungs.

Poisoning with phosphorus, arsenic, carbon oxide may also lead to the condition of polyglobulia. The latter toxic form of polyglobulia has been named, acording to Parkes Weber,[3] anemic polyglobulia, "la polyglobulie anémique," as the percentage of hemoglobin is too low in comparison with the high counts of red cells. Further should be mentioned the occurrence of polyglobulia in gastrosuccorrhea and patients with reduced intake of fluid, as occasionally in chronic constipation.

In 1892 first Vaquez,[4] later Turck,[4] Osler,[4] and others described a form of true polycythemia occurring in middle-aged people, the so-called Vaquez or Vaquez-Osler's disease, chiefly characterized by splenomegaly, associated with cyanosis of the face. The hemoglobin in this disease is rather in disproportion to the numerical increase of erythrocytes. The autopsy in such cases revealed a true plethora, since all parts of the body seem to contain large quantities of blood. In three such instances primary tuberculosis of the spleen was found.

It should be added that the causes of most polycythemias remain obscure. Those forms of polyglobulia, which occur in people after severe losses of body fluid, seems to be explained more satisfactorily than others. Thickening or concentration of the blood in such individuals was said to be responsible for high counts of red blood corpuscles. In disease of the heart, in emphysema of the lungs, and in edema, stasis of the blood seems to be the cause. The high altitude hyperglobulism is probably compensatory to lack of oxygen in the air, and there is increased activity of the bone marrow (Osler[5]). In true erythremia this same increased activity of the bone marrow is present. Vaquez-Osler's disease is, therefore, considered as a primary lesion of the bone marrow, just as leucemia is an affection of the leucoblastic elements. But the immediate cause of the hyperactivity has not been yet established.

Our patients in whom the hemoglobin showed from 85 to 110 per cent. and counts of red blood corpuscles from six million to about eight million do not belong to any of the groups mentioned. They are not inhabitants of high altitudes, but are living in New York City. Nearly all of them had a very good appetite and therefore the polyglobulia was not due to starvation. No lack of thirst could be elicited from the histories; some even used water in large quantities. Severe diarrheas or sweating were not mentioned by any one of our patients. Those of them who vomited shortly before counts were made did not enter into our series of cases. Only two of the patients looked slightly cyanotic and one showed slight cyanosis of the lower lip. All others looked rather pale, or more correctly, dried out.

Our material consists of fourteen patients from private practice and eleven from the Vanderbilt Clinic. Twenty-three were males and two females. The ages ranged from 19 to 57 years. All of our twenty-five patients complained of the usual symptoms of chronic indigestion and of attacks of pain. The paroxysmal pain dated back mostly for years, and in a large number constant pain was also complained of. Many complained of night pain; some of hunger pain, others of both. A large number of them were users of bicarbonate of soda, which remedy they took at night on account of pain or on retiring in order to avoid night pain. Jaundice could not be elicited from a single history. Objectively there could be demonstrated in all our cases tenderness of different intensity to right of the epigastrium, in the continuation of right parasternal line somewhat above the navel; in but a few instances tenderness was found also somewhat to left of navel, and in one patient there was also tenderness in the appendicular region. In none of the patients was either liver border palpable, or spleen enlarged, or gallbladder palpable. There were no tender spots characteristic for gallstone disease or for gastric ulcer.

Gastric analysis: With the exception of four cases, in which stagnation of food was found on fasting stomach and in one case with intermittent stagnation, there was no macro- nor microscopical stasis on fasting in all the rest. The amount obtained on fasting stomach ranged from nothing in one case to 20-30-90 in others. After test breakfast amounts much over normal were obtained, and the volume of fluid was 2-3-4-5 times larger than the volume of solids. In but one instance, in which at the operation gastric and duodenal ulcer was found, the volume of solids was equal to the volume of fluids. Hyperacidity was noted in all, except for one case of hypoacidity and for another of heterochylia.

Feces: The presence of occult blood could be demonstrated with the guaiac test only in a small number of cases, though with benzidin more frequently. A complete analysis of the feces of three patients showed pancreatic insufficiency. One of these cases came to autopsy and was proven to be chronic interstitial pancreatitis. Urine was negative, except for a large sediment of phosphates in some and transient glycosuria in two.

In order to avoid repetitions two tables are added:

Case I.—R. S., aged 37, merchant. Was seen first August 6, 1911. Ailing for ten years with indigestion and attacks of cutting pain in the upper abdomen from four to six hours after meals. For last few years he is suffering also with constant pain during day and at night. Appetite has been always very good. He drinks from six to eight glasses of water daily. Several years ago had noticed on two occasions that his stools were black. Never vomited. His illness was diagnosed by some physicians as gastric, by others as duodenal ulcer. Examination: Marked tenderness in upper quadrant of the abdomen to right and slight rigidity of rectus muscle in this region. Guaiac test for occult blood in the feces twice negative, once positive. Polyglobulia was found on two occasions.

Case II.—B-r, H., aged 47, merchant. Seen first July 28, 1912. Attacks of abdominal cramps with long intermissions of good health since twenty years. Patient has frequently pain in the abdomen at night, for which he is compelled to take bicarbonate of soda. Lately pain comes on also at other times and he feels relieved only after taking some nourishment. He was never jaundiced. Examination: Looks "dried out." Great tenderness above the navel to right, no tender spots anywhere else. Occult blood in the feces negative on three examinations. Polyglobulia on three examinations. In September 1 was called to his house on account of a severe attack of abdominal pain. I found at that examination his right

TABLE I

Date	No.	Hemoglobin	R.B.C.	Feces (Occ. Blood)	Gastric Analysis: Amount on Fasting	Gastric Analysis: Test Breakfast and Acidity	Remarks
.....	1	105% 110	7,300,000 7,400,000	−, −, ⊥	60cc.	180–80/120	
.....	2	100 95 100	6,800,000 6,400,000 6,500,000	−, −, −	50	130–54/74	
.....	3	95	6,000,000	−, −, −	10	90–38/66	X-ray pointing to duodena ulcer
.....	4	100 95 100 70	6,400,000 6,800,000 6,500,000 4,600,000	−, −, −, ⊥	30	130–46/77	Two months after three first counts were made blood showed anemia. Operation: Adhesions around duodenum
.....	5	100 95 100	6,200,000 6,800,000 6,500,000	−, −, −	Refused to take stomach tube		Melena elicited from history
.....	6	100 100	6,000,000 6,400,000	−	30	190–80/120	
.....	7	95	6,060,000	−	0	82–62/82	
.....	8	100 100	6,300,000 6,800,000	−, ⊥, −, ⊥	90	180–60/124	X-ray report suggestive for duodenal ulcer. Intermittent stagnation of food on fasting
.....	9	90	6,800,000		5	70–48/96	
.....	10	100 100 100	6,300,000 6,500,000 6,400,000	⊥, ⊥	20	60–0/50 36/70	Pancreatic insufficiency: Low values for trypsin, very many muscle fibers with pointed edges. Ether extract: 19.11, fat splitting: 26/100. Operation: Duodenal ulcer
.....	11	 95	3,900,000 5,800,000		35	130–20/60	Stagnation of food on fasting. Operation: Gastric and duodenal ulcer
.....	12	90 95	5,700,000 6,400,000	⊥, ⊥	25	150–80/120	Pancreatic insufficiency: low values for trypsin; fat splitting 26/100; many muscle fibers with pointed edges; clay colored stools without icterus sugar in the urine
.....	13	90	6,400,000	−		200–50/86	Melena elicited from history. Stagnation of food on fasting
.....	14	110 95	6,500,000 5,300,000	−, −	30	120–66/114	Microscopical stagnation of food
Nov. 26, 1912.....	15	100	7,600,000	−, −	50	90–68/96	Microscopical stagnation of food. X-ray report: Adhesion around duodenum
Dec. 10, 1912.....		95	7,800,000				
Dec. 17, 1912.....		100	7,300,000				
Jan. 8, 1913.....		95	7,260,000				
Jan. 15, 1913.....		90	6,560,000				Injected 0.0007 adrenalin subcutaneously
Jan. 22, 1913.....		95	8,000,000				One hour later
		95	7,800,000				19 hours later
		95	8,300,000				44 hours later
		85	4,500,000				
Dec. 17, 1912.....	16	110	7,200,000	−, −, −	30	130–66/94	X-ray report very suggestive for duodenal ulcer
Dec. 24, 1912.....		100	6,200,000				
Jan. 7, 1913.....			7,800,000				
Jan. 10, 1913.....		95	7,600,000				Forty minutes after injection of 0.0005 adrenalin
		100	8,720,000				
Jan. 17, 1913.....		90	6,230,000				One hour and forty minutes after injection of one mmgr. adrenalin
		95	7,120,000				
Jan. 25, 1913.....	17		7,000,000	Hyperacidity	found three years ago		History of melena
Jan. 29, 1913.....		100	7,000,000				
		95	6,960,000				One hour after injection of one mmgr. adrenalin
		95	5,000,000				About twenty hours later
		90	6,440,000				About forty-one hours later
Jan. 11, 1913.....	18	90	5,440,000		60	360–44/82	
Jan. 25, 1913.....			6,700,000				
Jan. 31, 1913.....		75	6,800,000				
		80	5,800,000				Thirty-five minutes after injection of 0.0005 mmgr. adrenalin
		65	4,900,000				About twenty-two hours later
Jan. 4, 1913.....	19		7,100,000				Operated for duodenal ulcer; atrophic condition of liver found
Feb. 4, 1913.....		80	7,200,000				
Feb. 7, 1913.....		90	6,160,000				
		65	6,400,000				Seventy minutes after 0.0007 of adrenalin
		75	4,500,000				Nineteen hours later
Feb. 12, 1913.....		85	7,300,000				
Jan. 25, 1913.....	20		6,880,000			120–60/110	
Jan. 28, 1913.....		90	6,100,000				
Jan. 25, 1913.....	21	95	7,900,000			150–80/120	
Feb. 6, 1913.....		90	6,300,000				
.....	22	80	5,800,000	⊥, ⊥	20	80–40/80	
Dec. 12, 1912.....	23	95	7,200,000		20	0/30	
Jan. 7, 1913.....			7,600,000	−			
.....	24	85	7,300,000	−	60	130–64/128	
.....	25	100 100	6,000,000		20	50–98/116	Operation and autopsy, chronic pancreatitis

TABLE II

Date	No.	Time	Blood Pressure	Pulse	Sugar	Hemoglobin	R B C	Remarks
Jan 22	15	3:00 P.M.	128	80	—	95	8,000,000	
		3.15 P.M.	(0,0007 adrenalin injected subcutaneously)					
		3 20 P.M.	124	78				
		3.35 P.M.	124	78				
		3 55 P.M.	116	76				
		4 15 P.M.			+	100	7,860,000	No complaints, except slight headache
		4 40 P.M.	132	72				
Jan. 23		10:00 A.M.	118	72		95	8,300,000	
Jan. 24		11:00 A.M.	134	80		85	4,500,000	
Jan. 10	16	3:30 P.M.	135	116		95	7,600,000	
		3 45 P.M.	(0.0005 adrenalin injected)					At night following injection had chills, fever headache, and was weak
		4 15 P.M.				100	8,720,000	
Jan 13	16	2.05 P.M.	115	100	—	90	6,230,000	
		2 30 P.M.	(injection 1 mmgr adrenalin					
		3:05 P.M.	110	84				Arythmia four intermissions per minute
		3 15 P.M.	105	84				
		4:05 P.M.	100	80				
		4 10 P.M.					7,120,000	
Jan 29	17	2 15 P.M.	116	76		109	7,040,000	
		2 45 P.M.	(Injected 1 mmgr)					Immediately after injection became pale and very weak, had to lie down, pupils are dilated, feels chilly, headache, at night had chills, fever, headache, had pain in region of heart; was weak
		3:00 P.M.	115	80				
		3:30 P.M.	118	84				
		3:45 P.M.					6,960,000	
		3:50 P.M.	112	78	+			
Jan. 30		10:45 A.M.	124	64		85	5,000,000	
Jan 31		12:00 P.M.	120	68		90	6,440,000	
Jan 11	18	2 35 P.M.	135	75	—	75	6,800,000	
		2:55 P.M.	(Injected 0.0003)					No complaint after injection
		3:00 P.M.	130	84				
		3:15 P.M.	128	84				
		3:25 P.M.	128	84				
		3:30 P.M.				80	5,800,000	
		3:45 P.M.	128	84				
		3:55 P.M.	128	84				
		4:10 P.M.			—			
Feb. 1		2:30 P.M.	120	76		65	4,900,000	
Feb 7	19	3:00 P.M.	130	100	—	90	6,100,000	
		3:05 P.M.	(Injected 0,0007)					Heart palpitation and headache
		3:25 P.M.	148	108				
		3:40 P.M.	142	108				
		4:00 P.M.	130	120				
		4:15 P.M.				65	6,400,000	
		5:00 P.M.			—			
Feb 8		10:30 A.M.	118	76	—	70	4,500,000	

rectus muscle very rigid. Operation for duodenal ulcer was advised. Later, I have heard, he visited a physician who treated him for dyspepsia. I have been informed by a friend that he had a severe attack in December.

Case III.—N-l, Max, 38, painter. Seen October 25, 1911. Patient has been suffering for fifteen years with intense paroxysmal pain at the lower third of the sternum. The attacks became more frequent for last two years. The pain is of burning character, at times has no relation to food, at others he is relieved by food. Vomited on several occasions during the course of his illness, but not lately. He also had night pain. Appetite is capricious. Lost lately six pounds in weight. Obstinate constipation. Had on several occasions tarry movements (without medication). Past illness: Smallpox in childhood, typhoid fever 16 years ago. Examination: Great tenderness in right parasternal line at the navel. Occult blood negative on three examinations. Polyglobulia on one examination. Report of *x*-ray plates, made by Dr. L. G. Cole (October 29, 1912). From a study of the plates there is definite evidence of a lesion involving the extreme pyloric end of the stomach with partial obstruction.

Case IV.—H-t, S., aged 24, tailor. Seen September 2, 1912. Two years ago, shortly after typhoid fever, started to complain of indigestion. For one year he has had attacks of burning pain in lower abdomen (mostly at night). Examination: Appears "dried out." Great tenderness in appendicular region. Guaiac test negative on three occasions, benzidin once positive. Polyglobulia on three occasions, oligoglobulia on one occasion. November first I was called to the patient's house on account of vomiting (first time in his illness), which occurred several times while at work. Examination revealed this time also tenderness at the right hypochondrium. Diagnosis: Chronic non-complicated duodenal ulcer. Operation: November 7 (Dr. A. Gerster). Appendix intact without ulcerations, round and firm band around the first part of duodenum and adhesions between gallbladder and duodenum. Gallstones were not found. Stomach was normal.

Case V.—C-n, R., aged 42, housewife. Seen October 7, 1912. Had had five years ago severe attacks of burning pain in the region of right hypochondrium. The pain did not radiate to the back or shoulders. For last two years she had heartburn and constant pain on fasting stomach. About 18 months ago she fainted on one occasion while moving her bowels. She was told that her stools looked like ink. Subsequently she had noticed on two occasions black motions. Patient had never vomited, nor was ever jaundiced. Her condition was diagnosed at that time, as gastric ulcer. Since last six weeks the pain was more severe than ever. Examination: Great tenderness about two fingers to right of umbilicus. Occult blood negative on three examinations. Polyglobulia found on three examinations.

Case VI.—W-f, J., aged 42, furrier. Seen first November 8, 1912. For many years has had attacks of abdominal pain. Sleep is frequently disturbed on account of pain, which comes on at midnight and during the day 5-6 hours after meals. Examination: Great tenderness somewhat above the navel to right, also at 12th rib, near the spine. Occult blood negative. Polyglobulia on two examinations.

Case VII.—B-l, B., aged 24, engineer, January 9, 1913. Ailing for 18 months with burning pain 2-4 hours after meals in right hypochondrium. Lately he has also pain at midnight, which he can avoid by taking bicarbonate of soda on retiring. Constipation. Examination: Looks somewhat plethoric. Great tenderness to right of epigastrium and somewhat above the navel, where the rectus muscle is rigid. Occult blood negative. Polyglobulia on one examination.

Case VIII.—J-s, A., aged 38, cigar store. Seen October 29, 1911. Attacks of abdominal pain and indigestion for nine years. Examination: Great tenderness at the navel to right. He was seen by me many times and about a dozen gastric analyses were made. The contents showed at times stagnation of food, at times no stagnation. This transient ectasia was probably due to pylorospasm, as I have seen it several times in patients with duodenal ulcer, which was proven at operation. Patient felt perfectly well for one year, when paroxysmal pain came on again. Occult blood twice positive, twice negative. Polyglobulia was found on two examinations. Patient

was advised to be operated upon for duodenal ulcer, but escaped from observation.

Case IX.—A-z, L., aged 33, tailor. Seen January 26, 1913. Patient is ailing for 15 months with indigestion and cutting pain in epigastric region from 5-6 hours after meals. He vomited many times at the beginning of his illness. Complains also of night pain and hunger pain. Examination: Tenderness in region of navel, more to left. Polyglobulia on two examinations.

Case X.—K-n, M., 23, traveling salesman. First seen November 9, 1912. Attacks of abdominal cramps for five years. Four years ago was operated upon for epigastric hernia, three years ago an abdominal incision was again made, but peritoneum was not opened at both operations. In May, 1911, a third laparotomy was performed, a healthy appendix removed and adhesions between colon and pylorus. A thorough exploration of the duodenum has not been made. Since three years has hunger pain, mostly at night, for which he drinks milk. He has intense pain in the abdomen after motions, especially when they are loose, as it often happens. Lately he has also spontaneous pain on walking. Pain relieved while sitting or bending his knees. Cold drinks and whiskey also relieve pain. Examination: Looks pale. Great tenderness in epigastric region and around the navel to right, otherwise negative. Occult blood twice positive. Dr. Oefele made a complete analysis of the feces and reported the case as plainly that of pancreatic insufficiency. Polyglobulia was found on three examinations. Diagnosis: Duodenal ulcer. March 10, 1913, operated by Dr. A. A. Berg. Adhesions between gallbladder and colon, firm adhesions between gallbladder and the duodenum. On the posterior wall of the duodenum a scar from a probable old ulcer of the mucous membrane. Pylorus tied. Posterior gastrojejunostomy.

Case XI.—B-e, I., aged 43, merchant. Seen first January 17, 1913. Ailing for ten years with indigestion. Attacks of *cramp-like pain,* of pinching character. For two years has been perfectly well. Lately he was sick six weeks and then again well. Pain is frequently relieved after food. Anorexia and constipation. Wakes up at night on account of pain and takes bicarbonate of soda. Pain radiates lately to the back. Examination: Tenderness in right axillary line and to left in region of colon descendens; slight rigidity of right rectus muscle. Clinical diagnosis: Gastic ulcer at the pylorus. Surgical diagnosis: Gastric ulcer at lesser curvature near pylorus and duodenal ulcer. (Dr. A. Gerster.) Oligoglobulia on one occasion. Polyglobulia on another.

Case XII.—M-T., aged 40, merchant. February 7, 1913. Ailing since ten years. At the beginning complained of constipation, neuralgic pains, headaches, eructation. Shortly after commenced to experience severe burning pain somewhat above the navel to right and lately also in the epigastric region, more to right. Pain radiates to the region of the back opposite the epigastrium. During six years he has been free from pain only for six weeks. The pain is frequently so intense that he cannot talk. On several occasions patient fainted on account of pain. At the beginning of his illness he used to be relieved from his "hot water pain" (his own term) by food. For many years patient has used one pound of bicarbonate of soda per week in order to relieve pain, which wakes him at night. Appetite has been always good. Stools lately appear clay-colored. Has lost somewhat in flesh. Patient is on a dry diet; cannot stand any liquids. He was refused by an insurance company, as sugar was found in his urine. P. H.: Had typhoid at the age of 17, and four years ago was operated for gallstone. Nothing was found, appendix removed, which proved to be healthy. He stood the anesthesia very badly. F. H.: Father died from gastric cancer. Examination: Great tenderness to right of navel. Blood pressure 130 mm. Second pulmonic accentuated. Urine: Albumin, positive; sugar, negative; sediment, a few casts. Occult blood twice positive. Polyglobulia present on two occasions. Operation (see discussion of cases).

Case XIII.—Miss M., aged 19. History given by Dr. Misslig. Has been ailing for several years. Pain in epigastric region more to right and in appendicular region. Pain radiates to lower angle of scapula and occasionally to lower back. She had an attack of "appendicitis," after which stools looked black. One and a half years after first attack of appendicitis had a second one. Patient was never jaundiced. Examination: Great tenderness in right parasternal line two fingers above navel, where rectus muscle is rigid. Tenderness at the spine at 12th lumbar vertebra, otherwise negative. Polyglobulia.

Case XIV.—S-r, L., aged 23. Seen February 19, 1913. Ailing one year. Pain across the abdomen, upper part. Constipation alternately with diarrhea. Examination: Great tenderness to right of navel, somewhat above. Polyglobulia found on two examinations. Occult blood twice negative.

Patients with polyglobulia from the Vanderbilt Clinic:

Case XV.—P-r, S., aged 57, no operation; seen first August 22. Ailing ten to twelve years with intense pain in epigastric region on and off. Pain is in no relation to food. Vomited lately on two occasions. Appetite poor. Night pain. P. H.: Pneumonia ten years ago; typhoid fever twelve years ago. Examination: Great tenderness in right parasternal line above the navel. *X*-ray plates taken by Dr. E. Leaming and reported as showing adhesions in region of duodenum. Occult blood negative twice. Polyglobulia present on nine examinations.

Case XVI.—P-i, B., aged 42. Seen first December 17, 1912. Barber. Ailing for two years with abdominal cramps and pain in the epigastric region, radiating to left shoulder. During his illness he had five such attacks. Duration of each attack about sixteen days. Lately he is free of pain from one to three hours after meals. He has no pain on empty stomach, but pain comes on as soon as he shaves the first patient. One of the attacks of pain came on after apparent peace for five months. He never vomited, nor has noticed tarry stools; was never jaundiced. Examination: Great tenderness in axillary line to right and at navel to right and left. *X*-ray report of Dr. E. Leaming. Hypermotility of intestines, which is frequently seen in duodenal ulcer. Occult blood negative on three examinations. Polyglobulia found on seven examinations.

Case XVII.—S-ky, R., aged 43, shoemaker. First seen at the clinic November 10, 1910. At that time he complained of a feeling of distress in the abdomen and of dark stools on and off for thirteen years. The diagnosis was put down at that time as gastroptosis and hyperacidity 25/1/13: Tenderness in epigastric region and right hypochondrium and about one finger above the navel to right side. Polyglobulia on four examinations.

Case XVIII.—D-z, H., aged 48, presser. Seen first January 11, 1913. Abdominal pain for several months. One week before vomited on a few occasions. Cannot sleep on account of pain. Examination: Tender spots to left of spine at 12th and 11th ribs and in region of right hypochondrium. Polyglobulia on four occasions.

Case XIX.—G-k, P., aged 31, traveling salesman. He complained of abdominal cramps for eleven years. Examination: Tenderness and rigidity in almost entire right half of abdomen. No leucocytosis. He was referred to the Roosevelt Hospital with the diagnosis: duodenal ulcer. Every one who saw the patient at the hospital made the same diagnosis. Dr. C. Peck was prepared to perform gastroenterostomy. There was found no ulcer, but a peculiar condition of the liver. The right lobe was reduced to less than one-third of its normal size, the left lobe appeared to be smaller than normal. Appendix was removed; it was normal. Patient has now the same symptoms. Polyglobulia on four occasions.

Case XV.—P-n, A., aged 30, liquor store, seen first January 25, 1913. Two and one-half years ago he had one evening a very severe attack of abdominal cramps. Has been well until two weeks ago, when cramps came on again. Examination: Great tenderness around the navel. Operation for duodenal ulcer was advised. Patient went to Mount Sinai Hospital to be operated upon. However, two hours before operation he changed his mind and backed out. Polyglobulia was found in the blood of this patient on two examinations.

Case XXI.—M-n, J., tailor. Seen first January 18, 1913. Four and one-half years ago he had severe attacks of abdominal pain, which was relieved by drinking hot water; lately he has pain from 2-3 hours after meals. Examination. (Dr. H. C. Thacher.) Deep tenderness above the navel. 3/11/13. Had lunch at 12 M., intense abdominal pain from 3-5 P.M. Polyglobulia on two examinations.

Case XXII.—K. M., tailor. First seen September 17, 1912. Has cramps in the region of umbilicus, coming on mostly at the middle of day, lasting a few minutes. Has similar cramps before moving bowels. Lately drinks very much water. Examination. Tenderness at navel to left. 14/1. At night had had a very severe attack of burning pain in the abdomen, could not sleep the whole night on account of pain. Occult blood twice positive. Polyglobulia on two examinations.

Case XXIII.—T-z, J., presser. Seen December 12, 1913. Ailing with indigestion since four months. Constant pain in right lumbar region. Examination. Tenderness in the region of the navel to right. Polyglobulia on two examinations.

Case XXIV.—G-b, M., tailor. Seen February 11, 1913. Patient is suffering for last eight months with attacks of burning pain in epigastric region. Since last two weeks pain comes on 3-4 hours after meals. Awakes at night on account of pain. One year ago had on two occasions bloody stools. Never vomited. Drinks very much water. Examination. Great tenderness above navel, to right, where rectus muscle is rigid. Polyglobulia on two examinations.

Case XXV.—A case of chronic pancreatitis with polycythemia, reported from the Vanderbilt Clinic (Medical Record, November 23, 1912).

Discussion of Cases.—Of our material, consisting of twenty-five cases, only six came to operation, and one of these six also to autopsy. The latter, as was mentioned already, proved to be chronic pancreatitis (Friedman[8]). Case IV, where tenderness could be mainly demonstrated in the appendicular region and only slight in duodenal region, showed at the operation many firm adhesions between gallbladder and duodenum and a firm, broad band around the first part of the duodenum. As gallstones were not found and as the removed appendix was found to be healthy, the possibility of a small duodenal ulcer which could have been missed at operation must be granted. Case XI proved to be gastric and duodenal ulcer. This patient was suffering from chronic indigestion for ten years. His chief complaints were: night pain, hunger pain, and he was also a user of bicarbonate of soda. Case X showed at operation a scar from a probable ulcer of mucous membrane on the posterior external wall of the duodenum with firm adhesions between gallbladder, duodenum, and colon. Case XIX is a peculiar one. This patient, who gave a history of attacks of pain for eleven years, showed on physical examination rigidity of the right half of the abdomen, but more in the duodenal region. As his blood did not show leucocytosis and as there were no tender spots in the right axillary line, nor in the scapular line, nor to left of spine, the diagnosis of duodenal ulcer was made. However, the operation disclosed a peculiar condition of the liver: the right lobe was in size less than one-third of a normal liver, the left lobe smaller than normal. Ulcer in duodenum was not found. Gallstones were not found. The removed appendix did not necessitate surgical interference.

The fact that duodenal ulcer may be present and not be found at operation is well known. The following case cited by Kemp may once more illustrate this: Clinical diagnosis: Cholangitis, peritonitis localis. At operation nothing was found. Autopsy: A funnel-shaped ulcer of the duodenum. The tissue of the head of the pancreas formed the base of the ulcer. Our patient with the atrophic condition of the liver has been seen repeatedly after the operation at the clinic. His symptoms and findings at physical examination: attacks of pain and tenderness in the duodenal region remained the same. These symptoms cannot be due to the atrophic condition of his liver. Case XII gave the most typical history of duodenal ulcer with the presence of occult blood on two examinations and pancreatic insufficiency, proven by complete analysis of the feces. At the operation, which was performed by Dr. H. Lilienthal, April 4, 1912, a large number of adhesions were found in the region of gall bladder, stomach, and colon. The duodenum could not be explored on account of the very many adhesions left. However, gastroenterostomy was done. A complication of duodenal ulcer with pancreatitis is just as conceivable as the complication of gallstones with pancreatitis, but it is also possible, as we shall note later, that the same cause which produces duodenal ulcer may at the same time be responsible for the causation of some forms of pancreatitis. The interpretation of *x*-ray plates gave very much support for the diagnosis of duodenal ulcer in Cases XV and XVI. Case VIII showed on two examinations positive tests for occult blood in the feces and a condition of intermittent pylorospasm, which is sometimes seen in duodenal ulcer. Case V gave a history of repeated melena and a positive reaction for occult blood on one occasion. Case VIII gave some findings. Patient I gave also a history of melena and a positive reaction for occult blood on one occasion. Case XXII showed two positive reactions. The report of *x*-ray picture in Case III can also be interpreted in the sense of duodenal ulcer. For the diagnosis of the rest of eleven cases one has to rely solely upon the histories and localization of pain in the duodenal region.

I shall not mention in the support of the diagnosis of duodenal ulcer the findings of hypersecretion and of high total acid values as in Case VI (free HCl—80, total—120), as I believe, that this tradition ought to be abandoned. One finds it so frequently in appendicitis, gallstones, renal colic and even in plain constipation, that by itself the findings of hypersecretion are meaningless. I found in the gastric contents of patients with constipation many years ago hypersecretion and again lately, and still they did not complain of pain, and, therefore, I believe that they did not have duodenal ulcer. The presence of occult blood in the stools is a more valuable diagnostic aid in duodenal ulcer, but gastric ulcer cannot be frequently ruled out. According to Moynihan occult blood is present only in 30 per cent. of cases of duodenal ulcer operated upon. It follows that the majority of duodenal ulcers do not bleed, at least manifestly. Bleeding in ulcer to any greater extent is just a complication as perforation of an ulcer. The localization of the pain, which has been assumed is more to the right of the epigastrium, is also frequently misleading. From all these considerations it can be easily comprehended why Miculicz[9] made the statement only ten years ago, that until that year the diagnosis of duodenal ulcer never was made correctly before operation.

The truth about the frequency and the diagnosis of this disease we learned only from English and American surgeons: Mitchell,[10] W. Mayo,[11] Mayo-Robson,[12] Murphy,[13] and especially from Moynihan. Moynihan does not hesitate to say that the diagnosis can be made before operation in 95-100 per cent. of the cases, and he illustrates it convincingly with his rich material. Why then such a difference in opinion between two eminent surgeons? Due attention was not paid to the history of the patient. Moynihan says: The history is everything for the diagnosis; everything else is of minor importance. And in the sense of Moynihan I believe our patients were suffering from duodenal ulcer, and in such patients polyglobulia was found. Patients IV and XI are so far exceptions, as in the first, after finding polyglobulia at three examinations, two months later anemia was found and in the second once anemia and on another occasion polyglobulia.

There is not a single mention of the occurrence of erythrocytosis in relation to duodenal conditions

in the whole literature. In three cases of Kemp from Copenhagen (the diagnosis of duodenal ulcer proved at operation) the hemoglobin showed 90, 95, and 115 per cent. Had he made counts of erythrocytes in these cases it is probable that he would have found polyglobulia. During the time of our studies counts of erythrocytes were made by us in different abdominal conditions: gastric ulcer, appendicitis, urethral calculi, hydronephrosis, gallstones, cirrhosis of the liver, and in various carcinomas of the gastrointestinal tract. In all these conditions anemia was found.

Blood.—The blood of our patients has been examined with greatest possible care. At the beginning of our work counts were made simultaneously in two chambers. After polyglobulia was found time after time in the cases of our series, this precaution was abandoned. Care was taken not to compress the finger or ear after puncture was made. The determinations of hemoglobin were made by the Sahli method in our private patients, by Fleischl's in clinical patients. At the clinic control examinations were made by Dr. S. Carluci, to whom I express here my hearty thanks. Viscosity of the blood could not be examined, but that it was probably high could be judged frequently from the slowness with which the drop reached the required mark of the pipette. In the majority of cases the white cells were counted. In Cases IV and XV hyperleucocytosis was found. In others normal counts. Not in a single case was leucopenia noted. Smears showed in several cases a few normoblasts, no megaloblasts. Eosinophiles were either absent or not above 1 per cent. in the cases in which a differential count was made. There was occasionally neutrophile leucocytosis. Nearly in all of the cases the lymphocytes were of small variety. Ten per cent. of mononuclears were found in Case XI, which proved to be gastric and duodenal ulcer.

In order to show the difference in the result of blood examination in gastric ulcer I shall refer to a case of typical gastric ulcer which I have lately seen at the Beth David Hospital. Hgl., 75 per cent.; R.B.C., 4,500,000; W.B.C., 4,100; poly., 41, 5 per cent.; S. L., 28, 5 per cent.; mono., 17, 5 per cent.; L.L., 7; eosino., 3 per cent.; baso., 1 per cent.; trans., 1, 5 per cent. (200 cells counted). These are frequent blood findings in gastric ulcers, which were proved to be such at operation. I shall refer to this difference more extensively in another communication. Leucopenia, slight eosinophilia, mononuclear leucocytosis. Leucopenia, mononuclear leucocytosis, as it is well known, is frequently found in exophthalmic goiter. The similarity of the blood picture in the two last-mentioned conditions, is, therefore, worthy of note. From blood films which have been studied in our series of cases, one is inclined to believe that the erythrocytes in them is perhaps due to slight hyperactivity of bone marrow, as in two instances surely normoblasts were seen. But the relative disproportion between the percentage of hemoglobin and the red cells has to be explained. Although the cause of the hyperglobulism, found in our patients remains, as in most polyglobulias unexplained, an attempt should be made to give a possible explanation.

At first it has been assumed that the findings of polyglobulia may be due to gastrosuccorrhea or hypersecretion, which condition was present, as seen from Table I in most of our cases. Such an explanation would be analogous to the interpretation of polyglobulia in diarrhea, which leads to losses of fluid from the blood.

However, this idea had to be given up on account of several reasons: in two cases of appendicitis in which gastric contents were obtained from 130-150 c.c. after test breakfast, polyglobulia was found on repeated examinations. In a patient with intermittently palpable tumor in the epigastric region, the occasional presence of which was due to pylorospasm, amounts of 80-120 c.c. were obtained on fasting without stagnation of food. The patient presented many nervous symptoms, due to the loss in a short period of time of three members of his family. Strange to say, he was a policeman. His blood showed from 3,500,000-3,900,000 red cells on many examinations. Only two months later, after he had been put on a roborant medication, the count of red cells showed 5,100,000. From these considerations gastrosuccorrhea or hypersecretion cannot be held responsible for the condition of polyglobulia found in our patients. Therefore, we had to look for another explanation, which, as will be seen, is in close relation to the results of Falta's experiments with adrenalin.

Falta[14] and his associates experimented at first on dogs with adrenalin. They injected ¾-1 mgr. subcutaneously and intravenously by the infundation method of Kretschmer-Straub,[15] which allows the introduction of small quantities of adrenalin during a longer period of time. Briefly the results of their experiments are the following: The number of erythrocytes in the cubic centimeters of blood increases rapidly after injections of adrenalin. They obtained an increase from 40-70-100 per cent. The increase occurs in like manner after subcutaneous injections. The intensity and the length of the reaction is variable, but a marked increase has been obtained in all dogs. Hemoglobin showed on the contrary scarcely any increase, and when a slight increase did occur, it was far below the increase of red cells. The specific gravity showed in normal dogs a slight increase. There was a marked leucocytosis, which was not due to infection, as the same occurred after aseptically conducted subcutaneous injections. The neutrophiles increased absolutely and relatively in all instances. The eosinophiles were diminished. There was a relative dimunition in the mononuclears; in one dog the decrease was even an absolute one. The hpyerglobulia was present in the peripheral capillaries, in internal organs and in the large vessels. The condition of polyglobulia lasted even as long as 31 hours. The cause of the duration has been explained by Exner,[16] Meltzer and Auer,[17] Boehme,[18] as due to the permeability of the vascular walls after adrenalin injections. But according to Falta and his co-workers the hyperglobulism is possibly due to increased production of red cells with diminished content of hemoglobin in the erythrocyte forming organs. The findings of normoblasts in the blood after injections with adrenalin in their experiments would speak, according to them, for such an assumption. In patients with different ailments in whom they injected adrenalin subcutaneously the findings and, therefore, their deductions were practically the same.

We repeated the experiments of Falta on five Vanderbilt Clinic patients with polyglobulia. The object was to see whether in such patients there would be a greater increase of erythrocytes after the injections of adrenalin. Only such cases were utilized for experiments in which it was possible to

make many counts before the injections were started with. We injected subcutaneously from half to one mgr. of adrenalin. The hemoglobin and red cells were determined before each injection, also blood pressure taken and urine was examined for sugar. It is a well-known fact that subcutaneous injections of adrenalin lead to a rise in blood pressure only exceptionally. A constant rise in pressure is only obtained in intravenous injections, and, as it was first shown by Auer and Meltzer, in intramuscular injections. As can be seen from Table II the blood pressure rose markedly in Patient XIX, in whom at operation atrophic condition of the liver was found. In the other four patients the bloodpressure became rather lower after adrenalin. The blood of patient 15 after a slight rise from 8,000,000-8,300,000 fell in about 44 hours to 4,500,000. When counts were made later he had again his usual polyglobulia. Patient 16 reacted 40 minutes after injection of 0.0005 adrenalin with a marked increase of red cells from 7,600,000-8,720,000. Such a high blood count he did not show at any time before injections were made, while one week later 1 mgr. did not produce such an increase. Patient 17, who lost in about 20 hours after 1 mgr. adrenalin 2,000,000 of red blood cells from his peripheral circulation, nearly gained back the original count 41 hours after injection. There is no doubt that in this patient a strong adrenalin effect had been obtained, as shown by the appearance of sugar in the urine and by the toxic symptoms. Patient 18 lost gradually in about 20 hours from 6,800,000-4,900,000 after 0.0005 adrenalin. Patient 19 responded immediately after 0.0007 adrenalin with marked rise in blood pressure. The increase of red cells was shortly after injection a slight one and a drop in about 19 hours to oligoglobulia. It should be mentioned here that Loeper[18] and Crouzon found after adrenalin injections first an increase and later decrease of red cells, which findings correspond somewhat to ours. But as in our cases there was already polyglobulia the slight rise of erythrocytes in some is possibly due to irritation of the red-cell forming organs, which is followed by exhaustion, and after some rest the original hyperglobulism was resumed.

If it is possible, as in the experiments of Falta, to produce hyperglobulism artificially, the question then arises whether a similar condition may occur in the human body, as a pathological condition, from an excess of adrenalin due to hyperfunction of the suprarenal glands. I believe, then, that the erythrocytosis found in our series of cases may be an illustration of such a possibility. As the histories in our patients corresponded to duodenal ulcer and some were proven to be such at operation, the relation of polyglobulia to pathological conditions of the duodenum is possible. It is then further possible that the organs which furnish the secretion of adrenalin are responsible for the causation of duodenal ulcer.

As in not one of our patients high blood pressure was noted, there must circulate in the blood of such patients an excess of adrenalin which may be too small to cause hypertension, but enough to produce an energetic action even in minimal quantities. In other words, if this assumption be correct, one can speak of hormone stimulation, as the definition of hormone is a chemical substance, which, being produced in one organ and circulating in the blood, is capable of stimulating in a certain manner another distant organ. The best proof of hormone action we have in secretin, a chemical substance, which is contained in the intestinal mucosa. Bayliss and Starling,[20] who gave the name "secretin" to this substance, scraped off the cells lining the mucous membrane of the upper part of the jejunum, rubbed them up in a mortar with sand and 0.4 per cent. hydrochloric acid, filtered the extract, and injected the filtrate into a vein. As a result a flow of pancreatic juice was produced. The principal agent, which was proved to be not a ferment and not a colloid, is diffusible through animal membranes and can be filtered through a gelatinized Chamberland filter. It may be compared to the active principle of the suprarenal gland, adrenalin, which has been obtained in a crystalline form and the chemical constitution of which has been determined. It has been found impossible to prepare secretin or a substance having a similar action on the pancreas from any tissue of the body other than the mucous membrane of the duodenum and jejunum. The effect of secretin seems to be limited to pancreas and liver.

Just as a secretory agent from the duodenum may act upon glands through the blood, just in the same way a chemical agent from a gland can act upon the mucous membrane of the duodenum. When, then, there is even a slight hyperfunction of the adrenals a pathological condition of the duodenal mucosa may set in, the condition must not be called necessarily hyperadrenalism, but hormone adrenalism. If one accepts the vascular theory in the causation of gastric ulcer, then one has great support for the assumption that adrenalin may cause vascular changes in the vessels of the duodenal mucosa. It is known that after feeding with adrenalin in rabbits sclerotic changes in the vessels do occur. Undoubtedly, the changes are caused only by absorption of small quantities. According to Bouché adrenalin does not become disturbed by pepsin hydrochloric acid or by pancreatin, and according to Comessati not even by the influence of bacteria in the intestines.

In the opinion of the majority of authors there is no reason to think of mere coincidence in explaining the action of this substance on the vessels of the rabbit. According to Biedl it is possible by fractions of one mgr. solution of adrenalin to note the beginning of changes in the vessels and the mode of developing adrenalin sclerosis. In older animals changes occur sooner, in younger, later. After injection of adrenalin abdominal viscera, especially the intestines, are not only hyperemic, but are frequently covered with extensive hemorrhagic patches. Pólya reports that in Buadpest, during the last fifteen years, duodenal ulcers and scars of such ulcers have been found ninety-one times in 9,272 autopsies; the ratio of duodenal ulcers to gastric ulcers in this series was found to be as 1:1,6, which corresponds well to the data given by Robson. So far as pathogenesis is concerned, Pólya thinks that the poor blood supply of the first portion of the duodenum plays an important rôle; he demonstrated this poverty in blood supply by *x*-ray photographs after injecting with bismuth vaseline. The frequency of duodenal ulcer in men may be due to the frequency of arteriosclerosis in men. The hyperacidity will help to develop ulcers from these hemorrhages. If we remember that adrenalin belongs to the group of disassimilatory hormones, which are growth retarding or growth prohibiting, the explanation why duodenal cancer

is so rare and gastric so frequent is then perhaps possible.

As the consideration of gastric ulcer is left for another communication, here it should be only briefly mentioned that in our opinion gastric ulcer may be due to the stimulation of an assimiliatory or growth-promoting hormone, perhaps a thyroid, and then the explanation of the occurrence of growth-like hyperthrophy of the pylorus as in benign hypertrophic pyloric stenosis and the frequent occurrence of cancer of the stomach may be explained in a somewhat more satisfactory way. It may be mentioned that an adrenalin action seems to oppose the growth of malignant neoplasms. Reicher saw a regeneration and necrosis in sarcoma of mice after injections of adrenalin in the region of the tumor. Based on these observations he went even so far as to recommend adrenalin for treatment of human tumors. If it be possible for minimal quantities of adrenalin to cause duodenal ulcer, then it may be also the cause of noninfective pancreatitis. Truly I had only one proved case of this condition in which polyglobulia was found, yet the following case of Brooks and Kaplan seems to speak for it. To a woman who was suffering from bronchial asthma over 20,000 injections of adrenalin were given in the course of three years. Patient died from hemorrhagic pancreatitis. There were diffuse capillary hemorrhages and resulting necrosis.

I would like to offer the following as conclusions of my observations:

1. Polycythemia is apparently a frequent phenomenon in cases of non-bleeding duodenal ulcer, proved such by operation, or answering the clinical syndrome erected by Moynihan and others.

2. No such phenomena are seen in gastric ulcer.

3. Injections of adrenalin in such patients is followed by a transient diminution in the red cells, but soon afterward the polycythemia asserts itself.

4. The injections of adrenalin in dogs produce a polycythemia, which apparently is due to a lesion of the bone marrow.

I assume that the causes of polycythemia in my cases are intimately connected with the causes of duodenal ulcer, and may be due to some alteration in the secretion of adrenalin.

5. It may be assumed that duodenal ulcer is perhaps a trophic disorder due to some disturbance in the secretion of adrenalin. My hypothesis is that adrenalin in such cases acts hormone-like in a specific manner upon the vessels of the duodenal mucosa and produces the changes that finally lead to the appearance of ulceration.

Note.—Since reading this paper I have been able to obtain more proof of the presence of erythrocytosis in the blood of patients with non-bleeding duodenal ulcer. This constitutes an essential addition, as reports which are chiefly based upon medical material are open to criticism, no matter how accurately histories were taken and data obtained:

Case XVI (from my own series).—Patient entered the service of Dr. A. G. Gerster at the Mt. Sinai Hospital. Blood examination at the laboratory of the hospital showed hemoglobin 120 per cent., red blood corpuscles 5,500,000. In his surgical report of May 2, 1913, Dr. A. A. Berg stated that there was duodenal ulcer. He performed gastrojejunostomy with exclusion of the pylorus.

Case XVIII.—Patient had one severe intestinal hemorrhage in the beginning of May and another one with hematemesis in the latter part of the same month. On May 25 an *x*-ray picture was taken and a fluoroscopic examination made by Dr. S. I. Hirsch, who reported hypermotility of the bowels. On May 29 patient was picked up in his house by a settlement nurse and sent to the Mt. Sinai Hospital (service of Dr. Morris Manges). I am indebted to the house physician for the following data obtained during patient's stay in the hospital: May 30.—Test meal. 120 c.c., normal in appearance and odor. Free hydrochloric acid 55. Total acidity 85. Occult blood: Benzidin +; guaiac —. May 31.—Feces: Benzidin and guaiac +. Hemoglobin 30 per cent. Red blood corpuscles 1,770,000. June 1.—Feces negative for blood. June 4.—Feces, benzidin and guaiacol positive. June 6.—Hemoglobin 55 per cent. Red blood corpuscles 3,016,000 Although the patient was not operated upon, there can hardly be any doubt that our diagnosis of duodenal ulcer, made in February, was correct. The blood examinations, however, made by myself and Dr. S. Carloci, showed erythrocytosis at that time. There was no history of hematemesis or melena at that time.

I wish to cite only two additional cases as briefly as possible:

Case XXVI.—R. I., referred by Dr. C. Goodman. For many years attacks of gnawing pain in epigastric region, hunger pain, and night pain. Physical examination. Tenderness in epigastric region, more intense toward the right side. Gastric analysis showed hyperacidity. Blood. April 24.—Hemoglobin 68 per cent. Red blood corpuscles 5,530,000. April 26.—Hemoglobin 70 per cent. Red blood corpuscles 6,630,000. Diagnosis.—Duodenal ulcer. Surgical report by Dr. C. Goodman: Adhesions between gallbladder, liver, and first portion of duodenum. Scar in the first portion of duodenum. Stomach normal. No stone in gall-bladder. Gastrojejunostomy with exclusion of pylorus. (May 1, 1913, Beth Israel Hospital.)

Case XXVII.—A. O., 34; seen March 23, 1913. History of abdominal pain in epigastrium for last six years. Physical examination.—Tenderness to right from umbilicus and on one occasion rigidity of left rectus muscle in the umbilical region. Blood: March 23.—Red blood corpuscles 7,610,000. March 27.—Red blood corpuscles 6,200,000. Hemoglobin 90 per cent. May 5.—Red blood corpuscles 5,600,000. Hemoglobin 90 per cent. White blood corpuscles 9,800. Polymorphonuclear leucocytes 58 per cent. Small leucocytes 37 per cent. Large leucocytes 1.5 per cent. Transurinal leucocytes 1.5 per cent. Eosinophiles 1 per cent. Basophiles 1 per cent. Occult blood in feces, negative. Diagonsis: Duodenal ulcer. Surgical diagnosis: Duodenal ulcer (June 2, 1913, Beth David Hospital), Gastrojejunostomy with exclusion of pylorus. (Dr. A. A. Berg.)

The blood findings of some patients with gastric ulcer should also be added:

Case XXVIII.—Sam B., 34. An ulcer found near the pylorus (operation by Dr. Gerster, December 21, 1912). Hemoglobin 70 per cent. Red blood corpuscles 3,900,000. White blood corpuscles 4,800. Polymorphonuclear 46 per cent. Small leucocytes 30 per cent. Large leucocytes 3 per cent. Mononuclear 17 per cent. Eosinophiles 4 per cent.

Case XXIX.—T. B., 52. Gastric ulcer at the lesser curvature, size of a silver dollar. (Dr. Gerster.) January 14, 1913. Blood: Hemoglobin 55 per cent. Red blood corpuscles 3,400,000. White blood corpuscles 4,840. Polymorphonuclear leucocytes 44 per cent. Small leucocytes 36 per cent. Mononuclears 15 per cent. Eosinophiles 4.5 per cent. Basophiles 0.5 per cent.

Case XXX.—J. G., 38. Gastric ulcer at pylorus, extending to lesser curvature. (Beth David Hospital, June 21, 1913.) Dr. A. A. Berg. Hemoglobin 70 per cent Red blood corpuscles 4,520,000. White blood corpuscles 0,880. Polymorphonuclear leucocytes 52 per cent. Small leucocytes 31 per cent. Mononuclears 12.5 per cent Transurinals 1 per cent. Eosinophiles 3.5 per cent.

With the exception of anemia in chronic gastric ulcer and polycythemia in chronic duodenal ulcer, I would like to call attention to the presence of relative eosinophilia in the first condition and to scanty eosinophilia (not over 1 per cent.) in the latter.

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25. Brooks and Kaplan: "The Effect of Prolonged Adrenalin Medication on the Human Circulatory Organs," with report of case, MEDICAL RECORD, 1908, p. 708.

123 EAST NINETY-FIFTH STREET.

MEDICAL SCHOOL INSPECTION AND THE GENERAL PRACTITIONER.

BY MARIA M. VINTON, A.M., M.D.,

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SINCE Medical School Inspection, instituted under the Health Department, has brotdened out its work and has begun to accomplish great things in improving the health of the school child, this very progress has opened its work to misconstruction and to attacks from some members of the medical profession, who think themselves unfairly treated and deprived of paying patients by the work done in schools. They have seen fit to depreciate its work and methods, and to bring forward the claims of the general practitioner to do this work outside the schools. As a medical inspector under the Health Department for the past fourteen years, the writer claims to be familiar with the facts of this work. With a force of but 92 inspectors, each of whom is expected to be responsible for the care of 9,000 children, some of them working in districts where it is necessary to cover large areas and spend considerable time in trains and trolleys going to and from their work, it is rather to be wondered at that so much has been accomplished. It should be remembered that this work has advanced from the time when the visit of the inspector was unwelcome and regarded by the school principal as an interruption which would result in a lessened attendance, to the time when his visit is welcomed, and many demands are made on his time by principals, teachers, and even parents, who think it his duty to minister to all the child's ills, surgical or medical. Much time must be consumed in diagnosing and following up cases of contagion found in the classrooms and reported by the teachers, which remain at home without the attendance of any physician. The deficient child is brought to the medical inspector for advice and assistance in determining his mental status, and whether he should be a candidate for examination for an ungraded class. When an anemic class is to be formed it is the medical inspector who is asked to indicate suitable pupils for entrance to it. The author has given several afternoons of her own time to selecting and visiting such children to assist in forming the first open-air class in her district, previous to the examination before the Board of Education specialist. The whole neighborhood thinks that the school nurse should minister to its ills, and many unjustified demands are made upon her time when she goes to visit in the children's homes. Examinations of heart and lungs, before pupils can enter for the athletic meets, must be made spring and fall, and these take up considerable of the inspectors' time. From principal and truant officers come requests for certificates to be used in court, and statements which will allow of the discharge of children from school lists on account of prolonged sickness. After the suspected contagious cases and the cases for advice of various kinds are disposed of there is but half the morning left for the regular work of physical inspection.

The largest class in every school is 1A, the beginners, and each of these must be examined and his condition recorded on Health Department and school record cards. Only after these are disposed of can the special eye and throat cases be reached. Nevertheless, an active and interested inspector can get time for special examination of many of the older children who show symptoms of eyestrain, defective breathing, curvatures, orthopedic and other deficiencies which render them unable to compete with the normal child. With the present number of inspectors it would take many years to make thorough tests of all the older pupils. It has become the fashion for the principal to refer to the Medical Inspector disciplinary cases, the bad boys of the school, the boys who have bad habits, and to ask if the medical department cannot do something to correct these evil tendencies. Of course many of these bad children are really mentally deficient, but there are others in whom no mental or physical defect can be discovered who yet remain bad and are truants.

At a recent meeting of the Neurological Section of the Academy of Medicine we heard a great deal about what the general practitioner should do for the school child. In my own suburban district the general practitioner has proven a broken reed to lean upon. For some years children found to have physical defects were referred to their family physicians for treatment of adenoids and tonsils, for fitting of glasses, and treatment of orthopedic difficulties.

There were no convenient dispensaries to which the poor children could be sent. Few of them had any family physician, the severest types of sicknesses being treated by whatever physician was most convenient at the time, the less severe ones being left to nature to cure. The result of this was that only the children of richer parents got any attention, and the needs of the poorer ones were not attended to by the parents. Only since the establishment of the Health Department Clinics for School Children has any systematic treatment of eye and throat troubles been possible. Now, thanks to the work of the Health Department, it has been possible to get systematic examinations made for glasses, treatment given, and op-

erations done for throat and nose difficulties. I could cite cases in which children, formerly truants and mischief-makers in their classes, have changed to interested students and regular attendants after the remedy of their defects by properly fitted glasses. Under the old methods the glasses would have been fitted by the practising optician, and many pairs of such glasses were laid on the shelf because the child could not see any better nor as well with them as with his unaided eyes. It has been shown that the general practitioner is neither ready nor competent properly to test eyes; also that when he operates for the removal of adenoids and tonsils he often fails to make a good operation and leaves the child worse off than before. Very little treatment of any value is obtained in special cases by recourse to the general practitioner, the very man who complains that his patients are being taken away from him by the Health Department. It would seem that he has very little cause for complaint, and that had he found out the defects of the child and remedied them it would not have been necessary for the Medical Inspector to call the attention of the parents to them.

Under the present methods the children needing treatment and unable to pay for it, instead of being neglected and allowed to leave school without defects remedied, are gathered together by the nurse, directed to the proper clinic, and the defects are remedied by operation, or by properly fitted glasses. They are tested, when necessary, under the influence of atropin instilled the day before. An amusing case arising from the use of these drops occurred lately in the writer's district. Atropin drops were given to the mother of twin boys whose eyes needed to be tested, to take home and instil the night before the examination. The mother had an old keratitis, and another member of the family some trifling eye difficulty. The mother thought that if these drops were good for one member of the family they must be for all. So all four members were treated with them. In the morning, the nurse was sent for post haste, as they were all equally unable to see, and their occupation of awning making was rendered impossible for the time. Most excellent results have been obtained among poor children by the systematic cooperation of the Inspector, the nurse, and the Health Department Clinic.

On the occasion referred to above a paper was submitted to the Academy of Medicine reciting remarkable results obtained by the systematic testing of the backward and unruly members of a number of schools by a private practitioner. Charts of these cases were thrown on the screen. I would submit that in any large school similar results could be shown had the Medical Inspector the time to make a collection of the cases under his observation. The chief obstacle to this kind of work is the lack of time of the inspectors. If the best results are to be obtained the number of medical school inspectors should be trebled. The second obstacle is the opposition of parents to operative procedures and the wearing of glasses by children. A mother said to the writer: "I would rather have my daughter go blind than have her wear glasses." This girl was far behind her grade, and unable to do her work. She looked sidewise at the board when she wished to see it. She has even been sent to the inspector with a question of her mental ability. So she goes on through her school course, promoted by courtesy and according to size, handicapped by a severe astigmatism, all because she needs a "new set of parents." Of course only public health education of the masses can set aside this condition of things.

In cases of defective hearing the chief obstacle to a cure is the inability to secure systematic and steady treatment of the running ear until the discharge has ceased. Many a child becomes deaf from such neglect, who might have had useful hearing. What is needed in the schools is more workers, more nurses to visit parents and arrange for visits to the clinics; more medical inspectors, raised above the bread-and-butter question by the payment of a living wage, allowing of suitable support without the necessity of entering into general practice. There are needed men who will take thorough special courses in diagnosis of eye, ear, and throat conditions, in treatment of orthopedic defects, and in methods for development of curved spines and paralyzed limbs. The orthopedic defects are the most neglected of all at present.

The medical school inspector should be a specialist in whatever pertains to the perfect physical development of the child. The work of the Health Department in school inspection has been a steady growth, especially since the Division of Child Hygiene was created, under a progressive Director, in the person of Dr. S. Josephine Baker. As far as the appropriations for this work have allowed advances have been steadily made. The medical and the general public have begun to wake up to what has been done, and the former to complain of unfair treatment by the department. On the contrary what is needed is double the number of inspectors, more and better men, and more women inspectors. These men and women should give their entire time to the school work. To them should be sent the mentally deficient children for examination and Binet testing, instead of to a Board of Education specialist. There should be sufficient study by the inspectors of mental conditions and feeble-mindedness to enable them to carry out this branch of the medical work. Then, as soon as a defective mentality was discovered it could be placed in the ungraded class without any delay, or any question of the parents' consent. This would be simply part of the school routine, instead of being a matter of a special examination by the physician, who would come but once or twice a year. Instead of waiting for many months or even a year before he could begin the manual training he needs, while he loses valuable time in the regular grades, he would be classified and graded as a matter of school routine and begin his training at once. The establishment of a special class of medical inspectors under the Board of Education seems to the author to be a mistake. All this work should be under the Health Department, a part of the regular medical inspection.

It would seem to the author, in conclusion, that it is time for the general practitioner and the family physician, so far as he exists, to cooperate heartily with the medical school inspector, to go hand in hand with him, instead of finding fault and placing all possible obstacles in his way. He will gain much more in the end, in reputation as well as in pocket, if he will himself "get on the band wagon" instead of throwing stones at the other workers.

THE WASSERMANN REACTION AMONG THE NEGRO INSANE OF ALABAMA.*

By R. R. IVEY, M.D.,

TUSCALOOSA, ALA.

ASSISTANT PHYSICIAN ALABAMA INSANE HOSPITALS.

THE importance of syphilis as an etiological moment in psychopathology and the almost total inability to secure clinical data sufficient for a reasonably definite diagnosis of the condition in the vast majority of patients admitted to the Mount Vernon Hospital has been the incentive for doing the test on each patient in the hospital. I do not mean to designate as "syphilitic psychosis" every case in which the test was found positive. On the contrary I think we may safely presume that in some cases syphilis has been superimposed on an already disordered nervous system. Two methods have been used on each specimen of blood, viz., Wassermann's and Tschernogubow's.

The latter utilizes the native complement and amboceptor present in human serum which makes it necessary to use the serum in the fresh or active state. In my series about 3 per cent. of the specimens examined showed a total absence of anti-guinea-pig amboceptor, consequently the pig cells were not hemolized and no reading could be made. This, however, can be obviated by adding a known negative serum which has been inactivated, since the process of inactivation does not materially disturb the amboceptor content. The antigen used in both systems was an extract of normal tissue fractionated in alcohol, ether, and acetone.

The following objections to the original method of Wassermann are offered by different workers: (1) The presence of anti-sheep amboceptor in many human sera; (2) the use of serum in the inactive state. Both of these conditions tend to render an otherwise positive reaction negative, since if all the complement present is not deviated that small amount which is left uncombined in the presence of the anti-sheep amboceptor added to the test and also the native anti-sheep amboceptor, hemolysis will take place to a greater degree than it should, depending of course upon the amount of native amboceptor. Thus a negative reading is quite possible with a serum which is weakly positive. The process of inactivation has been shown to reduce greatly the antibody content of syphilitic sera, consequently with a serum in which the antibody content is already low these two factors acting together might easily give a negative reading. Principal among the objections to the Tschernogubow method is the fact that the natural complement and amboceptor are irregular in quantity and there is difficulty in placing them under exact quantitative regulation. This, however, can be overcome by using a series of antigen controls instead of only one, and using a decreasing amount of patient's serum in each tube. This system seems to be more delicate and gives a higher percentage of positives than the Wassermann. To use the two methods in conjunction, carefully weighing the results in each instance, seems not a bad procedure.

Among the 706 patients examined 64, or 9 per cent., had at some previous time had one or more attacks of pellagra. Of these 19 were men and 45 were women. There were 6 positives and 13 negatives, or 36 per cent. positives, among the male pellagrins; among the female pellagrins there were 19 positives and 26 negatives, or 42 per cent. positives.

As will be seen later this is a higher percentage of positives than was found among the population of the hospital taken as a whole. The clinical signs of syphilis among the pellagrins did not differ materially from that found in those who had not had pellagra.

The total number of females examined was 349, of which 102, or 29 per cent., were positive. The total number of males examined was 357, of which 90, or 25 per cent., were positive. I think the higher percentage of positives among the female patients can be explained when we consider the general moral tone of the negro women found in this institution, and also by the fact that fewer cases of syphilis among negro women receive proper treatment than among the negro men.

There was nothing characteristic about the mental conditions of those who were positive or negative save one feature which seems worthy of mention, viz., there were 17 cases of general paresis, *all of which gave a positive reaction.*

Among the 90 males in whom the test was positive, 48 showed clinical signs of syphilis, such as adenopathy, pigmentation of skin, exostoses, etc. There were 102 positive tests among the females, 49 of whom showed similar clinical evidences of syphilis.

One hundred patients whose test was negative were selected and examined for the presence of adenopathy and it was found to be present in twenty. There were no other clinical signs present, however.

A classification of the mental conditions of all patients examined is hereto appended (classified according to table used in this Institution). It will be noticed that no attempt is made to classify the different psychoses present in epileptics, they being classified merely as "Epilepsy."

TABLE SHOWING PSYCHOSES AND THEIR SERUM REACTION.

	WOMEN		MEN	
	Neg.	Pos.	Neg.	Pos.
Recent mania	21	12	13	4
Chronic mania	17	9	6	2
Recurrent mania	38	21	25	7
General paresis	0	2	0	15
Melancholia	14	3	15	8
Dementia praecox	3	1	12	2
Paranoia	20	11	26	9
Primary dementia	4	4	11	4
Feeble-minded	30	11	35	3
Manic depressive ins	12	2	14	6
Moral perversity	7	2	7	..
Terminal dementia	23	2	15	6
Senile dementia	9	4	14	5
Hysteria	2	1	4	..
Secondary dementia	30	13	10	5
Unclassified	6	2	7	3
Imbecility	8	..	5	1
Hysterio epilepsy	1	..	..	..
Epilepsy	2	2	38	10
Total	247	102	267	90

*Read before the Jefferson County Medical Society, Birmingham, Ala., August 4, 1913.

The Origin of Urinary Albumin.—N. Krasnogorski concludes on the basis of experiments performed with the aid of precipitin and complement-deviation methods that the albumin excreted in the urine in the albuminuria of infancy does not contain any of the specific groups characteristic of the dietic albumin, but is derived entirely from the tissue protein.—*Zeitschrift für Kinderheilkunde.*

The Histopathology of Acute Poliomyelitis.—R. Walter draws his conclusions from four cases studied during the Westphalian epidemic of 1908. He notes that there are two stages of acute inflammation, the lymphocytic and the plasmocytic, depending upon the predominance of lymphocytes or plasma cells. A regular finding is the presence of inclusions in the ganglion cells which inclusions the author regards as specific.—*Deutsche Zeitschrift für Nervenheilkunde.*

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COLISEPSIS AND ITS CLINICAL PICTURE.

THE ubiquity of the colon bacillus, its variability in virulence, and the multiple rôle which it may play in the pathology of the human body, are facts which have been firmly established in modern clinical medicine. There are many problems concerning this microorganism which still await solution, particularly the laws governing its virulence, the differentiation of its numerous strains, and the clinical phenomena accompanying the local and general infections which it produces. A voluminous literature has arisen during the past few years concerning the colon bacillus and its pathogenic properties. For a review of this literature in the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. I, No. 3, we are indebted to Ludwig Fejes of Budapest.

Regarding the localized infections caused by the colon bacillus little need be said. It has been established that this microorganism, which finds a natural and peaceful habitat in the human intestine, may, when the latter becomes the seat of inflammatory or ulcerative processes, penetrate through its wall and then take on most pronounced pathogenic properties. One may then speak of an endogenous infection. But ectogenous infection though less common than the latter is not at all rare, as may be gathered from the numerous instances of waterborne epidemics of colon bacillosis, and of infection from putrid meat and other foods. The more common endogenous infections occur through three main avenues: the intestinal wall, the biliary passages, and the urinary tract. Cases are no longer considered rare in which the colon bacillus is detected as the offending organism in peritonitis, cholecystitis, liver abscess, pyelitis, empyema, and meningitis. In these and many other local pyogenic processes the colon bacillus may be alone or in company with other microorganisms.

In contrast to the localized infections caused by the colon bacillus, comparatively little has been written on the subject of general sepsis produced by this microorganism. The reason for this paucity of knowledge is not far to seek. In both localized and general infections with the colon bacillus blood cultures are as a rule negative. Nevertheless, despite the absence of this valuable diagnostic aid, the clinical picture of colisepsis is one that is sharply defined and readily recognized. The most important symptom is the high fever which is accompanied by severe rigors. The temperature curve is usually marked by sharp remissions. The rate of the pulse corresponds to the height of the temperature, though occasionally the relative bradycardia of typhoid fever may be simulated. Local foci of inflammation or suppuration can often be detected: endocarditis, bronchopneumonia, empyema, and suppurative meningitis may be present. Nervous symptoms may range all the way from a typhoid-like apathy to a marked delirium. There is a moderate leucocytosis, the count varying from six to fourteen thousand. In spite of this characteristic clinical picture, the exact diagnosis of colisepsis is surrounded with difficulties. The rapid destruction of the colon bacilli in the blood accounts for the frequent negative results of bacteriological examination. Fejes has succeeded most frequently in obtaining a positive blood culture by removing the specimen of blood from the median basilic vein just after the rise of temperature that follows a chill. Animal inoculation often enables one to obtain positive evidence of the presence of colon bacilli when cultural examination fails.

Of eminent importance is the study of the portal of entry of the colon bacilli into the general circulation. A lesion of some part of the alimentary canal may provide this gateway. Fejes has observed two cases of colisepsis following a simple angina. In one of these cases there developed a cholangitis with enlargement of the liver, accompanied by chills and wide excursions of the temperature curve, and later there developed a right-sided purulent pleurisy from which the colon bacillus was isolated. This microorganism is one of the most frequent causes of peritonitis. The enterogenous forms of colisepsis may closely simulate typhoid fever. One important point in the differentiation between the two conditions, as emphasized by Schottmüller, is the absence of a roseola in the former. The intestinal lesions of typhoid fever provide, however, an easy access of the colon bacillus into the general circulation, with the result that many cases of typhoid fever are complicated by colisepsis. The same complication occurs in various forms of diarrhea and dysentery and in Asiatic cholera. The constancy with which the colon bacillus has been found in the blood in cases of cholera led Emmerich to mistake this microorganism for the specific cause of cholera and to name it the *"Bacillus neapolitanus."*

The biliary passages furnish a common pathway by which the colon bacillus reaches the general circulation. Indeed, Naunyn attributes most cases of cholangitis to an infection with this microorganism The rôle of the colon bacillus in acute ascending and acute hematogenous infections of the kidney is so well-known that it need only be alluded to. Colon bacilli are the main cause of the so-called "catheter fever." The work of Albarran and many others has served to demonstrate the overwhelming importance of the colon bacillus in the pathology of the urinary tract. The possibility of the occurrence of a colisepsis during the puerperium should be borne in mind.

The natural history of the colon bacillus is still to be worked out. In view of the large varieties of localized infections which it may produce, the fact is remarkable that the average individual does not more frequently become a prey to the myriads of these microorganisms which swarm in the intestinal tract—a number so large that from twelve to fifteen milliards of them are voided daily.

BLOOD TRANSFUSION.

With the modern perfections of technique, the direct transfusion of blood has been robbed of most of its dangers and has come into favor as a therapeutic agent for many conditions. One of the greatest sources of danger has always been the possible incompatibility of the bloods of the recipient and the donor. In order to avoid this danger it has become the practice to test the two bloods for mutual agglutinative and hemolytic properties except in those instances where the transfusion was an emergency measure. Any one who has done many of these tests has found that the reaction *in vivo* has nearly always been much more intense than the reaction *in vitro* especially as regards the hemolytic effect. Hemolysis practically always follows a transfusion whether or not it was evident in the test-tube. The seriousness of this hemolysis has been a matter of debate but until recently it was thought that its principal disadvantage was that the donor's red cells were broken down so quickly that the transfusion resulted in little benefit and many of the beneficial results have been ascribed to substances in the serum.

In order to determine, if possible, what the effect of such incompatible blood would be Ottenberg, Kaliski, and Friedman experimented with dogs. They found (*Jour. Med. Research*, 1913, xxviii, 141) that isoagglutination and isohemolysis occasionally occur between the bloods of apparently normal dogs. They are closely connected and hemolysis never occurs without agglutination. Two pairs of dogs were selected whose bloods showed the most intense incompatibility, and transfusion was performed between them. In one pair after two transfusions and in the other pair after four, the recipient became ill, suffered from dyspnea and internal hemorrhages and died in twenty-four hours. Autospy showed numerous hemorrhages in the various organs, phagocytosis of red blood cells in the spleen, and hemoglobin casts in the kidneys. In one dog a blood smear made shortly before death showed a very large number of nucleated red cells together with poikilocytosis, anisocytosis, and polychromatophilia. When transfusions were done between other pairs in which the preliminary tests were negative or only weakly positive, the results were negative. They conclude that the direct transfusion of red cells that are laked and agglutinated results in the solution of the transferred blood and an intense intoxication of the recipient. As a partial effect of this intoxication there appeared at one time a blood picture which in some respects closely resembled that in pernicious anemia. They think that the changes must have been due to some peculiar toxic effect, on the bone marrow, of hemolytic blood destruction.

The lessons to be derived from this work are in part quite obvious. In view of the meager information which has been apparently derived from blood tests there is a distinct and growing tendency to abandon them, especially in emergency cases. This is altogether wrong and the desirability of such tests should be emphasized. The treatment of pernicious anemia by means of repeated transfusions of small quantities of blood has met with at least temporary success in some cases and yet we find that if the bloods are incompatible the resulting picture may resemble that of pernicious anemia. The line of demarcation here is evidently a shadowy one. One of the interesting side problems would have to do with the question as to whether the normal destruction of the red cells in the body is accompanied by the liberation of a toxin which is able to stimulate the bone marrow to replace the lost cells.

OBSERVATIONS OF AN INTERNIST DURING THE BALKAN WAR.

By the term "internist" is naturally indicated not so much the "general practitioner" as the physician who treats exclusively the maladies of the blood and thoracic and abdominal viscera. The internist shares this field to an ever-increasing extent with the surgeon; but in the time of epidemics he naturally becomes the epidemiologist. That is in part, perhaps, because the blood plays so conspicuous a rôle herein; but further because in all ages the control of epidemic affections is left to the most liberally educated medical men, who are naturally sanitarians and concerned above all with prophylaxis. This viewpoint was well illustrated by Böhme at a meeting of the Medical Society of Kiel (*Muenchener medizinische Wochenschrift*, September 9). The author took cognizance among other features of typhoid fever and bacillary dysentery—nominally medical affections. There were discovered very many healthy carriers of both diseases. The typhoid patients were prone to develop a purpuric roseola, which led to a strong resemblance to typhus fever. The two affections, typhus and typhoid, are differentiated largely by the blood count; since in the first named there is leucocytosis, while in the latter leucopenia obtains. Dysentery pursued a mild, subacute course. Relapsing fever was occasionally brought in from the Turkish side and was invariably jugulated by salvarsan. Variola appeared in the unvaccinated Turks in a severe and fatal form. The fairly well vaccinated Servians developed varioloid for the most part. General vaccination of Turkish captives, the troops, and the community in general arrested the spread of smallpox. Difficulty was experienced in differentiating varioloid and varicella. In the former, however, the constant leucocytosis with marked increase of large mononuclear cells has marked diagnostic significance.

CAUSES OF URINARY FEVER.

It has generally been recognized that so-called urinary fever may appear either spontaneously or after instrumentation, etc. It may also assume a chronic form when there is constant slight infiltration of urine in stricture cases; but, generally speaking, the term is not applied to the consequences of rupture of the urethra or bladder with notable infiltration of urine threatening gangrene.

At a recent session of the General Medical Society, Cologne (*Münchener medizinische Wochenschrift*, September 16), Thelen summed up the subject as follows: the commonest form of urinary fever is that induced by a trauma of the urethral mucosa as caused by instrumentation. Through this port of entry the usual bacteria of infected urine or unclean instruments pass into the blood paths. However, other factors may be required to set up the fever, as imperfectly functionating kidneys, increased nervous reflex activity, and general diminution of resistance. So-called spontaneous urinary fever is seen in stagnation of the urine from any cause—stricture of urethra, prostatic hypertrophy, etc. Some stricture cases show a daily fever. In all such mechanical retention cases the problem is naturally one of drainage. In cases due to minute traumatism the problem becomes one of prophylaxis in connection with the proper use of instruments.

Elastic Skin.

This condition is almost hopelessly confounded in the clinic with cutis laxa, essential hypertrophy of the skin, and numerous other conditions, so that any attempt to isolate merely resilient normal integument should be welcome. One seeks a physiological and not an anatomical anomaly. At a meeting of the Strassburg Society of Military Surgeons held last July (*Deutsche medizinische Wochenschrift*, September 4) Mentberger described a case of extensible and resilient skin in a healthy young man. When the integument of the arm, neck, etc., was pinched up into folds there was an immediate return of the parts to their normal position as soon as the elastic fibers were permitted to resume their activity. This type of skin is normal in puppies, kittens, and anthropoid apes. Sections of skin show under the microscope no increase in elastic fibers. It is said, however, that the derma in these cases is myxomatous rather than fibromatous—a colloidal, formless tissue. The condition appears to represent a persistence of the embryonal state, and this is further borne out by the occasional familial incidence of cutis elastica.

Salvarsan in Actinomycosis.

Actinomycosis is not an affection which one would expect to yield to salvarsan. Ehrlich, when asked about this relationship replied that he knew only of a few cases of improvement related by Umber. Nevertheless, Pfloeger, before a recent session of the Aertzlicher Verein, Munich, (*Münchener medizinische Wochenschrift*, September 16), reported a clean-cut case of typical actinomycosis promptly cured by neosalvarsan. There was present a focal reaction. No benefit had accrued from a former course of potassium iodide. Stubenrauch had treated a case with the latter salt, salvarsan, and *x*-rays without making the slightest impression upon it.

News of the Week.

Gifts to Columbia.—The Trustees of Columbia University, New York, at their meeting on October 6 announced among others the following gifts: From Mr. Clarence H. Mackay, $2,500 for surgical research; from an anonymous donor, $1,000 for salaries in the Department of Physiology; from the family of the late Mr. W. Bayard Cutting, $200,000 to constitute a fund for the maintenance of traveling fellowships open to graduates from the university, including the College of Physicians and Surgeons.

Lower Death Rate.—For the week ending October 4, the death rate in New York City was 12.12 per thousand as compared with 12.85 for the same week of last year, the total number of deaths being 1,248 and 1,274, respectively. During the week only two deaths from scarlet fever and two from measles were reported. Diphtheria showed an increase of seven deaths, whooping cough of five, and typhoid fever of six, as compared with the same week of 1912. There was, however, a decrease of thirty-one deaths from tuberculosis, and of thirty-eight from nephritis. Heart disease showed an increase of twenty deaths.

Harvey Society Lecture.—The second lecture of the present course offered by the Harvey Society will be given at the Academy of Medicine, New York, on Saturday evening, October 18, by Prof. Adolph Schmidt of the University of Halle, whose subject will be: "Severe Anemia in Gastrointestinal Diseases."

Dr. Bulkley's Lectures.—The Governors of the New York Skin and Cancer Hospital, Second avenue and Nineteenth street, announce that Dr. L. Duncan Bulkley will give a fifteenth series of clinical lectures on diseases of the skin in the Out-Patient Hall of the hospital on Wednesday afternoons, beginning November 15, 1913, at 4:15 o'clock. The lectures will be free to the medical profession on the presentation of their professional cards.

Clinical Lectures in Genitourinary Diseases.—Beginning November 3, 1913, and continuing for a period of four months, Dr. Bierhoff will give a series of clinical lectures and demonstrations on Genitourinary and Venereal Diseases, including the modern methods of diagnosis and treatment, every Monday evening, at 8:30 o'clock, at the West Side German Dispensary, 328 W. Forty-second street, New York City. The course will be free to physicians and advanced students in medicine.

Vital Statistics.—During the month of August, 1913, the number of births reported in New York State was 18,793, while the deaths reported during the same time numbered 11,827. In New York City alone the births during that month numbered 11,326 and the deaths 5,841, an excess of births over deaths of 5,485.

Typhoid Epidemics.—The Health Commissioner of New York City has announced that the origin of the recent cases of typhoid fever on the east side of the city has been traced to the milk sold by a dairy company in that part of the city. The sale of this company's milk has been stopped and a thorough investigation, extending to the farm maintained by the company, is being made. During the week ending September 27, 183 new cases of typhoid were reported, as compared to 42 cases for the corresponding week of last year.

At least one-half of the members of the Rhode Island party which attended the Perry Centennial celebration at Put-in Bay on September 8 to 15, were said on October 9 to be suffering from typhoid fever. The cases are scattered all over the State, and the condition of some of the patients is said to be critical.

Plague Rat in Seattle.—An order to destroy a structure known as the "old Seattle Hotel," in Seattle, Wash., was issued by the Commissioner of

Health on October 9, because a rat caught in the building was found to be infected with bubonic plague. Adjoining buildings may also be razed.

Cholera in Turkey.—It is reported that several cases of cholera have appeared along the Bosphorus, following the severe floods which have caused great distress among the Turks.

Radium Trust.—Reports of the continued rise in the price of radium have been followed by the statement that a corporation is to be formed in London for the purpose of controlling the entire supply of radium now in existence and also the total future production. The Archduke Ferdinand of Austria and the Hungarian National Bank are said to be interested in the company, which is to be known as "European Radium, Limited."

Medical Colleges Open.—The fifty-ninth annual session of the Atlanta Medical College, Atlanta, Ga., opened on September 29 with the prospect of the heaviest registration in years.

The State Medical College of Galveston, Texas, opened on October 1, Dr. J. P. Simonds, professor of preventive medicine, addressing the students.

Prof. Earle B. Phelps has resigned from the Faculty of the Massachusetts Institute of Technology and from the staff of the Sanitary Research Laboratory in that institution to accept a position as professor of chemistry at the United States Hygienic Laboratory, U. S. Public Health Service, Washington, D. C. Professor Phelps has been in charge of extensive investigations carried on during recent years at the Institute on the purification of water and sewage and allied subjects, has acted as consulting sanitary engineer to many of the largest cities of the United States, was recently appointed a member of the New York State Commission on Ventilation, and is well known as a contributor to the various technical journals along the lines of sanitary chemistry, bacteriology, and engineering. His work at the hygienic laboratory will be largely a continuation of his various activities elsewhere, and will be devoted especially to investigations of the pollution of interstate streams which the Public Health Service is now undertaking.

Personals.—Dr. Harry Burnett Burns of Pittsburgh, Pa., has been appointed acting director of the Department of Public Health of Pittsburgh, to fill out the term of Dr. E. R. Walters, resigned.

Dr. Elliott Washburn of Taunton, Mass., has been made superintendent of the Massachusetts State Sanatorium for tuberculosis, at Rutland, succeeding Dr. P. Challis Bartlett.

Dr. Maurice McD. Seymour of Regina, Saskatchewan, was, on September 20, elected president of the Canadian Public Health Association.

Dr. Charles Wood McMurty announces that after October 1 he will be associated in practice with Dr. Charles Townshend Dade, at 25 West Fiftieth street, New York.

Dr. Colman W. Cutler of New York announces his removal to 24 East Forty-eighth street.

Dr. William Bradbury Noyes has removed to 221 West Fifty-seventh street, New York.

Dr. Alfred J. Brown has removed to 156 East Sixty-fourth street, New York.

Dr. Alfred F. Hess announces his removal to 16 West Eighty-sixth street, New York.

Dr. Samuel G. Dixon, State Commissioner of Health and Charities of Pennsylvania, was successfully operated on for abdominal abscess by Dr. John B. Deaver, at the University Hospital, Philadelphia, on October 3.

Charitable Gifts.—St. Joseph's Hospital, Yonkers, N. Y., has received from Mr. A. S. Cochran of that city a gift of $25,000 toward a fund for the enlargement of the hospital. A campaign to raise an additional $85,000 by public subscription has been begun.

Mrs. John W. Minturn, who died recently in New York, widow of the founder of the Hospital for Scarlet Fever and Diphtheria Patients, formerly known as the Minturn Hospital, left a bequest to the hospital of $15,000.

Dr. Adolph Schmidt of the University of Halle, who is to deliver the Harvey Lecture on October 18, will lecture at the New York Post-Graduate School on chronic pancreatitis on October 21 at 4 P. M. The members of the profession are invited to attend.

A Decision against the Plan of Organization of the American Medical Association.—In the case of Dr. G. Frank Lydston against the State's Attorney of Cook County, Ill., in mandamus to compel service of quo warranto writs on the Trustees of the American Medical Association, the Appellate Court handed down an opinion on October 9 that the A. M. A. is holding meetings contrary to law, that its election and delegate system are illegal, and that every member of the Association is entitled to a direct vote. Unless the Supreme Court reverses this decision it may necessitate a complete reorganization of the Association. Dr. Sanders of Montgomery, Ala., argued to the same effect several years ago, in a series of letters to the MEDICAL RECORD, but he failed to convince the members that the reorganization of the Association had not been legally effected.

Medical Society of Cape May County, N. J.—At the annual meeting held on October 7, the following officers were elected for the ensuing year: *President,* Dr. Charles W. Way, Dennisville; *Vice-President,* Dr. E. Physic, Cape May; *Secretary,* Dr. Eugene Way, Dennisville; *Treasurer,* Dr. H. H. Tomlin, Wildwood.

Surgical Congress.—The Clinical Congress of Surgeons of North America will convene in Chicago on November 10, and will be formally opened on the evening of that day, when the Presidential Meeting will be held in Orchestra Hall. At this meeting the President-elect, Dr. George Emerson Brewer of New York, will be inaugurated and will deliver the annual address. The presidents of the American Medical Association and the Canadian Medical Association are expected to be present at this meeting and to deliver brief addresses. On November 13 there will be held a cancer symposium at which the cancer problem will be discussed by prominent surgeons and laymen representing various organizations.

Utah State Medical Association.—The annual meeting of this society was held in Salt Lake City on September 23 to 25, the following officers being elected for the ensuing year: *President,* Dr. John F. Critchlow, Salt Lake City; *Vice-Presidents,* Dr. Joseph R. Morrell, Ogden; Dr. Heber E. Robinson, American Fork, and Dr. Margaret A. Freece, Salina; *Secretary,* Dr. W. Brown Ewing, Salt Lake City; *Treasurer,* Dr. H. P. Kirtley, Salt Lake City.

Association of Railway Surgeons.—The twenty-third annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor, New York, on Wednesday, October 22, 1913, under the presidency of Dr. John W. LeSeur of Batavia, N. Y.

Southern Medical Association.—The annual

meeting of this association, of which Dr. F. A. Jones of Memphis, Tenn., is the president, will be held at Lexington, Ky., on November 18 to 20.

The Norwegian Hospital Association.—On Wednesday, October 8, 1913, the regular meeting of this association was held in the directors' room of the hospital. Dr. G. H. V. Hunter read a paper on "Sex Determination"; Dr. C. E. Lack spoke about "Percentage Infant Feeding"; Dr. Fisher read a report on "Pathology," and Dr. R. E. Coughlin paid a personal tribute to the late Dr. Henry Cushman Turner, founder and dean of the hospital medical staff. This Association was organized fifteen years ago, this being the first meeting held in the hospital building. The officers are: Dr. Robert G. Moore, *President;* Dr. Louis Stork, *Vice-President;* Dr. Henry Spelman, *Secretary and Treasurer.*

Concerning Death Certificates.—The Commissioner of Health of New York City has issued a circular letter to physicians in the city requesting their cooperation in the matter of reforming the procedure as to furnishing blank forms of certificates of death. For many years and until quite recently, blank certificate forms were given to undertakers, who as it became necessary took the certificates to the physician for signature, but the department now intends to break up this practice. As the law holds the physician responsible for the filing of the certificate of death within thirty-six hours after its occurrence, it will be necessary for the physician to notify the office of the borough in which he practises that he needs such blank forms, and these will then be sent to him as soon as practicable.

Obituary Notes.—Dr. George M. Grace of Graceville, Fla., a graduate of the Atlanta Medical College, Atlanta, Ga., in 1881, was struck by a railroad train on September 28, and instantly killed, in the sixty-second year of his age.

Dr. Erastus M. Drollinger of South Bend, Ind., a graduate of the Eclectic Medical College, Cincinnati, O., in 1878, died at his home, on October 2, aged 60 years.

Dr. Ephraim Wood Norwood of Spencer, Mass., a graduate of the Harvard Medical School in 1882, and a member of the American Medical Association and the Massachusetts State and Worcester County Medical Societies, died at his home on September 11, aged 67 years.

Dr. Charles Eugene Michel of St. Louis, Mo., a graduate of the Medical College of the State of South Carolina, Charleston, in 1857, and a surgeon in the Confederate Army during the Civil War, died at his home on September 29, aged 80 years.

Dr. George S. Brown of Birmingham, Ala., a graduate of the Jefferson Medical College, Philadelphia, in 1885, and a member of the Southern Surgical and Gynecological Association, died in the Lakeside Hospital, Cleveland, O., following an operation for gallstones, on September 27, aged 54 years.

Dr. Thomas Jacob Biggs of Stamford, Conn., a graduate of the Medical College of Ohio, Cincinnati, in 1887, formerly an assistant surgeon in the United States Army, a member of the American Medical Association and the Connecticut State and Fairfield County Medical Societies, and health officer of the city of Stamford since 1909, died in the Somerset Hospital, Somerville, N. J., from disease of the kidney, on October 10, aged 48 years.

Correspondence.

THE TREATMENT OF CANCER.

To the Editor of the Medical Record:

Sir:—The editorial on "The Curability of Cancer" appearing in the Medical Record of September 20 is most opportune and justly characterizes the pessimistic attitude of the mass of medical men towards non-operative cures as likely to kill incentive and discourage the search for curative measures. One cannot but join the writer in wondering if those who so stoutly urge the knife as the only remedy read the numerous articles in the journals giving proof of cures by other methods. It is possible that these writers do not read medical literature not directly connected with their chosen daily occupation. Yet, some of these stalwart preachments of early operation have a worthier source and are designed to combat that form of pessimism havings its origin in an ill-defined belief that cancer is not local, even in its inception. I have been astonished to find how prevalent this view is, even among surgeons dealing occasionally with the disease. No real worker in malignant affections denies the purely local character of incipient cancerous growths, hence it follows that in this stage they may be removed surgically when accessible. The surgeon seriously interested in the subject also sees failure under radiation methods undertaken in cases that could have been extirpated, the patient having meanwhile lived under the daily possibility of an incurable metastasis to internal organs. The radiologist, on the other hand, sees even more instances where attempted removal by excision has resulted in local reimplantations that present greater therapeutic problems than the original growth.

A clear view of our own and of our neighbor's duty in these apparently conflicting experiences will come only with an active, practical realization that malignant disease must be due to a foreign organism, and by adjusting our work to fit this view in advance of its classical demonstration in research. Why should not this be done? It will not be the only instance in which the etiological relations of germs to disease have been practically assumed in advance of their laboratory isolation. And I may say, in passing, that the discovery and final demonstration of an endocellular bacterium as the cause of cancer in the daisy plant by Dr. Erwin F. Smith, of the Bureau of Plant Industry at Washington (Vide Bulletin No. 255, Bureau of Plant Industry of the Department of Agriculture), bring the discovery of similar human cell-stimulating organisms measurably close.

That even an unusually distinguished surgeon may subconsciously look at this matter both ways was evident recently when, in private conversation, he replied to the question of his belief or disbelief in the germ origin of cancer that he unquestionably regarded it as a germ disease; yet, a few months later he made remarks in a public discussion that could only be interpreted as an offhand revelation of a mental attitude that regarded the disease as an intrinsic degeneration. It is true that a degeneration may be due to an infective agent. My objection to the term in connection with cancer is that it lacks a forceful expression of autogenesis and even suggests a transmutation of species, such as is involved in the idea that one kind of tumor can turn into another except by conquest and replacement.

If we assume, as urged in this letter, that it is wise to anticipate in practice a part at least of the practical value resulting from the hoped-for demonstration of the nature of cancer, all our efforts should be dominated by the corresponding precautions. These involve three important facts:

1. A malignant growth that is capable of being excised entire and without being wounded permits the host to be practically and permanently cured in this manner.

2. Malignant growths, being composed of living cell parasites that depend on the host cell for pabulum, are readily stimulated to quickened growth by anything that increases the vital activities of their environment, such as incomplete operations or irritations of any kind. They, in fact, grow fastest in the young and in the vigorous. Autoinfection is also one of the most prominent clinical facts in malignant diseases, metastases being instances, among others, of this phenomenon. As a consequence infected living cells that may be exposed or loosened in an excision operation may reimplant themselves in the fresh wound if allowed to come in contact with it.

3. Modern medicine does not justify the assumption that physical removal of cells or organs infected with a parasite is the only way to rid the body of the parasite. The brilliant results of modern chemotherapy, as well as the older use of quinine to destroy the malarial plasmodium, forbid such a generalization as to cancer, and stimulate us to employ radiant energy, electrochemical therapy, and any other means to destroy the germs *in situ* when this course is indicated.

The wisest correlation of our curative efforts would therefore be as follows: Epitheliomas and other forms of malignant growths which rarely or never give rise to metastases should be placed under one or other of the germ-killing forces, such as ionization, fulguration, or radiation. If these usually better, simpler, and more cosmetic methods are not available the excision should be complete and without attendant risk of operative reinfection of the wound.

Carcinomas, which at any moment may lead to internal daughter tumors or metastases, if operable, should not be subjected to these chances by the employment of any of the radiation forces over the long periods of time usually required for their effective action. But, operability by incision should be defined rigidly as a capability of being removed entire and unwounded. If inoperable in this sense there is still a chance of operability by the electrochemical method of bipolar ionic destruction, which is the latest modification of the method of which almost the earliest announcement was made in the MEDICAL RECORD of July 31, 1897, by the writer. The particular advantage of the bipolar modification is the shortening of the time of operation to about thirty minutes and a considerable extension of the field of the method in the more desperate cases. By it all germ life of the cellular mass is killed *in situ* and bloodlessly, thus considerably enlarging the field of possible surgical intervention. The fulguration method of deKeating Hart, which follows incomplete operation, is also a resource of value. When all operative methods are contraindicated by one or other reason some form of radiotherapy should be employed and pushed to the limit dictated by experience.

Similar considerations should govern the treatment of sarcoma, except that radiotherapy by the Roentgen rays and by radium have a more equal elective value with positive surgical procedures, and in some varieties we may employ the Coley serum as a last resort.

G. BETTON MASSEY, M.D
1831 CHESTNUT STREET, PHILADELPHIA.

OUR LONDON LETTER

(From Our Regular Correspondent.)

THE PANEL SYSTEM; COMPLAINTS OF PATIENTS, SURPLUS FUND, EXTRAORDINARY CLAIM—ANTITYPHOID INOCULATION—REMEDIES FOR PAIN AND SLEEPLESSNESS—DR. ALBEE'S OPERATION.

LONDON, September 26, 1913.

THE panel system controversy becomes more and more acute and even embittered. "Panel or non-panel," that is the question as to individuals, and it threatens to divide the profession, if not permanently, at least, for a long time, into hostile camps. The panel doctors affect to disregard the opinion of the non-panel, who in their turn look down upon those who, they say, after protesting vigorously that they never would, soon retracted their assertions and rushed panic-stricken into the official fold. The public seems to take a languid interest in the matter and regard the panel as an inferior practitioner, as they used to do the parish doctor. There have been complaints made against panel practitioners by their insured patients and so much talk of them that the committee has inquired into and reported upon them. It seems that thirty-eight formal complaints were made, and the report states that twenty were substantiated —not a great proportion, considering the enormous number of patients, many of them ignorant and exacting. In all but two the complainants were merely advised to transfer their names to another list. Of the two exceptions one doctor proved to be insane and the other had withdrawn from the panel. A much more important question has been raised concerning a large sum of money. You will remember that the panel doctors were to have a fixed sum for every patient on their list. This has been paid. Money was assigned by Parliament to meet the case of every person insured under the act. But a large number declined to avail themselves of the panel doctor and many were otherwise not in need of being on his list (hospital and other patients). Consequently the committee had a large surplus (over £100,000) after paying all the sums due to the panel doctors. To whom does that surplus belong? It would seem, to the state, which had provided it. To the astonishment of most people the panel doctors set up a claim for it, pretending that it was intended for the medical service of the state, and as they only had done that service it ought to be divided between them. The committee hesitated. After some discussion counsel's opinion has been obtained. It is that "the committee is not entitled to make presents or distribute largess among the panel doctors." In response to another question counsel wrote: "I think the committee cannot, as matters stand, deal with the fund." Notwithstanding this, the panel men are not satisfied, and yesterday Dr. Mills represented them to the committee, arguing that the fund belonged to the medical profession. A number of the committee replied that it would shock the public conscience that a payment should be made to doctors on the panel when they had not done a single stroke

of work in connection with it. The non-panel doctors are already pointing to this demand as something degrading the whole profession.

Antityphoid inoculation has attracted a little more attention here since it was discussed at the Congress, when naval and military medical officers of France and Italy, where it has been more extensively used, related their experiences. Major Russell (U. S. A.) stated what had been done in your army, and Sir W. Leishman reported the work in the R. A. M. C. The French army surgeons have given a full trial to Professor H. Vincent's polyvalent vaccine in Algeria, Morocco and Tunis, as well as among the home troops. The operation has been voluntary, but from an early period it became popular. Professor Vincent, who came to the Congress, was able to report that the method had been employed for the first time in civil practice during an epidemic in two French towns, in which 700 persons submitted to inoculation, and not one of them was attacked by the fever. The vaccine he employs is said to contain 400,000,000 bacilli per c.c. No antiseptic is added, but it is sterilized by ether, which evaporates before use. Sir W. Leishman said that in the R. A. M. C. a monovalent vaccine had been used and two doses were given, one containing 500,000,000 dead typhoid bacteria. The second had twice as many and was given after an interval of ten days. There was very little reaction. Iodine has been used by MM. Ravigne and Sénez to sterilize the vaccine, and many successful results reported. The impression at the Congress seemed to be that inoculation was a most valuable preventive, and all the methods were successful if carried out with care, as they had been.

Early this year MM. Louis & Combe, surgeons in the French army, who had also worked on the subject in M. Vincent's laboratory, contributed to the *Monde Médical* their experience of 8,000 inoculations. They urge a resort to injection wherever there is any likelihood of coming in contact with the germs. It is applicable, they say, at any age after three years, and children bear the treatment remarkably well. The mildness of the operation and its simple technique bring it within the scope of every practitioner. What, then, may be the contraindications? MM. Louis & Combe lay stress on these: In every case antityphoid vaccination is only to be performed on perfectly healthy persons. This requirement would seem to exclude the consideration of every form of disease, but they go on to particularize as special contraindications all acute affections and most chronic ones while running their ordinary course. Tuberculosis if latent may be lighted up, and in case of doubt the soil should first be tested with a minimum dose, the temperature being taken, and if the reaction occur the treatment discontinued. Malarial subjects may be treated during the intervals if preceded by a dose of quinine. Syphilitics without active symptoms may be inoculated. But these if cachectic, or, indeed, any such suffering from kidney or heart disease, must not be injected. As much may be said of all debilitated persons, as, in fact, was implied in the first-named requirement of perfect health. They report that 27,000 persons have to their knowledge been inoculated, and not one has had symptoms of typhoid fever. They quote in support the physician to St. Louis Hospital at Meknes to the effect that the typhoid "wards, not long ago crowded, are nearly empty: out of 4,000 soldiers we have only two being treated for typhoid; it is marvellous."

Pain is so frequent a cause of sleeplessness that the two are not uncommonly spoken of as if they were one, or at least seldom separated. The remedies for one are also effective in some degree for the other, and in turn get discussed together. This sometimes leads to a little confusion, as it seemed to do in a discussion at the International Medical Congress entitled "The Action and Use of Remedies for Pain and Sleeplessness (Excluding Anesthetics, Local and General)." In opening it Professor Cushing laid down the properties which he considered constituted an ideal soporific. These he said were (1) that it should only act on the seat of disturbance—viz., the higher cerebral centres; (2) should act regularly; (3) not be repugnant in taste or odor and not poisonous. The sulphonal group he considered uncertain and sometimes dangerous. Chloral had been thought to depress the heart, but he found no evidence that it had any effect of the kind. He placed it and veronal at the head of hypnotics. Paraldehyde was less reliable and had a disagreeable taste and smell. As to pain, he had little to say, as there seemed nothing new since the substitution of morphine for opium, though drugs of the salicylic or phenacetin type might be named as useful in neuralgia and headaches.

Dr. Robert Jones, regarding the case of insane patients, held that the great thing was to break the habit of sleeplessness by removing the cause—an excellent prescription for sane people also. Though he reviewed a large number of drugs, he also dwelt on other measures, such as removing high tension, cardiac disturbance or failure, and other causes, mental and moral, as well as physical. Prof. R. B. Wild spoke of analgesics in incurable disease when morphine was most useful to meet pain. Of non-narcotics he found phenacetin and acetosalicylic acid of great value.

Prof. Bradbury found veronal effectual—so much so that often in his experience it was necessary to repeat it only at some three days' interval. He disliked sulphonal.

Among a number of other statements and remarks in this discussion I may note that Professor Dixon claimed that he first observed that the indifferent hypnotics increased the cerebrospinal fluid. Further, he and Dr. Halliburton showed that drugs introduced into the upper part of the spinal canal were absorbed and produced their effects as rapidly as if injected into a vein. Dr. Fortescue-Bricklade examined soporifics and anodynes from the chemical point of view as influencing their therapeutical action.

Professor Baruch advocated more instruction in the schools and universities on hydrotherapy. Dr. Roch ascribed better effects to combinations of soporifics, *e. g.* morphine with heroin, veronal with codeine, antipyrin with pyramidon. Dr. Garron had seen untoward effects from a small dose of heroin and morphine. Mineral waters, climate and other measures apart from drugs were referred to, and then some demonstrations were given in the subsection of pharmacology held at University College.

Dr. F. H. Albee during the International Medical Congress performed his osteoplastic operation for Potts' disease at the Royal National Orthopedic Hospital. He used his electric circular saw. The patient was one of Mr. Muirhead Little's, senior surgeon to the hospital, a son of the late Dr. W. J. Little, to whom orthopedy owes so much. The patient is going on very well.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

APHTHOUS FEVER—VACCINE TREATMENT OF TYPHOID FEVER—NECROLOGY: PROFESSOR JACCOUD; THÉOPHILE ANGER; MEDICAL INSPECTOR GAUJOT.

PARIS, August 23, 1913.

APHTHOUS fever was the subject of a paper read by Cadiot before the Academy of Medicine. The possibility of the transmission of this condition to human beings, which has been questioned by a majority of physicians and veterinarians, is to-day almost universally admitted. There are records of over 1,500 cases of the transmission of aphthous fever from animals to man. In 1902 the Academy of Medicine passed a resolution calling upon the sanitary authorities to prohibit the sale of milk obtained from cattle suffering from aphthous fever, unless the milk had been boiled or pasteurized at 85° Centigrade.

Galippe insists upon the importance of the inherited or acquired constitutional condition of the subject with reference to his susceptibility to aphthous fever. Many cases of aphthous stomatitis are certainly nonspecific in character.

"The Vaccine Treatment of Typhoid Fever" was the title of a paper read by M. Chantemesse. Roux was the first to suggest this method of treatment twenty-five years ago. This form of therapy is undoubtedly a good one provided that the following rules are followed: The treatment should be employed as soon as possible after the beginning of the disease. Small doses of sterilized typhoid cultures should be used. Only two or three injections should be given at intervals of several days. Only the most minute doses should be employed in the case of patients severely ill, or in whom the treatment is begun late, on account of the anaphylaxis that develops in the courses of typhoid fever. The bactericidal power of the vaccine causes the entrance into the circulation of a large dose of toxin which gives rise to a defensive reaction on the part of the lymphoid apparatus. It is this reaction which increases the resistance of the patient and facilitates cure. Of 1,000 typhoid fever patients treated by M. Chantemesse with his serum there were but forty-three fatalities, while at the same time in the other hospitals of Paris there were 170 deaths in 1,000 cases. Roux believes that antityphoid vaccination provides an excellent means of diminishing the mortality from typhoid fever.

The vaccine of Chantemesse consists of an emulsion of typhoid bacilli killed by heat. It is prepared in the following manner: Upon a gelatin plate well spread out there are sown five cubic centimeters of a 24-hour-old bouillon culture of typhoid bacilli. The plates are kept in the incubator at a temperature of 57° C. for eighteen hours, at the end of which time there are added to each plate 5 cubic centimeters of sterile physiological salt solution. The culture is detached from the surface of the gelatine by shaking. The contents of several plates are then emptied into a sterile flask, thoroughly stirred, and then divided into sterile test-tubes, which are sealed with the aid of heat. One definite volume of the emulsion is diluted with one volume of water containing formaldehyde and colored blue. The sealed tubes are heated in the water bath and kept at a temperature of 56° C. for one hour during which period they are shaken several times. The vaccine should be used not later than three months after its preparation. Chantemesse's vaccine consists of an emulsion of the bodies of the typhoid bacillus suspended in a sterile liquid. The antityphoid vaccines prepared by Professor Vincent of Val de Grace consist in the one case of an emulsion of the typhoid bacilli killed by ether, and in the other case of an autolysate of the typhoid bacilli sterilized by ether. The Academy of Medicine approves and authorizes the preparation of the vaccines of Chantemesse and Vincent.

Professor Jaccoud, permanent secretary of the Academy of Medicine of Paris, has recently died. He was one of the most striking figures in the medical world during the latter half of the nineteenth century. His eloquence and remarkable memory helped to make him famous. Born at Geneva in 1830, Jaccoud met with many difficulties in the early part of his career. While he studied all day at the hospital, or in the medical school, he played the violin at night at the Opera Comique. He became an externe in 1854 and an interne the following year. In 1859 he received the gold medal of the Hospitals, and in 1860 defended a remarkable thesis on the pathogenesis of albuminaria. In 1862 he became physician to the hospitals of Paris and in 1863 assistant professor in the medical faculty. As professor of clinical medicine his success was established. His deep erudition was associated with an extraordinary memory. He accomplished a great amount of work. He carried alone to completion the "Dictionary of Practical Medicine and Surgery," a work which will remain a monument to its creator.

Théophile Anger has just died at the age of 77 years. He had been the favorite pupil of Nélaton, who had him appointed to the staff of the Emperor Napoleon III during the war of 1870. After the battle of Sedan he returned to Paris where he was put in charge of the Hertford Ambulance which had been established by Sir Richard Wallace. In 1871 he received the appointment of surgeon to the hospitals of Paris and then began the most brilliant part of his surgical career. Anger published interesting books on cancer of the tongue, and on auto plastic operation for the relief of epispadias and hypospadias. In 1882 a failure in health compelled him to give up his work for a long time. An accident deprived him of the use of his right arm, so that he could not operate without difficulty. His pupils became his assistants and collaborators.

Medical Inspector Gaujot has recently died at the age of 86 years. He was one of the oldest and most esteemed members of the Surgical Society. Interne in 1851, he was successively instructor of operative supply and clinical surgery at Val de Grace, and later was made director of the School of Applied Studies at Val de Grace. As army surgeon he had an active service during the wars in Italy and in 1870. His principal work was the "Arsenal of Contemporary Surgery." This work is an important document in the history of surgery in the pre-antiseptic days.

Hereditary Brachydactylia.—J. Drey reports the case of a family in which for five generations this condition was observed in a number of individuals, some of whom had defects in the terminal phalanges combined with ankyloses of the terminal joints, and some of whom had only one of these deformities. A direct heredity was perceived in the last three generations.—*Zeitschrift für Kinderheilkunde.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 2, 1913.

1. Indications for the Relative Values of Tonsillotomy and Tonsillectomy. J. L. Goodale.
2. Remarks on the Rational Treatment of Genitourinary Tuberculosis. R. F. O'Neil and J. B. Hawes, 2d.
3. Observations on a Series of Ninety-eight Consecutive Operations for Chronic Appendicitus. E. A. Codman.
4. A Case of Infection with Nocardia. A. E. Steele and R. I. Lee.
5. One the Relief of Earache and Induction of Operative Anesthesia by Infiltration of the Auriculotemporal and Tympanic (Jacobson's) Nerves. P. C. Skillern, Jr.

1. **Tonsillotomy versus Tonsillectomy.**—J. L. Goodale concludes that it has not been demonstrated that complete removal of the tonsils is followed by harmful effect upon the general system. Tonsillotomy involves usually less trauma than does tonsillectomy, but in the latter the method of removal is of primary importance, a sharp dissection down to the tonsillar artery, with snaring of the vessels giving the least amount of inflammatory reaction. Of the two operations tonsillectomy shows a larger percentage of septic complications, due both to the greater trauma usually occasioned, and also to the relatively larger number of septic conditions where of late years an operation is undertaken. The relative frequency of postoperative hemorrhage is not definitely established, but in view of the available methods of treatment it is no longer a serious complication if dependent upon local causes. While gross deformities of the parts involved are not likely to follow tonsillotomy, yet cicatricial occlusion of the lacunar orifices is frequent, and may lead to an intensification of the original chronic inflammation. The indications for operation should be determined by the pathological changes of the tonsils, which are actually a detriment to the individual. Simple hyperplasia, if obstructive or favoring catarrhal conditions, and if persistent, may be sufficiently treated by a tonsillotomy, especially in children. The systemic ill effects of chronic tonsillitis may be increased by a tonsillotomy. Complete removal is here preferable to a partial one, although mild cases of chronic inflammation may be sufficiently relieved by appropriate treatment without excision. Infection of the fauces due to virulent microorganisms may not be prevented by removal of the tonsils. Recurrent local infections or general infections having their origin in the tonsils require tonsillectomy as soon as a favorable moment for operating arrives. Tonsillotomy may be expected here to prove inadequate. Recurrent acute catarrhal infections of the throat require complete removal of the tonsils if these show chronic inflammation, although immunity against subsequent attacks is not necessarily secured. Local tuberculosis of the tonsil requires complete removal of the organ. In young children with adenoid enlargement requiring removal the tonsils should not be excised unless demonstrably causing injury or favoring attacks of acute middle ear inflammation. If an impairment of the speaking voice is dependent upon tonsillar disturbances, these may be corrected according to the principles already given, and if a tonsillectomy is indicated, it may with proper technic be performed without anxiety. In singers slight alteration in the tension of the palatal muscles may influence the voice either favorably or unfavorably. In the case of beginners with harmful alterations of the tonsils a partial or complete removal may usually be done, if the local or general welfare of the patient demands it. With increasing length of singing experience a correspondingly conservative attitude should be maintained, particularly in respect to truly fine voices.

3. **Operations for Chronic Appendicitis.**—E. A. Codman records his observations in a series of ninety-eight consecutive operations for chronic appendicitis. All cases operated upon were diagnosed as chronic appendicitis, but only sixty-one appendices had demonstrable evidences of having been inflamed. In seventeen cases the real causes of the symptoms as determined after operation were probably as follows: Chronic salpingitis, 2 cases; tuberculous mesenteric glands, 3 cases; painful right inguinal hernia, 1 case; gallstones, 2 cases; small ovarian cyst, 1 case; tuberculous peritonitis, 1 case; congenital pelvic kidney, 1 case; tapeworm, 1 case; cardiospasm, 1 case; megasigmoid, 1 case; ptosis and megaduodenum, 1 case; appendix abscess, 1 case; general syphilis, 1 case. But six of these seventeen cases also happened to have a chronic appendix. There were two fairly distinct symptom complexes. (*a*) The true appendix sequence. Cases which have had a number of previous attacks lasting a few days—not hours. These attacks are characterized by epigastric or general abdominal onset and right iliac localization of pain followed by gradually subsiding tenderness after the pain has gone. In the interval between the attacks tenderness at McBurney's point may be absent. These cases seldom have habitual constipation. They show definite appendix strictures, obliteration, or adhesions. (*b*) The pseudoappendix sequence. These cases have right-sided pain in the appendix region which is frequent, usually daily, though intermittent. There is general right-sided tenderness, especially at and about McBurney's point. They have no long interval of freedom. The attacks are mild and not often feverish. They are constipated and usually have the other stigmata of visceral ptosis. In the sixty-one definite appendix cases constipation, usually not habitual, was present in only twenty-one cases, and in eight of these mobile ceci were also present. But in four cases no note was made. In the thirty-seven cases with normal appendices sixteen were habitually constipated. Diarrhea, persistent or intermittent, occurred in only nine cases out of eighty-seven recorded, and can no longer be quoted as a symptom of chronic appendicitis, but when present in a doubtful case is in favor of a diseased appendix, because eight of the nine were among the sixty-one true chronic appendices. One of the things that interested the author most, was that dyspeptic symptoms, especially the hyperacidity form which are now considered the cardinal symptom of duodenal ulcer, were found at all severe in only twelve cases and were vaguely present in only twenty-five more.

New York Medical Journal.

October 4, 1913.

1. Ultimate Results of the Chetwood Operation for Retention of Urine. E. L. Keyes, Jr.
2. A New Principle in Esophagoscopy. R. Lewisohn.
3. The Eternal Medical Verity. W. B. Konkle.
4. Eosinophilia Produced by Hypodermic Injections of Crotalin Solution. R. H. Spangler.
5. The Use of the Pharyngoscope by the General Practitioner. H. Hays.
6. Pediculosis Capitis Among School Children. J. Sobel.
7. The Use of the X-ray in the Diagnosis of Diseases of the Chest and Abdomen. L. Glendenning.
8. Concerning the Etiology of Hypertrophic Pulmonary Osteoarthropathy. H. Brooks.
9. Two Cases of Luetic Keratitis. J. E. Braunstein.

1. **The Chetwood Operation for Retention of Urine.**—E. L. Keyes, Jr., states that during the past ten years he has employed the Chetwood operation upon about one-quarter of his cases of prostatic hypertrophy. He has also employed it for the removal of all minor obstructions, such as bars and contractures at the bladder neck, when simple perineal section seemed likely to prove inadequate to afford proper drainage for the bladder. Among the fifty-seven patients operated upon, twenty-seven have been followed for a year or more (omitting cases of carcinoma, tabes, and tuberculosis). Seventeen, or sixty-three per cent., of these patients were cured, and the cures verified for nine years in one case; seven years in three cases; six years in one case; five years in one case; four years in two cases; three years in four cases; two years in one case; and one year in three cases. Three patients have grave incontinence of urine; two incomplete and one

complete. Seven patients were incompletely relieved, and of these two went as long as five years before their symptoms again gravely inconvenienced them. The general aspect of these statistics is not particularly good; for although the mortality is low, the proportion of the absolute cures is also low. But the author believes that the average result is far better than he could have obtained by any other operation. A number of them were desperate risks, and most of them represented that class of prostate that is too small to be satisfactorily dealt with by prostatectomy.

Journal of the American Medical Association.

October 4, 1913.

1. Vagino-Uterine Prolapse and Its Effective Treatment. E. E. Montgomery.
2. Prolapse of the Uterus. F. H. Martin.
3. The Anatomy and Surgical Utility of Sacro-Uterine Ligaments. G. B. Somers and F. E. Blaisdell.
4. Studies in Auscultatory Blood-Pressure Phenomena. The Clinical Determination of Diastolic Pressure. L. M. Warfield.
5. The Clinical Significance of High and Low Pressures with Special Reference to Cardiac Load and Overload. W. J. Stone.
6. Clinical Aspects of Hypertension. J. L. Miller.
7. Cancer of the Uterus. Some Points to Be Emphasized in the Early Diagnosis. R. B. Hall.
8. Theoretical and Practical Foundations of a Radical Operation for Carcinoma of the Cervix Uteri. E. Ries.
9. The Responsibility of the Dentist and Physician in Regard to Mouth Infections and Their Relation to Constitutional Effects. T. B. Hartzell.
10. Injuries Produced by Starch. I. A. Abt.
11. The Treatment of Hemorrhagic Disorders. T. B. Cooley.
12. The Nature, Diagnosis, Prognosis and Treatment of General Paresis. C. R. Ball.
13. The Value of Sanitation as Applied to Railway and Other Large Corporations, With Special Reference to the Public Welfare. M. C. Thrush.
14. Mixtures of the United States Pharmacopeia. O. T. Osborne.
15. The Sanitary Record of the Second Division of the U. S. Army in Texas. R. B. Miller.
16. A Neosalvarsan Fatality. M. E. Hagerty.
17. The Employment of Carmin in Gastro-Intestinal Diagnosis. S. Basch.
18. A Case of Brain Syphilis. N. B. Eddy.
19. A Method for Aseptic Ureteral Catheterization. W. P. Willard.

1. Vagino-Uterine Prolapse.—By E. E. Montgomery. (See MEDICAL RECORD, July 5, 1913, page 44.)

2. Prolapse of the Uterus.—By F. H. Martin. (See MEDICAL RECORD, July 5, 1913, page 44.)

3. The Sacro-Uterine Ligaments.—G. E. Somers and F. E. Blaisdell have pursued an investigation with the object of arriving at a clearer understanding of the anatomy and surgical value of the sacrouterine ligaments. They have had the opportunity of operating on these ligaments ten or twelve times, and as a result of both study and experience feel that they are worthy of more general attention; that the operation of shortening them is both practicable and successful, and that it is particularly indicated when retroversion or prolapse is accompanied by relaxed vaginal vault.

4. Clinical Determination of Diastolic Pressure.—By L. M. Warfield. (See MEDICAL RECORD, June 28, 1913, page 1194.)

5. High and Low Pulse-Pressures.—By W. J. Stone. (See MEDICAL RECORD, June 28, 1913, page 1194.)

6. Clinical Aspects of Hypertension.—By J. L. Miller. (See MEDICAL RECORD, June 28, 1913, page 1194.)

7. Early Diagnosis of Cancer of the Uterus.—R. B. Hall enumerates the early symptoms of cancer of the cervix, in the order of their importance, as follows: (1) a watery discharge; (2) an irritable bladder; (3) a little irregular bleeding, and (4) a disagreeable odor. In reference to the watery discharge, he does not mean the ordinary leucorrheal discharge that women frequently complain of, but a watery discharge not unlike beef brine in its appearance. It may not be very profuse, but it is enough to stain the linen brownish. It irritates the vulva. It is more or less constant for a varying period of from five or six weeks to three or four months, before the patient considers herself ill. This is a most important symptom. Slight irregular bleeding should be immediately investigated, but it is not especially an early symptom. Hemorrhage and pain come late in the disease. Cancer of the cervix should be differentiated early from erosion, laceration with inflammation, cystic degeneration, tuberculous ulcer, and chancre. If malignant disease is present a small nodule is to be found. As regards the first three, no examination will be complete without the aid of the microscope. Tuberculous ulcer and chancre are rare and there should be no very great difficulty in their diagnosis. The early diagnosis of cancer of the body of the uterus is also much neglected. Its approach is insidious and, unlike cervical cancer, it may occur in the maiden as well as in the woman who has borne children. It is comparatively rare before the menopause and the earliest symptom is a watery discharge with slight irregular hemorrhage gradually increasing, and pruritus. Pain comes on later in the disease when the uterus has become enlarged by the new growth and is endeavoring to rid itself of the foreign body. The diagnosis of cancer of the body of the uterus is not at all difficult with the clinical history. The physician will find the uterus enlarged, freely movable, and more sensitive than normal, with no perceptible disease of the cervix. In advanced cases a probe gently introduced may show a depth of three inches or more and cause a discharge of bright red blood. If the first examination does not give a positive diagnosis the uterus should be curetted under an anesthetic and microscopic examination of the scrapings made. Only rarely has the author had to make a secondary curetting.

8. Cancer of Cervix Uteri.—E. Ries states that in the beginning when there is no cancer in the body except at the original focus one ought theoretically at least to cure by its removal *en bloc*. In the later stages much wider limits must be given and one must include in the cancer block all the lymph vessels between the original focus and the metastatic foci in adjoining lymph-nodes. One must consider risks of leaving behind infected portions or wandering cancer cells in still uninvolved lymph channels. The observation of these at a distance, however, i. e., of carcinoma in transit, is practically unknown. The improvement in results of operations for cancer in any part of the body can be shown to depend on the continuous rather than the discontinuous dissection out of the morbid growth. Where the dissection is discontinuous the results are most unsatisfactory. The operation for cancer of the cervix involves greater risks than that of cancer of some other portions of the body, that of the breast for example. The accessory risks from anesthetic or infection carried in from the outside are the same in carcinoma of the cervix as in other cancer operations. The gravest accessory risk is that of sepsis from the infected primary tumor by the much-dreaded tearing of the cervix or infection of the field from crumbling lymph-nodes, which, in addition to the carcinoma, have been loaded with virulent germs from the primary focus. The author has little doubt that virulent germs may lurk not only in suppurating lymph-nodes, but in lymph-vessels in their neighborhood as well. The enlargement of the block to the limits indicated by the author in 1895 has greatly improved the remote results, but at the cost of increased inherent risks from hemorrhage, injury to ureters, and large wounds in the connective tissue. The dissection of the ureters out of the broad ligaments unavoidably breaks the rule of continuous dissection, and this is another point of weakness. It could be eliminated if one could include the ureters in the carcinomatous block and resect them every time, but there is a limit to the tolerance of the patient and also of the operator. The operation for cervical cancer is the most extensive he knows of in surgery and there is no means of which he is aware by which one can determine the limits of this tolerance in individual cases.

10. Nutritional Injuries Produced by Starch.—By I. A. Abt. (See MEDICAL RECORD, June 28, 1913, page 1188.)

11. Treatment of Hemorrhagic Conditions in Children.

—By T. B. Cooley. (See Medical Record, June 28, 1913, page 1189.)

12. **Paresis.**—C. F. Ball notes the recent general acceptance of the specific origin of paresis and the changes of opinion regarding so-called parasyphilis generally, and asks how far back toward the primary infection one should date the disease. Together with this question arises the other, whether active and persistent specific treatment when the symptoms first appear would favorably influence the latter course. During the past two years the author has made Wassermann tests of the blood in all his hospital patients, and if there were nervous symptoms with a positive Wassermann, lumbar puncture was made and three reactions tested. With the modern methods diagnosis is greatly facilitated. He quotes Nonne and Schüle as to the positive cure of paresis with seeming approval, but admits that possible relapses should always be reckoned with in giving a prognosis of apparent cure. For two years he has used injections of sodium nucleinate in his paretic patients, and gives particulars of some cases. He says he cannot claim very great success with it, but it seemed to exert a favorable influence in all but two.

The Lancet.

September 27, 1913.

1. The Causes of the Failure of Women to Nurse Their Infants at the Breast. H. C. Cameron.
2. Syphilis: Its Dangers to the Community, and the Question of State Control. H. C. French.
3. The Bacillus Lepræ: Has It Been Cultivated? H. Fraser.
4. The Pathology of the Condition Known as Parasyphilis. J. McIntosh and P. Fildes.
5. Radium Rays in the Treatment of Hypersecretion of the Thyroid Gland. D. Turner.
6. The Treatment of Umbilical Hernia in Children by the Subcutaneous Elastic Ligature. J. Fraser.
7. A Note on Helminthiasis in Bassa Province, Northern Nigeria. J. E. L. Johnston.
8. Suppurating Endothelioma of Meckel's Diverticulum Simulating Appendicitis. C. Carwardine.
9. Indications for Operation on Cerebral Tumor from the Point of View of the Ophthalmic Surgeon. L. Paton.
10. An Unusual Case of Cerebral Abscess. H. F. Renton.
11. A Case of Advanced Carcinoma of the Cervix Uteri Containing Twins Treated by Vaginal Hysterectomy. H. B. Mylvaganam.
12. A Case of Rheumatic Arthritis Treated with Rheumatism Phylacogen. M. Erskine.

1. **Failure of Lactation.**—H. C. Cameron notes that it may be asked why the infant should be born before the flow of milk is established, and why it should be left to the child to secure a sufficient supply by its own exertions. He believes that one may see in this a very complete and successful provision against the danger of overfeeding the child. When the child has a good appetite, sucks well, and empties the breast completely the amount of milk secreted increases with each nursing. There is here a wonderful adaptation of supply and demand. It is true to say that the child grows in strength and size because there is an increasing flow of milk; it is equally true to say that more milk is secreted because the child grows in strength and power of suction. But let some accident diminish his appetite for a few days—some slight pyrexial disorder, for example, or a trifling dyspepsia—then with diminished suction less milk is secreted, and the infant involuntarily imposes upon himself a period of partial starvation.

3. **The Bacillus of Leprosy.**—H. Fraser and W. Fletcher state that material for purposes of cultivation on various media has now been obtained from 32 non-ulcerating nodular cases of leprosy and 373 inoculations made on the various culture media. It is curious, in view of the findings of other investigators, that they have consistently failed to obtain a culture of the bacillus lepræ. There can be no doubt but that material swarming with bacilli has been employed on each occasion. This was clearly demonstrated by the microscopical examinations which were made in every case. From the examinations made of nodules which have been incubated on culture media for periods ranging from a few days to nine months, no evidence has been obtained that the bacilli had increased or lessened in number. Those investigators who have recorded an increase in the number of organisms as a result of microscopical examination must surely have failed to observe the bacterial richness of the material employed for inoculation. Anyone who has examined smears prepared from freshly excised leper tissues must be struck with the enormous masses of acid-fast bacilli present, and we are unable to comprehend how it is possible to state in a case where no macroscopic growth is apparent that an increase, recognizable only by the microscope, has occurred.

4. **The Pathology of Parasyphilis.**—J. McIntosh and P. Fildes, in summing up their concept of syphilis of the central nervous system, hold that it consists of two main divisions—one largely or entirely confined to the lymph vascular tissues and the other largely or entirely confined to the brain substance. In each of these two divisions varying numbers of spirochætæ and, even more so, varying sensitization of the tissues will occasion lesions of varying clinical importance. In the vascular tissues these will range from a slight meningitis to a gummatous process, while in the brain from a slight meningoencephalitis to tertiary encephalitis (dementia paralytica). It is admitted that these views are to some extent hypothetical, and are not founded upon a large pathological anatomical experience. This result is, however, due to the fact that the cases now recognized as encephalitis (Wassermann reaction and discovery of the spirochætæ) were formerly not recognized as syphilitic. The "cerebral syphilis" of the literature is practically confined to the gummatous processes. Further, since the patients are susceptible to treatment, a post-mortem examination is a rare occurrence. It is, nevertheless, certain from the rich clinical material and wide experience of Head and Fearnsides that the various syphilitic states the authors have referred to are common.

5. **Radium in the Treatment of Thyroid Hypersecretion.**—D. Turner believes that the favorable effects of the *x*-rays in thyroid hypersecretion can also be equalled by the action of radium. But in addition radium has two distinct clinical advantages over the *x*-rays: (1) a perfectly definite dose of it can be given and repeated as often as may be desired; and (2) the radium can be applied without noise or excitement while the patient is in bed. This is an important advantage in the treatment of this disease.

British Medical Journal.

September 27, 1913.

1. A Lecture on the Operative Treatment of Inoperable Cancer. C. Rowntree.
2. The Reaction of the Blood Serum as an Aid to the Diagnosis of Cancer. W. D. Sturrock.
3. Sarcoma of the Uterus. J. H. Marsh.
4. The Autoplastic Ovarian Graft and Its Clinical Value. B. Whitehouse.
5. Notes of a Supposed Case of Pellagra. R. Reid and W. Calwell.

1. **The Operative Treatment of Inoperable Cancer.**—C. Rowntree states that the operation for which he pleads is one deliberately undertaken with the sole object of removing the growth itself or as much of it as possible, in the hope of relieving much of the patient's discomfort, but with no expectation at all of permanently curing the disease. He believes that surgeons are not active enough in the treatment of inoperable cancer. The author is convinced that such operations have a far wider application than is generally accorded to them. It is true that operation occasionally seems to cause widespread diffusion of cancer, possibly from mechanical interference with the tissues, just as generalized infection is sometimes met with after operations for surgical tuberculosis. But there is no clear evidence that this rapid diffusion of growth is more frequent after operation in so-called inoperable cases than it is after operation in the early cases, and the

author therefore believes that it is not a matter of importance. It is also said that local recurrence takes place quickly after these partial operations, and that the last state of the patient is worse than if nothing had been done at all. Local recurrence takes place in a certain proportion of cases after any kind of operation; but even in these cases, when recurrence takes place comparatively early, the author does not believe that the condition of the patient is as bad as it would have been by that time, supposing no operation had taken place at all; and no one can deny that in many cases local recurrence never takes place at all—the patient dying a merciful death from visceral deposits after several or even many months of comparative comfort. There is a great deal of evidence in favor of the performance of limited operations for the alleviation of incurable cases of cancer.

2. **The Reaction of the Blood Serum in Cancer.**—W. D. Sturrock refers to the work of Moore and Wilson, who found that the free HCl is as definitely reduced in cancer of other parts of the body as in cancer of the stomach, and therefore concluded that the well-known reduction in this latter condition could not be due to local causes, but might, in common with the reduction in other cases, be due to "a change in the concentration in hydrogen ions in the plasma and lymph. It is at once evident that if a definite increase in the alkalinity of the serum can be detected in persons with cancer a valuable aid to diagnosis is secured, and the author's present study represents an attempt to determine whether the reaction will lend itself to clinical work. The author employed Moore and Wilson's method of determining the reaction of the whole serum to dimethyl as a measure of the degree of alkalinity. He found that the average alkalinity of the blood in cancer patients is appreciably higher than that of non-malignant patients.

4. **The Autoplastic Ovarian Graft.**—B. Whitehouse notes that one of the most important uses for this operation is as a conservative measure when it is necessary in a young woman to remove both uterine appendages for old-standing inflammatory disease without having to sacrifice the uterus. Another indication which he puts forward as a suggestion is the possibility of transplanting fragments of ovarian tissue in cases of severe dysmenorrhœa. Instances of most intense menstrual pain undoubtedly occur where the source of discomfort lies, not in the uterus, but in the ovaries. Curetting and drugs rarely cure such patients, and if an examination is conducted during the height of the attack the ovaries can frequently be palpated as extremely tender bodies occupying the posterior quadrants of the pelvis. In more than one case oöphorectomy has been and is still practised for this condition, and the author knows of instances where panhysterectomy has been performed. A cure is undoubtedly effected thus, but, the author asks, may not it be possible to bring about the same result without unsexing the patient, by substituting ovarian grafting? In conclusion the author summarized those points which he regards as essential to the success of a grafting operation: (1) Absolute asepsis and the avoidance of strong antiseptics which would destroy the vitality of the tissues. The apparent contradiction to this maxim in the case of chronic pyosalpinx and salpingo-oöphoritis is met by the fact that the pus in such cases is usually sterile, and the tissues may be treated as surgically "clean." (2) The employment of minute or "seedling" grafts. (3) The presence of a good vascular supply in the tissue used as the bed for the graft. Muscle is entirely satisfactory for the purpose. (4) The ovarian tissue should be left in contact with the body fluids within the peritoneal cavity until it is required for the purposes of the grafts. In the case recorded in this paper the ovary was placed in Douglas's pouch until the time arrived for closure of the abdominal wound.

Berliner klinische Wochenschrift.

September 22, 1913.

Sporotrichotic Osteoperiostitis of the Upper Jaw.—D'Agata mentions the great interest awakened by the ever-increasing number of manifestations and appends an instructive case of bone lesion of this origin. The patient was a youngish woman without children. Stock sound. At the age of 17 she was in Brazil and developed severe anemia, recovering after two years with the intensive and persistent use of arsenic. Married at 24, she never became pregnant, although her husband was strong and healthy. Two years later developed an osteoperiostitis on the shin bone, thought to have been tuberculosus, and treated as such with negative results. The purulent surface which had been exposed and drained was now regarded tentatively as syphilitic, but again failed to respond to treatment. The exposed surface finally healed spontaneously, just as a fresh lesion appeared over the cheek. This increased in size until it involved the upper gum and attacked the tooth sockets. A diagnosis was made of osteoperiostitis of the upper jaw. The condition, having reached a self-limitation, remained unchanged for ten months. Prolonged study finally excluded tuberculosis, syphilis and actinomycosis. By exclusion, aided by cultural efforts, a diagnosis of sporotrichosis was made. The peculiarity of this case appeared to be its début in the bony structures: for as a rule it attacks the latter as a result of disease of the soft parts, or the hard and soft parts are involved jointly. The rarity of the exclusive bone localization is shown by the fact that the case reported is the first known to have occurred in Italy.

Abbot's New Procedure for Scoliosis.—Vulpius states that this method is far too new to permit of a judgment of its ultimate value. After describing the method and the strictures upon it by German orthopedists, the author states that he has not yet seen a complete cure, but *x*-ray photographs which seem to show that cures undoubtedly occur. In regard to the disadvantages, one is atrophy of the bones. If scoliosis is due to bone insufficiency then this atrophy cannot be a desideratum. To offset this tendency we must do all possible to guard against weakening of the bones or general forces. Another drawback is increase of the accessory curvatures. Naturally attempts have been made to prevent this. No doubt the Abbot plan should be incorporated into our other resources. One great indication has not in the least been filled by Abbot—diminution of pains, time, and money. With the erection of small orthopedic sanatoria, this may in time become a vital element in the management.

Münchener medizinische Wochenschrift.

September 23, 1913.

Experimental Atherosclerosis and Cholesterinemia.—Wacker and Hueck conclude their study of this subject as follows: As a result of persistently increasing the cholesterin in the blood of rabbits the authors succeeded in causing a disease of the aorta which in essential points agrees with human atherosclerosis of the aorta. This brings to the fore the possibility of an atherosclerosis due to hypercholesterinemia—the more so as the latter condition is favored by other clinical and experimental data—increased muscle work, dyspnea, narcotics, adrenalin, etc.

Investigations into the Blood Serum of Gouty Subjects.—Ehrmann and Wolff have arrived at the following results: In diet free from purins the serum of normal man may still show uric acid in quantities large enough for measurement, while if the subject be typically gouty the uric acid in the serum may not equal the normal values. Hence in a typical gout so-called a little uric acid in the blood has no diagnostic significance. A recently highly recommended patented remedy for gout has no power to

lessen the uric acid in the blood, while in the ordinary total mass of blood purins are from four to ten times more abundant than is uric acid, the serum alone shows more uric acid than purins. The concentration of H ions in the blood of the gouty is often considerably greater than that of the normal blood, and also of diabetics with coma and precoma. Hence the alkalinity of the blood may be decreased in gout. The blood serum of the gouty occasionally has a slight lipoid look.

Thorium-X in Internal Disease.—Meseth writes at great length on this subject, his article being virtually a monograph, in addition to his own large experience. Thus he has treated three cases of myelogeneous leucemia. One of the three patients showed notable improvement, while the others were practically uninfluenced, despite initial improvement. Lymphatic leucemia was much more resistant to the remedy. Secondary anemias showed more improvement after removal of the cause than is ordinarily expected. Pernicious anemia, made worse at first by treatment, showed afterward some short-lived improvement. Thorium-X is evidently too severe a remedy to combat this blood affection because of its general weakening effects. In one case of obesity no loss of weight resulted. In lymphosarcoma with gland metastases thorium exerted a definite influence, which, however, was not marked. Quite a degree of improvement occurred in a case of multiple lymphoma. In sharp contrast from most of the preceding results is to be noted astonishing improvement in two cases of focal affection of the spinal cord of uncertain origin. In a large number of cases of chronic rheumatic arthritis treated some results were strikingly good, and under small dosage, which makes a desirable combination. In these affections and in the secondary anemias thorium X can be depended on to a large extent for good results gained without risk.

Deutsche medizinische Wochenschrift.

September 11 *and* 18, 1913.

Recovery in a Case of Tetanus Neonatorum.—Wolff states that the mortality of this affection varies from 70 to 95 per cent. We know that the latter is identical with ordinary tetanus, because if matter from the navel of children who are victims of this disease is injected into experiment animals tetanus results. When we consider that the dirty treatment of the navel of the newly born at the hands of mothers and midwives has caused most of the recorded cases in the past, the simple cleanliness of the present day must have greatly lowered the incidence of tetanus. Aside from prophylaxis not much progress has been made in life saving, even under the most modern plans of treatment. The author's case is as follows: A boy aged eleven days was brought to the clinic by his mother who stated that for the past two days he had suffered the most violent convulsions. The cord had sloughed at the eighth day, the stump having been dressed by the midwife. Pus soon appeared at the navel, and trismus had developed two days later. This very brief interval caused some doubts as to diagnosis despite the absoluteness of the clinical picture. In the interest of the child no attempt was made to excise a portion of the navel for miscroscopic study. According to precedent the chance of finding bacilli would have been small. Hence serum was at once injected, 300 units distributed in various places. As is well known, it is difficult to supply the calorie requirements of a young infant with tetanus. The patient was narcotized with bromides and chloral until it could be fed with milk by the stomach sound; these remedies also controlling the convulsions. At times the chloral was given in the milk. This treatment was kept up until the child was able to nurse. The milk was obtained directly from the mother's breast. The disease ran a severe course, convulsions being of the most violent type and fever correspondingly high. The calorie plan of feeding was maintained and the author does not know whether to give the most credit to the serum, chloral, or sound feeding.

Functional Testing of the Liver.—Strauss refers to the literature of the past 12 years concerning the efficacy of the levulose test for estimating the functional activity of the liver and states that his own experience is in full agreement with that of others. He also gives equal credit to the galactose test recently introduced by R. Bauer Positive results are obtained more infrequently in obstructive jaundice and more frequently in neurogenic functionl disturbance of the liver. Many minor problems require solution. The author says that the two tests—levulose and galactose—should for the most part be used on the same subject.

Regeneration of the Thymus Gland in Mammalia.—Fulci states that regeneration of this organ in mammals occurs alike in the young and adults. This fact, with the persistence of normal thymus structure in aged animals, shows that the organ is as necessary to extrauterine as it is to intrauterine existence. The author adds that the lymphocytoid thymus cells really give birth to epithelial structures which possess regenerative powers. The medullary cells and Hassal's corpuscles are also gradually developed from the lymphocytoid cells. We may conclude that the thymus is essentially an epitheloid structure supported by a vascular substratum.

Arteriosclerosis and Allied Subjects.—The three leading articles of this number are devoted to clinical and experimental arteriosclerosis and paroxysmal tachycardia. Hirsch opens with the pathogenesis and physics of arteriosclerosis. He brings the latter in direct connection with elasticity of the vessels. There is, however, much confusion as to what elasticity really is. It may be complete or incomplete. Normal arteries are completely elastic. The operation of the deforming forces tends to increase the deformity; and when these are withdrawn the *restutio ad integrum* does not at once take place. A certain amount of elasticity results as an after-effect, controlled perhaps in part by innervation. In arteries which are notably exhausted, or influenced by poisons, this secondary elasticity may constitute a grave menace. In early arteriosclerosis it is easy to note a lack of elasticity; but later on this is not an even expression of the disease, as numerous other factors may have developed—sclerosis, degeneration, calcipeation. Loeb considered experimental arterial alterations on rabbits and dogs in which lactic acid was the agent employed. His work is still in progress, so that no conclusions are drawn, but the author claims that for the first time he has succeeded in producing arteriosclerosis in an animal other than man. He disputes the assertion of Boveri that arteriosclerosis may be caused in apes by injecting adrenalin. The author's rabbits did not develop the disease. In two dogs, however, in which the intima was attacked, a condition was produced very much like human arteriosclerosis. Dogs seldom develop the disease spontaneously, and even in very old dogs the findings in this respect are conflicting. Kaufmann and Popper, who consider the pathogenesis and treatment of paroxysmal tachycardia with alternations of arrhythmia and allorhythmia, were able to demonstrate this anomaly was due to Tawara's nodes by the use of the cardiosphygmograph. When arrythmia coexisted it is due to a change in the point at which the cardiac contraction begins, and also to a certain degree of sinoauricular block. Large doses of physostigma plus strophanthus caused the cessation of the tachycardia, while the arrhythmia assumed another type (*a perpetua*). The latter type in turn is abolished by atrophin. These indications and prescriptions for their relief are worked out wholly by sphygmo- and electrocardiagrams.

Insurance Medicine.

Insurance Against Occupation Disease In Germany and Foreign Countries.—Curschmann states that compensation for accidents due to occupation is in many countries older than legal insurance against disease. In the former it is often difficult to connect the occupation with the disease. Hence there is the closest possible relationship between the workman, his occupation and the disease. A single act of injury is insufficient—there must be a gradual deterioration of health. Hence a disease of occupation must be one extending over a long period, based on the particular kind of labor in which various factors produce a disease which could not arise in the absence of any one of them. The disease should be serious in type, and the patient should have been in good health before developing the malady. All factors must act not only conjointly but synchronously. The list of occupation diseases recognized in Germany, at present twenty-four, is best represented by placing the essential factor first, and the workers exposed to it later, as *malignant pustule,* the essential factor in occupation diseases in which the subjects are workers in wool, hair, brushes, hides and pelts; *lead poisoning,* which occurs in workers in any factory in which lead or substances containing lead are used; *hydrargyrism,* in which mercury is correspondingly employed; *phosphorous poisoning,* which appears in any kind of manufacture in which that subject is used; *arsenical poisoning,* under analogous circumstances. The majority of these poisons cause simply the symptoms of such poisons. We then have ankylostomiasis, occurring in mining, with four other (all mechanical) affections peculiar to miners. To these five must be added miner's nystagmus. Glassblower's cataract, caisson disease, telegrapher's cramp, are three isolated examples of occupation diseases. Chronic ulcers naturally attack those who use chromine; the benzoles, carbon disulphide, nitrous gas and other poisonous fumes only cause occupation disease in those who actually work with them; workers in pitch, tars, etc., are liable to dermatitis and cancer. Finally glanders is placed as an occupation disease. These facts seem at first sight trite, but they simply indicate that this series of occupation disease has passed muster over and over under experts. Numerous other affections are, so to speak, on the waiting list of approval. The subsidiary factors, in virtue of which one contracts what another escapes, are not much mentioned. At present a committee is endeavoring to fix the status of cowpox, Dupuytren's contracture, and clinical blepharo-spasm. Numerous writers have their favorite occupation diseases, which are not yet incorporated in the list, such as chronic manganism of manganese workers, and the osteitis of workers in mother of pearl.—*Zeitschrift für die gesamte Versicherungs-Wissenschaft,* March 1, 1913.

Scars Upon the Body of a Candidate for Life Insurance.—Dr. Grohmann holds that any scar upon the body of an applicant suggests a something abnormal: for example, that a man born sound has experienced violence of some sort or has produced himself an artifact for one purpose or another. The author better conveys his meaning by cases. Thus an applicant aged thirty-five was examined for insurance. He was sound at birth, and had only an enlarged lymphnode which seemed to be connected with some bad teeth. Recently it had become very painful and the applicant was rejected. Later on operation became necessary, but no pus pocket was present at the time. As the operation wound healed there remained behind a dental fistula. A radical operation led to a complete cure of the latter and the applicant was accepted. In such a case the scar, indicating a radical cure of the only known defect, is evidence of a good rather than a questionable condition. Another applicant had a fear of rejection because of an operation on the ear (mastoidectomy) which had been followed by a disfiguring scar. There was a suspicion of tuberculosis of the middle ear. The author had not the courage to recommend the man despite his apparent robust health. Nevertheless he was living and well many years later. Two facts played a great part in the author's caution. First, the adherence and retraction of the scar following mastoidectomy, and second, a history of former ear discharge. The whole history suggested otitis media and empyema of the antrum.—*Blätter für Vertrauensärzte der Lebensversicherung,* May-June, 1913.

Association of Life Insurance Medical Directors of America.—The twenty-fourth annual meeting of this Association will be held in Philadelphia on Wednesday and Thursday, October 29 and 30, in the Board Room of the Penn Mutual Insurance Company, 925 Chestnut street. Besides the general business which will be brought before the association, papers will be read by the president, Dr. Harry Toulmin, medical director of the Penn Mutual Life Insurance Company; by Dr. E. W. Dwight, medical director of the New England Mutual Life Insurance Company, on "The Value of Small Classes"; by Dr. R. L. Lounsberry, medical director of the Security Mutual Life Insurance Company, on "The Mortality Experience in the Total Abstinence Class"; by Dr. J. A. Patton, associate medical director of the Prudential Insurance Company, on "The Surgical Kidney with Reference to Life Insurance"; by Dr. W. Muhlberg, assistant medical director of the Union Central Life Insurance Company, on "A Few Practical Observations: the Result of Eight Thousand Examinations of Urine"; and by Dr. G. A. Van Wagenen, medical director of the Mutual Life Benefit Insurance Company, giving the Report of the Committee on the Blood-Pressure Test. The annual dinner of the association will be held on Wednesday, October 29, at 6:30 P.M., at the Rittenhouse Club, Philadelphia. The secretary of the society is Dr. Faneuil S. Weisse, 34 Nassau street, New York.

Nervous States in Relation to Insurance.—Lankford suggests that among the questions asked on the medical application blank a few be inserted that would bring out more fully the state of the nervous system of the applicant. As a nation, we are under an extreme nervous strain all the time—the question of a man's occupation and the length of hours he puts in at his work, his relations in his family life, in his personal matters as well as his work, all have an influence on the reflexes. There is no doubt but this nerve strain affects the internal secretions, such as those of the thyroid, and the adrenal system, and leads to autointoxications which are extremely bad in life insurance.—American Life Convention, Medical Section.

Book Reviews.

Drei Vorträge Ueber Tuberkulose. Von Johannes Orth, Professor der Universität, Berlin. Price, 2 marks. Berlin: August Hirschwald, 1913.

The name of this well-known authority on pathology, who now occupies the chair which was graced for many years by the immortal Virchow, is a guarantee of the scientific value of these three lectures. Two of them treat of the relation of tuberculosis in cattle to tuberculosis in man. The other is a splendid review of our present knowledge of tuberculous reinfection and its bearing on phthisiogenesis in the adult. For want of space we can only refer here to two of the most striking statements expressed in Professor Orth's invaluable contribution: First, that even granted that every tubercle bacillus of the human type could be suddenly annihilated, tuberculosis in the human race would still continue as long as the bovine type can be transmitted to human beings. In the second lecture, condemning the attitude of Herr Kirchner, the director of the medical division under the Secretary of the Interior, who claims that tuberculosis cannot possibly be caused by the ingestion of milk from tuberculous cows, but only by contact with tuberculous human beings, Professor Orth rejoices in the opportunity to join in the fight with the *Kaiserliche Gesundheitsamt* against the bovine as well as the human bacillus.

Les Ictères Toxiques et Leur Traitement. Par Noël Fiessinger. Ancien interne lauréat des hopitaux. Chef de Clinique Therapeutique à la Faculté de médecine de Paris. Price, 2 francs. Paris: A. Maloine, Editeur, 1913.

This is a pleasantly written little pamphlet on a subject which is treated with rather scant courtesy in most of the textbooks. Jaundice of infectious origin looms so large in the clinicians' horizon that little consideration is usually given to the form due to non-bacterial causes. Fiessinger takes up seriatim the agents capable of producing the icteric syndrome, such as phosphorus, arsenic, lead, chloroform, salvarsan, etc., and discusses the resulting clinical picture, as well as the types of icterus associated with diabetes uremia, disorders of the alimentary canal, blood diseases, etc.

Berechnete Ärztliche Kostverordnung. Nebst vollständigem Kochbuch für Zuckerkranke. Von. Dr. med. Hermann Schall. Price, 5.50 marks. Würzburg: Curt Kabitzsch, 1913.

There are already numerous cook books for diabetics available, but none of them prepared with the elaborateness of the present one. In addition to recipes for 550 dishes, each with its components tabulated in respect to fat, proteid, carbohydrates, and caloric value, there are 575 complete daily menus of five meals each, also completely tabulated, and graded according to the quantity of carbohydrate. The volume is of the sort which are made only in Germany, and though a stomach to relish some of the preparations described would probably have to be of the same origin the book contains an immense amount of useful culinary information and may be warmly recommended to those who have many diabetics to treat.

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M.D., Member of Illinois State Medical Society, American Medical Association, etc. Assisted by E. G. C. Williams, M.D., formerly Pathologist of Northern Michigan Hospital for the Insane, Traverse City, Mich. With an introduction by Victor C. Vaughn, M.D., LL.D., Professor of Hygiene and Physiological Chemistry and Dean of the Department of Medicine and Surgery, University of Michigan, Ann Arbor, Mich. Second Edition. Illustrated with forty-three engravings. Price, $2.50. St. Louis: C. V. Mosby Co., 1913.

The object of this volume is so praiseworthy that its occasional minor deficiencies may well be overlooked. Few consummations are so devoutly to be wished as that the general practitioner, and especially the one who is compelled to do his work in more or less remote regions, should be induced to take a greater interest in the laboratory methods and to realize how absolutely essential many of them are to correct diagnosis. Not a few of them can be carried out with the simplest equipment in the way of apparatus and chemicals, and with a comparatively small expenditure of time, and it has been the aim of the authors to assist the inexperienced worker in selecting the procedure best adapted to his needs and capacities. For the most part their teaching conforms with the accepted doctrines and much ingenuity is shown in the suggestions as to how appliances may be improvised out of materials at hand. The field covered is a wide one, for not only are the usual subjects of laboratory diagnosis discussed but there are also sections on the technique of section cutting, performing antopsies, water analysis, the identification of poisons, etc. Of course, where the attempt is made to cover so much ground the discussion of many topics must necessarily be much abbreviated, and in the case of the chapter on the blood, for example, this is particularly noticeable. Probably few diagnoses are more often wrongly made through lack of laboratory investigation than that of malaria, so that it hardly seems fair to the beginner with budding yearnings for scientific accuracy to put him off with the terse statement concerning the plasmodium that "it is not the purpose of this book to enter into a discussion of the morphology of this microorganism.' The volume is characterized by much originality in the method of presentation and contains a great deal that will be of interest to all medical readers.

An Elementary Study of the Brain. Based on the Dissection of the Brain of the Sheep. By Eben W. Fiske, A.M., M.D. Illustrated with photographs and diagrams by the author. Price, $1.25 net. New York. The Macmillan Company, 1913.

This little book is intended by its author to serve as a laboratory manual for the student, as well as a biological study of the development of the brain in the race and in the human individual. Interest in the subject is stimulated by frequent supplementary references to function of parts, and when practicable to psychological aspects. In regard to nomenclature, the author has employed names both from the older terminology and from the Basel association. He also uses terms borrowed from the human rather than the mammalian nomenclature in most instances. The bibliography at the end of the book (only twelve references) seems rather scanty. We note, for example, no allusion to the great work of Wilder of Cornell or Obersteiner of Vienna. There are 19 figures and 14 photographs in the book. The sheep's brain was used for the dissections "because of its general availability, relative simplicity, and practical identity to that of man." The chapter headings include Phylogeny, Ontogeny, Removal of the Brain, and the Anatomical Surfaces and Sections. The subject is presented as clearly, perhaps, as can be in this way, and the author is deserving of much credit for his own original work.

Diseases of the Skin. A Handbook for Students and Practitioners. By Dr. David Walsh, M.D., Edinburgh, Senior Physician, Western Skin Hospital, London; President of the New London Dermatological Society. Price, $2.50 net. New York: William Wood & Company, 1913.

This is a very useful and practical handbook on diseases of the skin. Special allusion has been made to the relation of skin diseases to the human body generally and also to the relation of various skin diseases to the vascular system. The latter has been very much neglected by dermatologists. It is regrettable that from the present state of their knowledge it has been impossible to draw up any satisfactory scheme of classification, but the following seems to the author to be of value and one that he employs: Disorders of circulation; disorders of nerve origin; common inflammatory dermatoses; disorders of the sebaceous glands; disorders of the sudoriferous glands; disorders of the hair and nails; disorders of pigmentation; disorders of vascular origin; hypertrophic and atrophic dermatoses; new growths (neoplasms); parasitic dermatoses; certain general diseases affecting the skin. In the appendix is a description of the Wassermann test. This book will be useful as a guide to students and practitioners as well.

Causes of Death Among Woman and Child Cotton-Mill Operatives. Prepared under the direction of Chas. P. Neill, Commissioner of Labor. By Arthur R. Perry, M.D. Washington: Government Printing Office, 1912.

This is Vol. XIV of the report on condition of woman and child wage-earners in the United States. The study was undertaken to secure the most accurate information obtainable respecting the death hazard to males and females incident to work in cotton mills, as compared with the corresponding hazard among individuals of like age who are not cotton-mill operatives. The investigation disclosed the fact that in the country's largest cotton manufacturing city not even one-half of the females who had died two years or less after quitting cotton-mill work were recorded upon the official death certificates as having been cotton operatives.

Summaries of Laws Relating to the Commitment and Care of the Insane in the United States. Prepared by John Koren for the National Committee for Mental Hygiene. Price, $1.00. New York: Published by the National Committee for Mental Hygiene, 1912.

The insanity laws of the various States vary considerably from one another. Some of them seem to be very inadequate. These laws were first brought together in condensed form over twenty years ago by Clouston and published in the back of his book on Mental Diseases. The public care given to the insane in the various States is reflected in their laws in almost every case. A book of this kind, widely disseminated, is calculated to awaken public interest in the insane and in any measures undertaken for their general welfare. Hardships still exist in some States for these unfortunates, although all the up-to-date methods of treatment for persons suffering from other diseases (*e.g.* tuberculosis, diphtheria), may have been adopted by the various boards of health in the same States and put into operation. The old idea that the insane required custody only has given way to the modern conception of hospital and individual treatment. The new ideals are not reflected in the legislation of all of the States as set forth in their laws as they are stated in this useful book. The matter contained in the summaries has been gathered in each State under the following headings: Administration and Supervision; Provisions for the Care of the Insane; Commitment; Conveying Patients to the Hospital; Transfer of Patients; Parole and Discharge of Patients; Cost of Maintenance; Criminal Insane.

The Modern Treatment of Nervous and Mental Diseases. By American and British authors. Edited by William A. White, M.D., Superintendent of the Government Hospital for the Insane, Washington, D. C.; Professor of Nervous and Mental Diseases in the Georgetown University; Professor of Nervous and Mental Diseases in the George Washington University; Lecturer on Mental Diseases in the U. S. Army and U. S. Navy Medical School, Washington, D. C.; and Smith Ely Jelliffe, A.M., M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System in the Post-Graduate Medical School and Hospital; Visiting Neurologist to the City Hospital; Consulting Neurologist to the Manhattan State Hospital, New York. Vol. II. Price $6.00. Philadelphia and New York: Lea & Febiger, 1913.

The practical value of this volume is amply indicated by the wide scope of the articles composing it. These are of monographic character and embody the most recent thought and practice in neurology. These articles are as follows: The Treatment of the Neuralgias and Neuritides, by S. L. Schwab; The Treatment of Injuries to the Peripheral Nerves, by J. Sherren; The Treatment in the Muscular Atrophies and Dystrophies, by Isador Abrahamson; The Treatment of Headaches, by S. E. Jelliffe; The Treatment of Spasmodic Disorders, by H. H. Hoppe; The Treatment of the Epilepsies, by J. F. Munson; The Treatment of the Meningitides, by W. J. M. A. Maloney; The Treatment of the Syphilitic Diseases of the Nervous System, by S. E. Jelliffe; The Use of Salvarsan and Neosalvarsan in Diseases of the Nervous System, by H. J. Nichols; The Treatment of Cerebral Hemorrhage, Embolism, and Thrombosis, by F. Tilney; The Treatment of Disorders of Expression (Aphasia, Apraxia, etc.), by S. H. Kinnier Wilson; The Treatment of Stuttering, by E. W. Scripture; the Treatment of Diseases of the Cranial Nerves and Organic Lesions of the Spinal Cord, by C. K. Russell; Dseases of the Optic Thalamus, Midbrain, and Cerebellum and their Treatment, by Gordon Holmes; Paralysis Agitans and Multiple Sclerosis and Their Treatment, by C. D. Camp; The Treatment of the Toxemias of Dangerous Trades and of Drugs, by L. Casamajor; and Surgery of the Brain and Spinal Cord, by A. E. Halstead and R. T. Vaughan.

Krankheit und soziale Lage. Herausgegeben von Professor Dr. M. Mosse, Berlin. und Dr. Med. G. Tugendreich, Berlin. 4. Lieferung. Munich: J. F. Lehmanns Verlag, 1913.

This is the fourth and concluding number of this important work on disease and social condition. It contains the following articles: The governmental control of the social causes of disease, by F. Zahn and J. Kleindinst; the principles of public and private relief measures, by A. Gottstein; the influence of social laws upon the prevention, recognition and evolution of diseases, by A. Fischer; and social measures for the betterment of the future race, by W. Schallmayer. Such subjects as the prevention of child labor, factory laws, the protection of maternity and infancy, the regulation of the liquor traffic, workmen's insurance, and eugenics, are all discussed with the thoroughness and insight characteristic of German writers. In completing their work on the social aspect of disease the editors have admirably acquitted their task in making a unique and substantial contribution to medical literature.

Sterility in the Male and Female and Its Treatment. By Max Huhner, M.D., New York; Chief, Genitourinary Department, Harlem Hospital Dispensary; Attending Genitourinary Surgeon, Bellevue Hospital Out-Patient Department; and Assistant Gynecologist, Mount Sinai Hospital Dispensary, Member American Urological Association, American Medical Association; Fellow of the New York Academy of Medicine, etc. Price $2.00. New York: Rebman Company, 1913.

This book has the merit of being chiefly the report of the author's original observations on the causation and treatment of sterility. He has approached the subject with a comprehensive knowledge of what others have written about it, but he has employed new methods in its investigation and as a result has been able to contribute many important data regarding sterility in the male and in the female. As to the responsibility of the male in a sterile marriage the author lays down the rule that if the spermatozoa reach the cervical os in a normal condition the male is absolved from all responsibilities in the causation of sterility. The author states that this is the only absolute test that the male is normal. Therefore, instead of examining a condom specimen for spermatozoa it is more important to obtain a particle of mucus from the cervical os shortly after coitus, and to examine this specimen for spermatozoa. If live spermatozoa are found the husband is absolved from responsibility in the production of sterility. Other important facts brought out by the author's painstaking investigations are the following: Vaginal douches after coitus to prevent conception are not certain in accomplishing this result. If a long conical cervix is present, its amputation may enable the semen to be more easily ejaculated upon its surface. *Effluvium seminis* is not a cause of sterility, for it is only the semen that is on the cervix that causes impregnation. Alkaline douches taken before coitus are useful in certain cases of sterility and help to preserve the vitality of the spermatozoa. The importance of the author's study may be realized when it is considered that 10 per cent. of all marriages are sterile. The author has made a series of important investigations as to the influence of chemicals and secretions upon spermatozoa, and has developed a technique for performing aspiration of the testicles as a means of determining the exact condition of spermatozoa nearest to their source. He discusses the practical hopelessness of azoospermia, although the condition is sometimes improved by the treatment of the prostatic urethra. He finally presents in detail his distinctly original method of procedure in the treatment of sterility in the male and female. A full report of cases and an adequate bibliography conclude the volume. Although his literary style, as may be judged by the use of such expressions as "it cannot be emphasized too emphatically," can be greatly improved upon, there can be no doubt that the author has made an important and substantial contribution to medical literature.

The Examination of Waters and Water Supplies. By John C. Thresh, D.Sc. (Lond.); M.D. (Vic.); D.P.H. (Camb.), Medical Officer of Health, Essex County Council, etc. Second Edition. Price $5 net. Philadelphia: P. Blakiston's Son & Co., 1913.

It is gratifying that a second edition of this work has so soon been found necessary. The position of the author is such that his experience in this kind of work has been very extensive and the results as expressed in this book show that he has been able to correlate this experience and draw from it conclusions which should be of great benefit to others doing similar work. The technical portion of the book is exceptionally complete and satisfactory, but those chapters on the interpretation of results thus obtained are the ones likely to prove most valuable. It is especially good to see that the author insists upon the importance of the examination of the source of a water supply as well as the chemical and bacteriological examination of the water itself. The former is only too apt to be neglected and it is not sufficiently realized that such an examination will give information as to a liability of a water to contamination while examination of a single sample determines the character only of that sample and furnishes no guarantee for the future. The book can be highly recommended.

Society Reports.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-sixth Annual Meeting, Held at Providence, R. I., September 16, 17, and 18, 1913.

The President, Dr. Miles F. Porter, Fort Wayne, Indiana, in the Chair.

The Treatment of Puerperal Streptococcemia with Intravenous Injections of Magnesium Sulphate.—Dr. James A. Harrar of New York City stated that the use of magnesium sulphate intravenously for the treatment of puerperal infection was first proposed by Dr. R. R. Huggins in 1910. Impressed with the results obtained by Dr. Huggins and interested in any means of combating the ravages of puerperal infection, Dr. R. W. Lobenstine, upon his return from the meeting at which Dr. Huggins read his paper, tested the method at the New York Lying-In Hospital with more or less success. He effected a cure in three cases of streptococcic toxemia of the fulminating type that was so frequently fatal, and in one case of streptococcic bacteriemia. His fifth and last case, one of streptococcic toxemia, but with negative blood cultures, resulted fatally, and rather discouraged him in the efficacy of the treatment. In continuation of this work Dr. Harrar said he had employed the salt intravenously in 9 additional cases of the severer type of puerperal infection, the bacteria having been demonstrated in the blood of five. The total series of 14 cases, with complete recovery in 12, had prompted him to present fever charts as clinical evidence of the value of this adjunct to our present means of dealing with puerperal infection, especially of streptococcic origin. A 2 per cent. solution of chemically pure magnesium sulphate was prepared with freshly distilled water. This was filtered and sterilized in half liter flasks in an autoclave. This solution will not hemolyze human red blood cells, and he had found by experience that prepared in this way it would not cause any temperature reaction in the patient. Formerly a 1 per cent. solution of magnesium sulphate in physiological salt solution was employed, and a chill or sharp temperature rise frequently followed the injection. The author drew the following conclusions: 1. In the quantities and dilutions described, magnesium sulphate was absolutely harmless when administered intravenously to women suffering with puerperal infection. 2. Magnesium sulphate was of more value early in the course of the infection than after secondary localization had occurred. In the chronic cases of secondary thrombophlebitis or pyemia it did not appear to be of benefit. Its action was chiefly upon the organisms circulating in the blood. 3. It shortened the course of the bacterial toxemias in which the bacteria could not be demonstrated in the blood by culture, and anticipated the establishment of a bacteriemia, and finally it had reduced the mortality in puerperal bacteriemia, especially in streptococcemia, the most fatal form of puerperal infection, from 93 per cent. to 20 per cent.

Dr. Ross McPherson of New York said he had had very little experience with the actual treatment that Dr. Harrar had described except in watching his results. Only one case had come under his observation, which was not a true bacteriemia, and this case did very well. The results described by Dr. Harrar were nothing short of marvelous as one saw these patients improved under magnesium sulphate.

Dr. Asa B. Davis of New York said he had watched with interest, surprise and gratification the work which had been done by Dr. Harrar in the cases that had come in his service, and he could confirm what Dr. Harrar had said.

Dr. Herman E. Hayd of Buffalo thought the results obtained by Dr. Harrar with magnesium sulphate in puerperal infection ought to stimulate all members of this association to try this treatment and at some future meeting relate their experiences in regard to it.

Dr. Gordon K. Dickinson of Jersey City said we were all interested in other types of bacteriemia, and if Dr. Harrar could give us some points in the matter of pneumococcemia and the coccemias of other germs, it might instigate experimentation in different lines than those mentioned.

Dr. Budd Van Sweringen of Fort Wayne said that if it be true that the establishment of an abscess in the lung, as in this one case the doctor recited, was responsible for the cure brought about, it bore out the contention of a Frenchman who wrote upon the establishment of abscess in these conditions by the injection of turpentine into the tissues of the thigh or back or any available place. He imagined the good results reported by the author at that time were due to a biological process, perhaps the establishment of antibodies in this "fixation abscess," as he called it, and whatever the theory might be a number of cases of his own were treated in that way as well as others he had knowledge of and were followed by improvement. He had had no experience with the injection of magnesium sulphate, but he would like to know whether any of the Fellows had employed this fixation abscess method in streptococcic infections, and what results they had had with it.

Dr. Roland E. Skeel of Cleveland said that we reported our wonderful successes, but did not report our failures. These observations and investigations should be followed up until it was proven that sulphate of magnesium did what was claimed for it in puerperal infections.

Dr. Joseph H. Branham of Paltimore said that if all members of the association would carry out this method of treatment in cases of puerperal infection, in one year they would have absolute demonstration beyond a doubt of what there was in this treatment.

Dr. H. Wellington Yates of Detroit said it seemed to him the essayist attached very little importance to the toxicity of magnesium sulphate. In the report of cases he found that in each instance in which the magnesium sulphate was injected, there followed a distinct chill with rise in temperature. Therefore, magnesium sulphate should be used with care.

Dr. Edward J. Ill of Newark suggested that anyone who attempted to carry on these experiments with magnesium sulphate should not attempt to improve on the method adopted by Dr. Harrar, but wait until his paper was published, study it carefully, and then carry out the method as he had described it.

Dr. E. Gustav Zinke of Cincinnati said that this was a new method and had apparently been practiced with success, and it was our duty to take it up and determine what there was in it.

Dr. Harrar, in closing the discussion, stated that, as to the use of magnesium sulphate in other pathological conditions or infections, he had no experience with it except in one case of pneumococcic infection which occurred in the course of puerperal infection. In her case it was of no value. He did not feel prepared to make any final statement relative to the exact value of magnesium sulphate in puerperal infections, because he had not seen enough cases. However, sulphate of magnesium was certainly of value and well worthy of trial.

Lactation Atrophy of the Uterus.—Dr. Douglas H. Stewart of New York stated that with lactation atrophy the breasts either produced too much mammary extract, and the uterus wasted away as a fibroid sometimes would when powdered cow's udder was administered, or the secretion drained off in the milk, some hormone which should stimulate the circulation, nutrition and growth of the uterus after the normal or physiological atrophy of the fifth month of lactation, and the physiological process became pathological in time. In case No. 1 of his series he made the circulation right. After that lactation ceased, and growth and menstruation started at once.

Dr. Ross McPherson of New York said he had wondered after seeing the case reported by Dr. Stewart, whether the secretion which was present in her breast was not the secretion that was found in many cases of pelvic disturbance. As soon as the disturbance in the pelvis was relieved, the secretion disappeared. The condition was interesting and rather unusual. He had not before seen a case of lactation atrophy that presented such symptoms.

Dr. David Hadden of Oakland said in a case he operated on two years ago there was no lactation connected with the menstruation. The woman had a baby four years before the time he saw her, and had not menstruated. Her uterus was retroverted, and both ovaries were prolapsed. There was a deep laceration of the cervix and an ulcer. He corrected these conditions, and two months after operation she began to menstruate and had since menstruated every month, the flow being practically normal.

Dr. Hugo O. Pantzer of Indianapolis said that the paper called attention to a class of cases that were too little touched upon in medical literature. About 25 years ago he confined a woman who had all her previous life been in frail health. After being married for one year she conceived and had a child at full term. It was a forceps delivery. There were no complications incident to child bed. The child, in contrast with the mother, thrived wonderfully, and was nursed for two years. The family

were very anxious to have offspring, and the woman came to him at about the third year. He found a small atrophic uterus and complete amenorrhea of some years' standing. It was fair to associate amenorrhea and atrophy of the uterus with excessive lactation. General remedies and the use of an intrauterine stem for a period of three or four months brought back menstruation, and the patient conceived again.

A Contribution to the Serology of Pregnancy.—Dr. HENRY SCHWARZ of St. Louis said that it had been proved by the observations of many investigators that in diseased conditions of the various organs of the body, likewise in malignant disease and also during pregnancy the blood was contaminated by cell albumin from the affected organs, the malignant cells and the chorionic villi, and that the organism responded to the entrance of this blood foreign material by the mobilization of ferments which affected the intravascular digestion of these proteins. It had also been proved that such ferments were not present in the blood of normal individuals. The protoplasm differed in these various tissues. This difference could be demonstrated by biologic methods. These same methods proved that there was less difference between protoplasm from the same organs in different species than there was between the protoplasm of two different organs in the same individual. For example, there was less difference between the liver protoplasm of a dog and the liver protoplasm of a sheep than there was between the liver protoplasm of this dog and his kidney protoplasm. The protective ferments were specific. The serum of non-pregnant cancer cases would cause cleavage of cancer albumin, but not of placental albumin, and the serum from a non-cancerous pregnancy case would cause cleavage of placental albumin, but not of cancer albumin. In the department of obstetrics of the Washington University Medical School Abderhalden's biological tests were used for the differential diagnosis of pregnancy; also for the early diagnosis of malignant disease and the control of such cases after radical operation. The biological test had been applied in more than 100 cases, partly in experimentation, and in a dozen cases as an actual and much needed help in diagnosis. Petri's claim that reinjecting an individual with some of his own serum would cause the appearance of nonspecific ferments was tested by repeating the experiments. The result was absolutely negative. Petri's second claim, that adding active serum to inactivated pregnant serum would not restore the cleavage power, had already been disproved by Steising. Steising's experiment had been repeated four times, but always with positive results. In the service of the New York Lying-In Hospital and in the obstetrical service of the University of Pennsylvania and of Washington University, all toxemic and eclamptic cases were at present examined as to the degree of cleavage power of the serum. Where such power was impaired or absent the attempt was being made to correct the conditions by injecting normal pregnant serum. It was hoped that such cooperation would in due time furnish reliable information on this subject.

Abdominal Cesarean Section.—Dr. ASA B. DAVIS of New York presented the statistics with results for mother and child in the whole series of cases in which he had done this operation; likewise the indications for the operation. He described the technic of the operation by a small median incision which is made above the umbilicus.

Treatment of Placenta Prævia by Cesarean Section; When, if Ever, Is It Justifiable?—Dr. ROSS MCPHERSON of New York stated that since 1891, in the service of the New York Lying-In Hospital, there had occurred 470 cases of placenta prævia, and the operation of cesarean section had been performed for this condition 19 times by six different operators, all since 1905. The situation of the previa was central in 9 cases, marginal in 5 cases, and no statement as to situation was made in the history of 5 cases; no case was more than two fingers dilated; all had had severe hemorrhages before entrance into the hospital, and in all it was a matter of rapid delivery being considered advisable. The patients varied from Para I to Para XIV; the youngest was 18 and the oldest 38. As to the results, of the 19 cases operated upon, one mother died, a maternal mortality of 5.3 per cent., two children were still born, and 3 died before leaving the hospital, 2 on the first day, and one on the ninth, a fetal mortality of 5 or 26 per cent. He believed that the indication was clear, that when we encountered a primipara with a placenta prævia either marginal or central, or a multipara, with a central placenta prævia, in either case where the cervix was rigid or undilated, whether or not there was pelvic disproportion, provided the child was viable and the mother offered the ordinary safe operative risk, cesarean section held out a better chance of saving the lives of both mother and child with fewer complications than any other method of delivery, always provided that the operation was performed by a competent and experienced operator and amid suitable surroundings.

The Advantage of Cesarean Section Over Other Procedures in Borderline Cases.—Dr. JOHN WILSON POUTHER of Poughkeepsie reported 5 cases of cesarean section, and in all of them he used the high abdominal incision, opening the uterus *in situ* as often as it was exposed, carrying the uterine incision well over the fundus. With this incision the operation could be done through an abdominal opening about one-half the size of the lower incision, and the abdominal and uterine wounds were separated by the contraction and involution of the uterus. Another advantage was that the uterine incision was made through a part of the organ away from the larger blood vessels, and hence there was less danger of hemorrhage, and he believed also a portion of the uterus was less likely to rupture in subsequent labors. For protecting the intestines and to absorb any fluids which were likely to overflow, one or two gauze pads, six inches wide, six or eight feet long, were useful. It had been said that cesarean section had caused a considerable number of ruptured uteri. He could safely say that timely cesarean section would prevent most, if not all, ruptures.

Dr. CHARLES N. SMITH of Toledo said that he had done 23 abdominal cesarean sections. Two of these were done in the presence of placenta prævia centralis, one of them particularly for that sole indication and the other in the presence of transverse presentation in a woman who had lost 3 children previously in labor and who solicited this cesarean section. The first case was a woman, 20 years of age, who was seen at St. Vincent's Hospital, having had a profuse hemorrhage. She was a primipara, with a very small vagina, long, conical, rather firm cervix, with not much dilatation, and placenta prævia centralis. He did immediately an abdominal cesarean section and saved the mother and child. The second case was a woman, 32 years of age, on whom he did cesarean section last May. She had been confined previously at three different times, once with a transverse presentation and the others with breech presentations. In the transverse and one breech presentation, the child was delivered dead. In a third breech presentation the child lived for some few moments only. If she had a head presentation it was thought best to deliver by forceps. If she had an irregular presentation, or if there were any complications which led him to believe she could not be safely delivered of a living child, cesarean section must be done. Arrangements were made to take her to the hospital to have this operation done. She was taken with slight pains and profuse hemorrhage in the night, and he was quickly notified and called to see her. He found her with very little pain, with dilatation of about an inch, the head in the left iliac fossa, the back and occident anterior and the placenta seemingly occupying the entire lower segment of the uterus. She was breathing rather profusely, although the pains were not hard. She was taken at once to the hospital; he did a cesarean section, delivered her of a living child, and saved her life. He had in this particular case what he held to be the proper indications for cesarean section for placenta prævia and some other indications.

Dr. JAMES A. HARRAR of New York said he had had the pleasure of seeing Dr. Davis do a great many cesarean sections, and there was no operation that he did more smoothly than a cesarean section. At the New York Lying-In Hospital they all followed his technique. The speaker had operated on 23 cases by cesarean section, following Dr. Davis's incision, with perfect satisfaction.

Dr. H. G. PARTRIDGE of Providence said he had never seen a cesarean section done for placenta prævia. He had seen cases of placenta prævia that showed a long, rigid cervix, but these were very few. Practically all the cases he had seen had a soft, boggy, easily dilatable cervix, and within his own personal experience there had been no case which would have been suitable for cesarean section. Within a week they had a case in the Lying-In Hospital in Providence which was ideal for vaginal cesarean section. This operation was done, the mother being in good condition afterward, but the baby was born dead.

Dr. E. GUSTAV ZINKE of Cincinnati said there was no doubt in his mind that the majority of cases of placenta previa could be relieved successfully, both mother and child, by the Fry method or the De Lee method, by balloon dilatation or even by metal dilatation, although he had very little use for the latter. When we were able to watch these cases and had them in surroundings that were aseptic in character, we should see what we could accomplish by way of artificial dilatation and deliver *per vias naturales*, but when we had a case of placenta prævia

centralis, for instance, which was usually complicated by an oblique or transverse presentation, the tampon would do no good, and before one succeeded in dilating the uterus successfully, either by the tampon, balloon, by manual or metal dilatation, the woman was usually so exsanguinated that if she did not die during the process of delivery she would soon die after delivery, and the child, as a rule, was lost under these circumstances because it meant version of the aftercoming head. Besides, in primiparous women with these oblique presentations he would not attempt anything except a cesarean section. There were cases of marginal and lateral placenta prævia in which the hemorrhage was sometimes exceedingly difficult to control, and these were the cases in which a pathological condition pertained, in which the placenta was so implanted within the uterine wall that it had taken up much of the uterine musculature. Under normal circumstances the uterine wall was the same in every part, even under the placental site. Ordinarily the placenta did not occupy the muscularis at all, but only the serotina. In those cases the hemorrhage was not very excessive and it could usually be controlled; but when the placental tissue and villi had buried themselves into the musculature, then there was trouble in controlling the hemorrhage, and a timely cesarean section would save both mother and child, while with the other manipulations we would probably have a fatal result so far as the child was concerned, and in many instances the mother was not saved. No man had a right to make a cesarean section who was not thoroughly familiar with the technique of the operation. Every case of placenta prævia was a surgical one from the start and belonged to the hospital as truly as a case of appendicitis or any other surgical case, and there was no reason why these patients should not be sent to the hospital, even though the hospital might be ten, twenty or fifty miles away.

Rupture of the Symphysis Pubis in Labor.—Dr. Henry Enos Tuley of Louisville said that careful research showed that there was but one case in 30,000 to 60,000 births, including spontaneous and traumatic varieties. While recent writers stated that there were about 150 recorded cases in literature, these figures could not be verified, and Kayser's estimate of about 130 cases, plus those since recorded, would indicate that the more correct estimate was about 140. It might be safer to state that the estimate varied from 140 to 150. It had long been the teaching that the articulations of the pelvis became softened and relaxed during gestation on account of the secretion from the synovial membrane lining their surfaces. The extent to which this softening occurred was not stated by the authors who referred to this phenomenon. He did not think it was so great as to cause difficulty in standing or walking in very many cases, at least such a condition had never been brought to his attention. The percentage of cases of ruptures which were caused spontaneously varied much according to different authors. Complications might occur in the form of rupture of the anterior vaginal wall, rupture of the bladder, severe hemorrhage from rupture of the veins about the vestibule, or suppuration of the joint or soft parts. After reviewing the literature, he reported a case of rupture of the symphysis pubis in labor occurring under his observation.

Conditions Complicating Pregnancy, Labor and the Puerperium.—Dr. Asa B. Davis of New York reported a case of threatened abortion, third month, due to myofibroma in the posterior wall of the uterus. There was uterine pain and bleeding. Myomectomy was resorted to, with uneventful recovery. Pregnancy continued, with normal delivery at term. A second case was one of acute dilatation of the stomach, in which there was great physical exhaustion, and prolonged labor due to ventral fixation of the uterus. There was low forceps delivery, marked dilatation of the stomach. Recovery followed. The third case was one of intermittent and unilateral chyluria complicating pregnancy and the puerperium. The pregnancy at the eighth month was complicated with double pneumonia; recovery. Normal delivery occurred.

Conservatism in Operations for Acute Inflammatory Pelvic Disease.—Dr. Budd Van Sweringen of Fort Wayne said that one should not allow a large pelvic exudate or a tuboovarian abscess to remain until absorbed, as it meant chronic invalidism. Pus should be evacuated as soon as it was safe to do so. But when once inside the abdomen for this purpose it was wrong to think that all pathology present must be removed with the knife. Ample provision for drainage and the ablation of the original focus would be sufficient and would save many a tube and ovary which would result in much greater peace and happiness to the patient. Illustrative cases were reported.

The Significance of Hematuria and Its Management.—Dr. J. Garland Sherrill of Louisville stated that according to its causation hematuria was classified as (1) traumatic, including accidental injury and also the minor traumatism resulting from stones. (2) Inflammatory, including acute nephritis, chronic inflammatory affections of the kidney, tuberculosis, acute and chronic inflammation of the pelvis of the kidney, ureter, bladder, prostate, and also of the urethra. (3) Vascular, blood, dyscrasia, such as hemophilia, etc., nevi, venous obstruction of the kidney, varicosity of the vesical veins, especially that due to prostatic engorgement. (4) Chemical, in which class should be placed hemorrhages from irritating drugs, as turpentine, cantharides, etc. (5) Toxic, in which the hemorrhage was the result of vascular changes occurring in severe toxemias, such as those resulting from malaria, acute yellow atrophy of the liver, yellow fever, scurvy, etc. (6) Neoplastic. (7) Parasitic. Renal hematuria was probably the form most interesting to the surgeon. Laceration of the kidney, gunshot and stab wounds, frequently caused hemorrhage which appeared in the urine. Tuberculosis of the kidney presented in hematuria as an early symptom the amount of blood varying very greatly in different cases. In the treatment of hematuria, rest was of the greatest importance, and he advised the use of turpentine in small doses. Calculus, tumors, major traumatism, and unilateral tuberculosis would demand operative intervention.

Acute Unilateral Hematogenous Nephritis.—Dr. Curtis S. Foster of Pittsburgh stated that in the acute cases, with multiple miliary abscesses, and from which an overwhelming toxemia resulted, nephrectomy must be the operation of choice if we would save the patient's life. Of the 14 cases of this type encountered by Brewer 2 were untreated, and in 4 nephrotomy with drainage was done. They all died. The remaining 8 were treated by nephrectomy with recovery in each case. In the acute diffuse inflammation of the kidney the treatment was not so well defined and must depend more on the course of the disease in the individual case. In those cases where the areas of infarction were very numerous, to such an extent that the function of the kidney was seriously impaired, and when the toxic symptoms were very pronounced, nephrectomy should be the operation of choice. In cases where the infarcts were few in number, the toxemia was mild, and the general condition of the patient was good, splitting of the capsule with drainage of the diseased areas should be considered. Cases were on record, however, in which the symptoms had recurred after this operation and in which a subsequent nephrectomy was necessary.

The Diagnosis and Therapeutic Value of the Renal Catheter.—Dr. K. I. Sanes of Pittsburgh said that the value of the ureteral catheter in the diagnosis and treatment of urological disease was well established. It behooved us all to make use of it more frequently than it had been our custom in the past. To some of us ureteral catheterization seemed a difficult procedure; to others a dangerous one. It should be neither dangerous nor difficult in the hands of men practising surgery. Those who had catheterized many hundreds of ureters have learned not to fear infection from its use, and had gradually extended the field of its application with great satisfaction to themselves and great benefit to their patients.

Renal and Ureteral Calculi.—Dr. Henry Dawson Furniss of New York said that renal and ureteral calculi were more frequent than was generally supposed, and often existed, especially calculi, in the renal cortex for a long time without symptoms. The classical text book symptomatology of calculi was oftentimes associated with other conditions of the urinary organs. The effect upon the kidney of calculi was dependent upon the size, shape, character, and most of all the location of the stones, those in the pelvis of the kidney and the ureter causing most damage. For those calculi that could not be attacked from the vagina or bladder, the best procedure in stones that would be difficult to locate was the combined intra and extraperitoneal operation. If they could be easily found on account of their size he would prefer the extra peritoneal route. It was not necessary to close the ureter, as it healed rapidly. A cigarette drain near the ureter had best be used for 72 hours, or while there was still drainage. If the stones were to be felt through the vagina they could be removed through it; if impacted in the vesical orifice, by slitting the ureter through an operating cystoscope, or after suprapubic cystotomy, or by cautery fulguration.

Local Anesthesia in Abdominal Surgery with Cinematographic Demonstration.—Dr. Julius H. Jacobson of Toledo stated that with this method of local anesthesia he had performed 36 operations upon 28 patients, 8 of these being operated for double hernia. The operations were

as follows: 28 operations for radical cure of inguinal hernia, 3 operations for strangulated inguinal hernia with radical cure, 1 operation for radical cure of femoral hernia, 2 operations for strangulated femoral hernia, 1 operation for incarcerated umbilical hernia, 1 operation for incisional hernia, total number of operations on 28 patients, 36. Mortality nil. In only two of the earlier operations was it necessary to finish the operation under a general anesthetic. This was due to inexperience with the method. The operations were uniformly painless, without nausea or vomiting, and without the slightest toxic effect from the anesthetic solution. The sensation of the operation was described by the patients as that of a pulling or tugging on the parts. In a few instances some pain was complained of when working about the hernial sac or peritoneum. This can be overcome by a separate injection of the neck of the sac early in the operation. As the adrenalin acted as a hemostatic, there was some danger of a postoperative hematoma. It was therefore necessary to ligate all blood vessels as soon as they were divided Cinematographic demonstration showed the complete operation for inguinal hernia under local anesthesia, demonstrating the method of injection, the operation being of the Ferguson type. Motion pictures of local anesthesia of double inguinal hernia, umbilical hernia and strangulated inguinal hernia were shown.

Operative Treatment of Mammary Carcinoma, with Special Reference to the Pectoral Muscles and Auxiliary Space.—Dr. CHARLES EDWARD RUTH of Des Moines said the principal object of his paper was to eliminate all complications resulting from operations upon the mammary gland in malignancy which emptied the axillary space of everything but its vessels and nerves, and thereby exposed them to the grasp of cicatricial tissue which must fill in and close the space, and in 31 per cent. of cases caused edema of the arm, and many times intolerable pain with, in no small proportion, practical loss of function of the arm. The operative plan outlined in the paper proposed to eliminate these difficulties by the use of the distal part of the pectoral muscles sutured against the chest wall in such manner as to eliminate entirely all dead space, cicatricial formation, contraction, edema, and give a result which left little or no impairment of function in its range, and in no manner increased the danger of recurrence of the malignancy.

Diagnostic Hysterotomy.—Dr. GORDON K. DICKINSON of Jersey City stated that it was yet a question as to when hysterotomy was justifiable. He had grave doubts whether anyone could answer this question in pathological terms. One's personal pride in making a diagnosis without too much surgery should lead to a proper effort to obtain the same through a complete history, curettage, and perhaps the added opportunity of a manual examination of the uterus, but if by these means, particularly in chronic cases, one could not be positive as to the contents of the uterus or of the condition of its substance, then in his opinion hysterotomy was not only justifiable but necessary.

The Use of Iodine in Abdominal Surgery.—Dr. LOUIS FRANK of Louisville read a paper on this subject, in which he drew the following conclusions: From our work, not only experimentally, but from our clinical observations with iodine in the preparation of the field for abdominal operations, we would conclude that while it was effective as a means of sterilizing the skin it had its disadvantages. First, should the intestines come in contact with the iodine, adhesions would undoubtedly take place in the area thus exposed, due to the action of the iodine as an irritant to the peritoneum. Second, when it was used as a means of preparing the field, the utmost care should be taken to avoid such contact by protecting the field beyond the abdominal incision by means of moist pads securely fixed in place. Third, tincture of iodine, judging from experience and experiments, should never be poured into the abdomen.

Dr. JOHN W. KEEFE of Providence, R. I., read a paper on stenosis of the pylorus in infancy, and reported several cases.

Dr. ARTHUR T. JONES of Providence, R. I., reported three cases. One of these was a case of solid tumor of the parovarium, evidently originating from the Wolffian body. Case 2 was one of large sarcoma of the ovary, with a great amount of fluid in the abdominal cavity. There had been improvement in the general condition of the patient since operation. The prognosis was good for several years in this type of case. In Case No. 3 he detailed the results three years after hysterectomy in a case of sarcoma and carcinoma of the uterus.

Sudden Severe Hemorrhage Into an Ovarian Cyst Following Delivery.—Dr. WILLIAM EDGAR DARNALL of Atlantic City stated that ovarian tumors of all sorts and especially cysts, almost always produced serious trouble sooner or later, and especially during pregnancy and the puerperium. The most dangerous period was the puerperium. It was the part of wisdom, therefore, to remove them as soon as they were discovered, if possible.

Cholangitis and Pancreatic Lymphangitis.—Dr. L. W. SWOPE of Pittsburgh reported 22 cases out of a series of 2000 operations on the biliary and pancreatic systems. The clinical histories and physical signs justified the diagnosis of carcinoma of the head of the pancreas. The findings were of such a nature that differentiation from cancer was almost impossible. There was recovery with relief of symptoms after temporary or permanent drainage of the bile passages which excluded the possibility of malignancy. At autopsy on the three cases that died the postoperative and postmortem changes were so marked that the characteristic operative findings were completely altered; consequently postmortem examination had added very little to our knowledge of pancreatic lymphangitis. It was probably that the infection causing the pathologic enlargement of the head of the pancreas in these cases traveled through the lymphatics, causing lymphangitis in the pancreatic interstitial tissue. This supposition explained the improvement and cure with the subsidence of the inflammatory enlargement of the head of the pancreas which followed operation. The origin of infection was often obscure. Treatment consisted in drainage of the bile passages, temporary or permanent. The former was obtained by surface drainage of the gall bladder and common duct, the latter by anastomosing the gall bladder to the duodenum or stomach.

Observations Based on Seventy Cases of Bowel Obstruction with Special Reference to the Unusual Cases.—Dr. WALTER C. G. KIRCHNER of St. Louis reviewed his own cases of intestinal obstruction and gave an abstract of the histories of the unusual cases. Obstructions due to hernia were encountered in 47 cases, or in 10 per cent. of the hernias operated upon. Most of the cases of ileus were seen in the critical stages, and the mortality rate was 52 per cent. In the 70 cases postoperative ileus due to adhesions occurred 10 times, with a mortality of 50 per cent. The appendix was implicated in 8 per cent. of the cases. Resection of bowel was performed in 25.7 per cent. of the cases, with a mortality of 27 per cent. The intestinal obstructions which were encountered were those caused by adhesions, carcinoma, fibromyoma, intussusception, volvulus, interstitial hernia, excessive dilation of the colon, gall stone, prolapse of intestines through rupture in mesentery, prolapse of intestine through a rent in the omentum, thrombosis of the superior mesenteric artery, etc. Obstruction of the bowel was essentially a surgical condition, and the mortality rate was in direct proportion to the duration of the obstruction. Greater stress should be laid on the necessity for early operation in bowel obstruction. In the early cases of obstruction, resection might be a safe procedure, while in the critical cases primary enterostomy and later resection of bowel or repair of fecal fistula was a better course to pursue.

Cancer of the Uterus and Fibroid Tumors from a Clinical Standpoint.—Dr. EDWARD JOSEPH ILL of Newark said that from personal experience he held that fibroid tumors were not a cause of malignant degeneration of the uterus. Among 443 operative cases in his hands there was no record of any fibroid having undergone malignancy, nor was there any record among 2,600 cases recorded in his office case book of any having undergone malignancy, although many of these cases were seen repeatedly for years. The autopsy records of hospitals variously situated showed that from 4 to 8 per cent. of all women over 30 years had fibroid tumors. During the same time that the 443 operations of fibroid tumor took place he operated on 175 cases of cancer of the uterus. Five of these cases had fibroids in the uterus, 4 were cases of true carcinoma, one case, a sarcoma, had small fibroids in the posterior wall, while the sarcoma was situated in the anterior wall behind the scar of an old fixation operation. It was thus shown that all his cancer cases had but 2.8 per cent. of fibroids, which was less than the average of all women over 30 years. His deductions were that we had no right to suggest the operation for removal of fibroid tumors when possible future malignant degeneration constituted the only indication.

The Later Operative Technique in the Treatment of Cancer, with Special Reference to Cancer of the Breast and Uterus.—Dr. MAURICE I. ROSENTHAL of Fort Wayne said it was just as important that the surgeon should appreciate the high degree of infectiousness of cancerous tissue as it was that the practitioner should recognize any symptom which was significant of this disease. The radical operation had demonstrated that infiltrations and

glandular enlargements, apparently cancerous, were frequently inflammatory in character, and that cases apparently inoperable by reason of such extensions, were readily operable by this technic. As a result of this greater operability, the primary mortality following this greater technic must be considered when estimating its true value. With the exception of certain epitheliomata it was in cancer of the breast that something like a reasonable result from operative procedure for cancer was obtained. With some little changes in the technic of this operation, which he described in detail, he had obtained results which, compared with cancer in other regions, might almost be called satisfactory. We might take the technic of this operation, which embodied all that went to make up the operative technic of this disease as a technic typical for operation for cancer in other organs. In his paper he pointed out such steps in the technic as would have a tendency to make the operation more successful, and then reported a series of cases on which he had operated with the results.

Uterine Fibromyomata of the Lower Uterine Segment.—Dr. James N. West of New York reported three cases. The points of interest and instruction in these cases were so numerous that he only called attention to the following: 1. Cases of fibroid tumors of the lower uterine segment occurred with moderate frequency where operation was an immediate and urgent necessity on account of pressure upon the urethra. 2. Cases occurred where fibroids in the lower segment complicated by inflammatory conditions closely resembled malignancy, and that such cases should have the benefit of an exploratory incision. 3. A preliminary myomectomy might often allow the structure to assume a more normal anatomical relation and thus simplify operation and reduce the dangers.

Laceration of the Cervix; a Causative Factor in Salpingitis.—Dr. Francis Reder of St. Louis stated that the disclosure of a vaginal examination did not prove definitely the existence of a salpingitis, because the examining finger could not interpret correctly the pain that pervaded hypersensitive pelvic viscera. The existence of a hydrosalpinx, when sufficiently large, can usually be diagnosticated by palpation without difficulty, whereas a tube that was slightly or not at all distended with fluid would present its difficulties. In a woman who had given birth to children the most frequent lesion that could be directly attributed to childbirth was a laceration of the cervix. It was a trauma whose importance had been not only too often disregarded, but it had also been underestimated. If the tear was a superficial one, it would most likely heal completely in a short time. If, however, the laceration was a deep and perhaps extensive one, it would not heal. Eversion of the traumatized lips of the cervix would take place, and a chronic inflammatory process with its sequelæ would become established. That lacerations of the cervix were the most common atria for infection of the tubes was evidenced by the frequency with which this pathology was encountered during operation. Not only was the infective material carried by the cervical lymphatics to the tubal structures, but it was also deposited into the cellular tissues of the broad ligaments. The necessary surgical measure for relief consisted in freeing the fimbriated end of the tube, turning back the mucosa and suturing it. Of equal importance was the obliteration of the primary focus by plastic repair of the lacerated cervix. The source inviting microbic inflammation having been removed, infective material would no longer find routes of transmission to the tubes. Freedom from these continued bacterial assaults would gradually permit the tube to return to a normal or almost normal state, with the possibility that the patient might again become pregnant.

Notes on Adventitious Tissues of the Abdominal Cavity.—Dr. Robert T. Morris of New York said that the Lane kink, Jackson's membrane, cobwebs of the attic, and other adventitious tissues of the abdomen depended upon hyperplasia of embryonic structures already present. The hyperplastic change was brought about by toxic as well as mechanical influences. These tissues were to be differentiated from the adhesions dependent upon toxic injury of endothelial structures. A simplified operation for short circuiting the bowel was described.

Gallstone Surgery.—Dr. Joseph H. Branham of Baltimore reported 7 cases, two of which showed the danger of long continued gall stone diseases as causing carcinoma. The cases demanded cholecystectomy. In case where the gall bladder was not hopelessly diseased, and where there was no stricture, he had done cholecystostemy. These cases had recovered and usually had remained well. One of his cases had a fistula of long duration which failed to yield to the usual treatment. She fell into the hands of another physician who closed the fistula with electrocautery. He found the same thing effectual in another case after other methods had failed. He was persuaded that the gall bladder would be removed more frequently in the future than in the past. The Mayos, who, on account of their enormous experience and wonderful success in these conditions, had done much towards making cholecystotomy the operation of choice. They pointed to the slightly greater mortality of cholecystectomy. This might be accounted for by the graver conditions in which it had been done. They also pointed out that the gall bladder was too small to act as a reservoir, but that probably its function was to relieve tension during the height of liver secretion, and thus prevent regurgitation of bile into the pancreatic duct. This was an ingenious theory, yet many animals got on without this organ. Was it not more probable that the small inadequate gall bladder of man, with its poorly developed coats, was a disappearing organ, physiologically as well as pathologically, very like the appendix?

A Review of the Plastic Methods of Closing the Incisional Herniæ.—Dr. Lewis Frederick Smead of Toledo stated that the earliest operations for ventral hernia closed the ring without incising even the skin. Later all useless tissue down to the peritoneum was removed and the edges of the ring alone drawn together. Still later the edges of the ring were inverted and the anterior surface of the fascia approximated. Following this, the rectus sheath was opened and the abdominal wall closed in layers. Omphalectomy was not generally used until after 1888, and the lateral method of approaching the hernial ring was suggested in 1891. Numerous plastic methods of using the fascia and muscle to close the rupture were devised, but the principle of overlapping from above downward had displaced most of them. Tension sutures were used, the hernial ring was attached from within the abdomen, and numerous foreign materials inserted to close the opening, and many important general principles were laid down. At present the closure in layers or the Mayo operation was used in small hernias, but in the larger ones, if some plastic device was not practicable, we relied upon the filigree. The transplantation of fascia might take the place of the filigree in time and was at present a valuable means of reinforcing doubtful suture lines.

Papers were also read by the following members: "Fibroma Cardia in a Girl of Eighteen; Gastrostomy and Enucleation," by Dr. John F. Erdmann, New York City; "Appendicitis in Young Women," by Dr. H. S. Lott, Winston, S. C.; "A Seven Pound Ovarian Tumor That Developed in Nine Days," by Dr. J. H. Carstens, Detroit, Michigan; "Omentocolopexy," by Dr. H. W. Longyear, Detroit, Michigan.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. Charles N. Smith, Toledo, Ohio; *First Vice-President*, Dr. Hugo O. Pantzer, Indianapolis, Indiana; *Second Vice-President*, Dr. J. H. Branham, Baltimore, Maryland; *Secretary*, Dr. E. Gustav Zinke, Cincinnati, Ohio, reelected; *Treasurer*, Dr. Herman E. Hayd, Buffalo, New York, reelected.

Buffalo, New York, was selected as the place for holding the next annual meeting.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Oklahoma State Board of Medical Examiners.

April, 1913.

(*Concluded from page* 644.)

OBSTETRICS AND HYGIENE.

1. When do you use ergot in obstetrical practice, and for what purpose?

2. Give in their order the three most common presentations.

3. How long can the child live before delivery with the placental circulation cut off? What precautions should be used to prevent compression of the cord in breech presentation?

4. What symptoms would cause you to suspect a rupture of the uterus? How would you manage a case?

5. What are the stages of labor?

6. Define abortion, miscarriage, premature labor.

7. Define puerperal septicemia. Give diagnosis and treatment.

8. What precautions would you use to prevent inflamma-

tion of the mammary glands? Give in detail your treatment of mammary abscess.

9. Give instructions for the prevention of the spreading of typhoid.

10. Is cerebrospinal meningitis contagious? If so, how are the germs conveyed?

GYNECOLOGY.

1. Differentiate fibroid, pregnancy, ascites, fat.
2. Diagnose and treat tuberculous endometritis.
3. Give indications for and technique of operation for amputation of cervix.
4. Give indications for and technique of trachelorrhaphy.
5. Make diagram showing relation of uterus, tubes, ovaries, vagina, bladder, and rectum.
6. Differentiate pudendal hernia, abscess of Bartholin's gland, and tumor of labia.
7. Describe venereal warts. Give etiology and treatment.
8. Vulvitis. Give etiology and treatment.
9. Give indications for knee-chest posture in office treatment.
10. Give indications for use of hot vaginal douche.

SURGERY.

1. What are the varieties of ankylosis?
2. Give symptoms and treatment of fractures of the nasal bones.
and describe a method of treatment.
3. State the most common seat of fracture of the clavicle
4. Describe the treatment for fracture of lower end of the humerus.
5. Describe a modified circular amputation of the leg.
6. What are the indications for excision of the knee joint?
7. How are wounds classified?
8. Give a full description of the operation for thyroidectomy.
9. Give the indications for the removal of the mammary gland.
10. Describe an operation for circumcision.

ANSWERS.

OBSTETRICS AND HYGIENE.

1. *Ergot* is used sometimes after the birth of the head, and during the third stage of labor, to induce uterine contractions, to prevent hemorrhages; also sometimes used in amenorrhea due to plethora.

2. The vertex is the most common presentation; next to this is the breech; the third in order of frequency is either the face or the shoulder.

3. About five to eight minutes may be considered the time a child can live before delivery with the placental circulation cut off. When the trunk is delivered a loop of the cord should be placed toward that part of the pelvis where it will be least liable to pressure.

4. RUPTURE OF THE UTERUS. "When rupture actually occurs the typical symptoms are a sudden, sharp pain in the womb (caused by its tearing), sometimes accompanied by an audible noise; sudden and simultaneous cessation of labor pains; a sensation as if warm fluid (really blood) were being diffused into the abdomen; violent shock and collapse, indicated by pallor, feeble and frequent pulse, cold extremities, fainting, hurried respiration, vomiting, etc. (usually due to hemorrhage into the peritoneal cavity). On vaginal examination the presenting part of the child is found to have receded from its former situation, owing to partial or complete escape of the fetus through the rent into the abdominal cavity, where, by abdominal palpation it may be felt as an irregular-shaped, movable tumor, more or less distinct from another tumor formed by the partially contracted uterus. Blood may or may not escape from the vagina. A loop of intestine may prolapse through the rent and be found by vaginal examination."

Treatment: "After rupture has occurred, especially if it be 'complete' and extensive, and the child should have escaped, wholly or in great part, through the rent into the abdominal cavity, laparotomy should be done at once, child, placenta, blood clots, etc., being removed through the abdominal incision; the peritoneal cavity cleansed with hot saline solution; the rent in the uterus repaired by suture; or in case of an infected uterus, or one that will not contract, or in which the rupture cannot be well secured, the entire uterus should be removed." (King's *Obstetrics.*)

5. *Labor* is divided into three stages: The *first stage* begins with the commencement of labor, and ends with the complete dilatation of the os uteri. The *second stage* begins with a complete dilatation of the os uteri, and ends with the birth of the child. The *third step* immediately follows the second, and ends with the expulsion of the placenta and the beginning contraction of the uterus.

6. *Abortion* is delivery of the product of conception before the twelfth week.

Miscorriage is delivery of the product of conception between the twelfth and twenty-eighth weeks.

Premature labor is delivery of the fetus between the twenty-eighth week and full term.

7. *Puerperal septicemia* is septic intoxication with the presence of living pyogenic bacteria in the blood occurring during the puerperium. *Symptoms:* Chill; rapid rise in temperature, to about 103° or 104°, higher in the evening than in the morning; sweats; rapid pulse; depression; dry tongue; anorexia; carphologia; scanty, high-colored, albuminous urine; restlessness; sometimes delirium or coma. The uterus is large, and tender; the lochia are diminished or suppressed; the milk secretion is often suppressed; pain in the abdomen; peritonitis may develop. *Treatment:* Prophylaxis is of the greatest importance. Purgatives; vaginal douches; some recommend curettage, others decry it; the introduction of antiseptics into the uterus; supportive and general treatment are indicated; specific sera and vaccines have been recommended by some.

8. As mastitis is due to infection, the glands should be handled as little as possible, and only with clean hands; pressure should be avoided; the breast and nipple should be kept dry; engorgement should be prevented, if possible. Nursing from the affected breast should be stopped; salines should be administered; pressure, combined with hot fomentations may be employed; if suppuration occurs, incision with drainage is indicated.

9. *Typhoid fever* is preventable. All water for drinking or for washing dishes, etc., and milk should be boiled; no ice should be put in water or other drink or food; flies should be kept out of the house; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over.

10. "Precisely how the contagion is transferred from an infected person to a healthy one is not known, but the disease is probably contagious." (Anders' *Practice of Medicine,* 1911.) "The disease is not highly contagious, and is probably not transmitted by clothing or the excretions." (Osler's *Practice of Medicine,* 1912.)

GYNECOLOGY.

1. *Pregnancy:* The tumor is hard and does not fluctuate, is situated in the median line, and may give fetal heart sounds and movements; the cervix is soft, and the other signs of pregnancy are present. The rate of growth of the tumor and the general condition of the patient's health may also help in arriving at a diagnosis.

Uterine fibroid: Menstruation is irregular and sometimes very profuse; absence of the signs of pregnancy; the tumor is nodular, firm, irregular in outline, and while generally placed somewhat centrally is not in the median line, and is not symmetrical; the rate of growth is irregular, being, as a rule, slow, and sometimes extending over years.

Ascites: Absence of the signs of pregnancy; the abdomen is distended, but the shape varies with the position of the patient; on lying down there is bulging at the sides, the tumor fluctuates, and percussion shows dullness in the flanks, with resonance in the median line, but the dullness varies with the position of the patient.

Fat: The signs of pregnancy are absent; there are none of the signs of ascites or fibroids.

2. *Tuberculous endometritis:* "Tuberculosis of the uterus has produced symptoms and physical signs something like those of cancer of the uterus, viz., discharge, hemorrhage, wasting, with enlargement of the uterus, expansion of its cavity, and roughening of its interior. Advanced tuberculosis of the uterus has been always associated with tuberculous disease elsewhere. The uterus has been fixed, and the patient has been cachectic. Operative removal of the diseased pelvic organs has been useless as well as dangerous. The disease, in its early stages, causes no symptoms. The diagnosis is to be made by finding tubercle bacilli in the discharge. *Treatment:* If primary tuberculous disease of the uterus is found out

before the disease has infected any other part of the body the treatment is to remove the uterus and Fallopian tubes. As yet this has not been done often enough to justify any broad statement as to the result." (Herman's *Handbook of Gynecology.*)

3. *Amputation of the cervix* is indicated in cases of elongated cervix and cancer of the cervix. *Operation:* "The cervix is thoroughly exposed by the introduction of the bill of a large speculum; with the sound the operator determines the position of the cervical canal and estimates the mobility of the uterus; by means of the vesical sound the precise relation of the bladder to the cervix is ascertained. The cervix is firmly grasped with a stout volsella and drawn down; with a scalpel the surgeon transversely divides the mucous membrane on the anterior wall of the cervix as high up as the bladder permits; the assistant keeps him informed of the position of the bladder by retaining the sound in the lowest part of the vesical cavity. Having divided the mucous membrane, the bladder is easily detached from the cervix by the handle of the scalpel. The knife is then carried through the mucous membrane on the sides and posterior aspect of the cervix. The next step is to secure the uterine arteries as they run to the sides of the cervix near the spot where the vaginal mucous membrane is reflected on to it. When the bladder is detached and held apart from the cervix by a retractor, while the cervix is drawn down by the volsella, the artery may be seen, and is easily secured. It is well to secure it as close to the center as possible in order to avoid the ureter. Having secured the artery on each side, the cervix may be amputated with a scalpel or with scissors. When the uterine arteries are deliberately exposed and secured there is no bleeding from the stump, but a small artery here and there in the cut edge of the vaginal mucous membrane may require to be seized or ligatured. The vagina is then douched and the patient returned to bed." (Sutton and Giles' *Diseases of Women.*)

4. Trachelorrhaphy. *Indications:* Laceration of cervix uteri; particularly when followed by subinvolution of uterus, by eversion and hypertrophy of cervix, by infection, by Nabothian cysts, by menorrhagia, leucorrhea, backache, and reflex nervous disturbances.

Operation: "The patient is anesthetized and placed in the lithotomy position, and the cervix well exposed by a speculum. The vagina is thoroughly disinfected by douching and swabbing, and dilatation and curetting are then carried out when necessary. After this the anterior lip of the cervix is seized with a volsella, and the reversible tenacula forceps introduced exactly in the middle line and the points separated. The volsella is then removed. By means of scalpel and forceps two flaps are now dissected off the exposed surface, taking care to leave a narrow strip of mucous membrane in the middle line, which will form the lining for the new cervical canal when the lips are approximated. While the surfaces are being vivified there is usually free oozing; this is useful, as it serves to deplete the cervix and diminish its volume. In many cases before operation the bulky, everted lips look as if they could not come together, yet, after depletion brought about by dissection, they can be approximated with ease. When the flaps have been dissected off, the tenacula forceps are removed, the lips of the cervix are allowed to fall together, and the forceps are then reapplied in such a way as to hold them in apposition. Care must be taken to secure the cervix in the middle line. A curved needle is used to introduce the sutures: the best material is silkworm gut, and, if secured by means of shot and coil, their subsequent removal is greatly facilitated. Three or four sutures should be placed on each side, and those nearest the middle line should be about one centimeter apart. The tenacula forceps are now removed and a sound is passed into the uterus, to make sure that the cervical canal is free. The parts are then carefully dried, and the vagina lightly packed with iodoform gauze."

6. *Pudendal hernia* gives tumor with pulsation or coughing, and is possibly capable of reduction.

Abscess of Bartholin's gland gives local redness, swelling, pain, heat, and febrile symptoms.

Tumor of labia gives swelling, without the other symptoms mentioned above.

7. Venereal warts. "They grow very rapidly and attain to the size of a fist or even larger. The warts are single or multiple, pedunculated or sessile, and in some cases they form large masses of excrescences resembling cauliflowers, cockscombs, bunches of grapes, or mulberries. Their color depends upon the vascularity of the growth and the condition of the epidermis. If the epidermis is present and the surface is dry, their color is the same as that of the surrounding skin or mucous membrane; but if the warts are more vascular than normal and the epidermis is removed by friction or maceration, they are of a deep red or purple hue, and the secretions are purulent, offensive, and highly irritating. Condylomata are situated on any part of the vulva, around the anus, on the inner surface of the thighs, and also on the vaginal wall. *Causes:* Venereal warts are due to irritating discharges, want of cleanliness, and the congestion and leucorrhea of pregnancy." *Treatment:* Excision of wart by curved scissors, followed by cauterization; application of calomel and salicylic acid; cleanliness; douches; and tonics. (From Ashton's *Gynecology.*)

8. Vulvitis. *Etiology:* Gonorrhea, dirt, obesity, pessaries, or other foreign bodies, vaginal fistulæ, irritating urine, excessive coitus or masturbation, syphilis, chancroids. *Treatment:* Where possible, remove the cause; rest; cleanliness; mild alkaline douches; antiseptic solutions; salines; anodynes.

9. *Knee-chest posture* is employed (in office treatment) for the replacement of a retroverted uterus, or of a prolapsed uterus or appendage; or for insertion of tampons in the vagina.

10. *Hot vaginal douche is indicated:* In chronic pelvic inflammations; in uterine hemorrhage; for cleanliness. In obstetrical practice, a hot vaginal douche is given: (1) By some practitioners, as a routine treatment after every case of labor; (2) by others only when there have been repeated vaginal examinations, or (3) in case of foul lochia; (4) when there has been some operative procedure; (5) in case of sepsis.

SURGERY.

1. *Ankylosis* is (1) true or bony; (3) false or fibrous.

2. Fracture of nasal bones. *Symptoms:* Displaced or flattened nose, which is soon marked by swelling; crepitus may be present; nose breathing is difficult; emphysema and epistaxis may be present. *Treatment:* External pressure aided by padded forceps in the nostrils; plugging of the nostrils; a moulded gutta-percha splint fixed over the nose by a bandage; sometimes a Mason pin is required.

3. The most common seat of fracture of the clavicle is just external to the middle, at the junction of the two curves.

Sayre's method for fractured clavicle: "Sayre's dressing consists of two strips of adhesive plaster three and a half inches wide and two yards in length. The first strip is looped around the arm just below the axillary margin and is pinned or sewed with the loop sufficiently open not to constrict the arm. The arm is then drawn downward and backward until the clavicular portion of the pectoralis major muscle is put sufficiently upon the stretch to overcome the action of the sternocleidomastoid muscle, and in this way draws the sternal fragment of the clavicle down to its place. The strip of plaster is then carried completely around the body and pinned or stitched to itself on the back. The second strip is next applied, commencing on the front of the shoulder of the sound side; thence it is carried over the top of the shoulder diagonally across the back, under the elbow, diagonally across the front of the chest to the point of starting, where it is secured by pinning or sewing. A slit is made in this strip to receive the point of the elbow. Before the elbow is secured by the plaster it should be pressed well forward and inward." (Wharton's *Minor Surgery and Bandaging.*)

4. *Treatment of supracondyloid fracture at the lower end of the humerus:* "The supracondylar fracture is reduced by first extending the elbow to free the lower fragment from the triceps, and then, while making traction through the forearm, manipulating the fragments into position, and finally flexing the elbow to an acute angle and supinating the forearm. In this way the triceps is put upon the stretch and forms a natural posterior splint. A layer of wadding is placed in the bend of the elbow to separate the opposed skin surfaces, the elbow fixed in this position by means of a figure-of-eight bandage, and the arm placed in a sling so arranged as to support the elbow. According to Robert Jones this position should be maintained for four or five weeks, the part being examined periodically to make sure that the bones remain in position. Movement and massage should then be begun. Except in compound injuries operative treatment is rarely called for in recent cases." (Thomson and Miles' *Surgery.*)

5. *Modified circular amputation of the leg:* "Cut semilunar skin-flaps, lay them back, and cut circularly to the bone at the edge of the turned-up flap. Another method of modified circular amputation is by adding to the circular cut a vertical incision down the front of the leg.

In sawing the bones of the leg the surgeon, who stands to the outer side of the right leg or to the inner side of the left leg, divides the fibula first, and at a higher level than the tibia, and bevels the anterior surface of the tibia. In sawing the left fibula the saw points to the floor; in sawing the right fibula it points to the ceiling." (Da Costa's *Surgery.*)

6. *Indications for excision of the knee-joint:* Tuberculosis of the knee, some compound fractures and compound dislocations, and in some forms of ankylosis.

7. *Wounds are classified,* as:

I. Contused and open wounds.

II. Open wounds may be: Incised, lacerated, contused, punctured, gunshot, or poisoned; also penetrating and perforating.

III. Aseptic and septic.

8. *Partial thyroidectomy* is conducted as follows: An incision is made over the most prominent part of the tumor, either along the lower third of the anterior border of the sternomastoid, or transversely across the neck in order that the scar may be less visible. The platysma and deep fascia are divided, and the sternomastoid, sternohyoid, sternothyroid, and omohyoid drawn aside, or, if need be, divided. The lobe to be removed is thus exposed within its capsule, which should not be opened. The limits of the mass are defined by the finger or a blunt dissector, and the vessels entering or leaving it are secured. The superior thyroid vessels are doubly ligatured and divided at the upper end of the growth, the middle thyroid vein is secured at the middle of its outer border, while the inferior thyroid vessels are dealt with below, special care being taken to avoid the inferior or recurrent laryngeal nerve by tying the vessels as near to the gland as possible. The lobe is now freed from the underlying structures, as also, if need be, the isthmus from the trachea. In detaching the latter, the surgeon must not forget that the cartilaginous rings may have been absorbed, and that the walls of the trachea, being then merely fibrous in nature, are easily wounded. The isthmus is divided, and any bleeding vessels secured; or, if necessary, it may be ligatured before division. The wound is closed by buried sutures for muscles and fasciæ, and a Halstead's intradermic stitch for the skin. A drainage tube may be required for twenty-four hours, as it is difficult to employ much pressure on the neck. Healing by first intention should be the invariable result, and the scar almost invisible." (Rose and Carless' *Surgery.*)

9. *Indications for removal of mammary gland:* Enormous hypertrophy, Paget's disease of the nipple, epithelioma of the nipple, carcinoma, sarcoma, cystic adenoma, diffuse tuberculous or septic disease if breast is riddled with sinuses.

10. "*Circumcision* is performed by drawing the prepuce forward and then enclosing it in a pair of clamp-forceps placed obliquely just in front of the glans. The prepuce is next divided with a straight bistoury, and the forceps removed, when the skin and mucous membrane retract. The mucous membrane, if adherent, is dissected loose from the glans; if redundant, it is trimmed with scissors to make it correspond to the line of skin incision; the cut edge of the mucous membrane is next fastened to the cut edge of the skin by a few sutures of silk or catgut." (Wharton's *Minor Surgery.*)

Paroxysmal Cough from Irritation of Chorda Tympani Nerve by a Spicule of Steel.—J. Donelan reports the case of a man, aged 45, who some days after visiting the engineering works of a railway company was attacked by a violent fit of coughing with a feeling of discomfort along the left side of the tongue. This symptom constantly recurred on apparently no provocation from any ascertainable cause for two years. His larynx, except for a general hyperemia, probably due to the cough, was normal. Nothing could be found in the cervical or thoracic regions that accounted for it. He had been repeatedly examined by various medical authorities. The author made a similar examination without result until he inspected the ears as part of a routine method. The right ear, meatus and tympanum were normal. So were the left, except for a tiny black spot with a reddish areola around it. This was situated just behind the malleus at exactly the spot where the chorda tympani nerve crosses it. Cocaine was applied, and a small spicule of steel about 3 millimeters long was extracted. The patient had a most violent fit of coughing then, but according to the last report of the attending physcian a few months ago he has had no further return of his trouble.—*Proceedings of the Royal Society of Medicine.*

Therapeutic Hints.

The Treatment of Whooping Cough.—Althoff recommends the following mixtures:

℞ Infusion of ipecac root, 0.3 gram in 170 c.c. of water.
Antipyrin,
Sodium bromide, of each, 2 grams.
Heroin hydrochloride, 0.01 gram.
Syrup of althea, ad 200 grams.

M. et S.: One teaspoonful to one-half a tablespoonful every three hours, according to the age of the child.

℞ Antipyrin,
Sodium bromide, of each, 2 grams.
Heroin hydrochloride, 0.006 to 0.01 gram.
Distilled water, ad 100 c.c.

M. et S.: One teaspoonful to one-half a tablespoonful, in milk, every two or three hours, according to the age of the child.

℞ Aristochin, 0.05 to 0.1 gram.
Milk sugar, 0.5 gram.

This dose is to be given in powder form three times a day to a child less than one year of age. In older children the dose of aristochin may be as large as 0.3 gram.

Intravenous Injections of Ergotin in the Treatment of Hemoptysis.—M. Garmagnano first determines the patient's blood pressure. If this is less than 110 he gives an intravenous injection of 0.50 gram of ergotin dissolved in 1 c.c. of distilled water. If the blood pressure is higher than 110 there is injected in addition 0.001 gram of morphine hydrochloride. A few minutes after the administration the cough and hemoptysis cease.—*La Riforma Medica.*

Chloroform as a Vermifuge.—The following is an old prescription for tapeworm:

℞ Chloroform, 4 grams.
Castor oil, 20 grams.
Gum arabic, 10 grams.
Orange-flower water, 20 grams.
Distilled water q. s. ad 150 c.c.

This should be taken in four portions at half-hour intervals.

The Treatment of Phthiriasis Complicated with Impetigo in the Child.—One of the many parasiticides may be used. None is better than a mixture of equal parts of olive oil and kerosene oil, applied at night and washed off with soap the next morning. If the parasites are particularly numerous Sabouraud recommends the following:

℞ Pure vaseline, 50 grams.
Pure xylol, 100 drops.

If the pediculosis itself has been controlled one may then treat the impetigo with one of the following ointments:

℞ Subacetate of lead, 1 gram.
Vaseline, 30 grams.

℞ Powdered camphor, 0.50 gram.
Powdered boric acid, 1 gram.
Zinc oxide, 6 grams.
Lanoline, 6 grams.
Vaseline, 10 grams.

℞ Yellow oxide of mercury, 2 grams.
Zinc oxide,
Lanoline,
Vaseline, āā 8 grams.

℞ Zinc oxide, 2 grams.
Calomel, 0.20 gram.
Vaseline, 20 grams.

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Original Articles.

A CASE OF PSEUDOBULBAR PARALYSIS.

PRESENTING FACIAL SPASTIC MOVEMENTS SIMULATING LAUGHTER.

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THE accompanying cuts depict with some fidelity a condition that I do not remember to have seen described in any American journal. The clinical description of the case is as follows:

R. H., aged sixty-four years, a blacksmith, three years ago fell while sitting in a chair. He says he did not become unconscious. Following this single apoplectic attack he could not use his left arm and leg; speech disturbances were present; also, the facial spasms hereinafter detailed. Attempts to obtain many particulars of the anamnesis were abandoned for several reasons. H. replies only to the simplest questions; it is difficult to understand what he says; and, finally, the physical examination suffices to develop the material facts. Physical examination: The patient is tall and of large frame. The extremities are thin, the skin dry and below both knees eczematous. He has never had smallpox. A number of circular and oval scars symmetrically rounded suggests a sometime syphilitic infection. This is confirmed by a positive Wassermann. Face: The expression in repose is intelligent, showing at this time only the imprint of a left hemiplegia. The ocular bulbs can be moved in all directions. The pupils react to light and to accommodation, although sluggishly. No hemianopsia. The skin of the forehead can be wrinkled and the eyes forcibly closed, but the left eyebrow and lids are at a lower level than on the right side; also, the mouth droops and the lower lip is noticeably turned out on the left side. The nasolabial fold is more pronounced on the paralyzed side. When requested, the teeth are shown. At this time when the mouth is volitionally widened the left side lags. The lower jaw can be drawn from side to side. The tongue can barely be extended beyond the teeth but has adequate range in a side-to-side movement. On the left side, half an inch from the tip, the tongue is deeply notched. When the chin is tapped on the right side a marked jaw jerk is elicited; a like reflex is absent on the left. Deglutition is not affected. Speech and mental state: Only very simple questions are replied to, *i.e.* "how are you," "do you feel well, "does anything hurt you," etc.? Even so, interrogation may need to be repeated several times. The answer when obtained shows H. has heard the question. Nevertheless hearing is poor. Ticking of a watch can be heard when the latter is held close to the left ear; not at all on the right side. Many times the patient merely stares inquiringly when addressed. Repetition of an unanswered question is apt to bring on the characteristic facial spasm. The quality of articulation varies greatly according to conditions. If requested to pronounce monosyllables (*i.e.* concentration of effort upon separate speech elements), it is done with considerable distinctness. But voluntary conversation is at all times tardily attempted and results in language almost or entirely unintelligible. Yet the words he attempts to utter are appropriate to his thought. For instance, he repeated again and again "sick three years" before I could guess what he wished to say. I then asked him to say "three years," which he did, not perfectly, yet sufficiently distinctly to be comprehended at once. Each syllable is enunciated by means of a separate expiratory effort. Often instead of a word an expiratory grunt results. His speech which a year ago was thick, muffled, of nasal quality and monotonous, today shows further loss of modulation and steady progress toward complete loss of capacity to utter articulate sound. H. can read simple script and print, writes simple words upon dictation, and reads what he has written. Errors in spelling tending to phonetization may be made, for instance, knife is written "nife." Spastic movements symbolizing laughter. These are initiated by various sensory impressions. After a few questions are addressed to the patient, particularly some reminding him of his infirmity, or when the inquiring facies show his attempt to comprehend the question and frame a reply, or again, at times if one merely looks at H. intently the ends of the mouth turn upward as in a smile, then as the spasm increases in intensity the month is widened and partly opened, the eyes are narrowed and fill with tears. The face becomes markedly reddened, the wrinkled forehead more deeply furrowed while its engorged veins stand out plainly. During the paroxysm, the drooping left side of the mouth, which ordinarily permits some drooling, is drawn up and widened as on the right side and the relaxed left lower eyelid (Fig. 1) is contracted and raised as its fellow (Figs. 2 and 3). The muscle play of each paroxysm

FIG. 1.

is of ten to fifteen seconds' duration, progresses regularly from slight to intense contraction at the height of the spasm, followed by as gradual a decline. The paroxysm ended, the face loses its congested appearance. Often a single weak, moist cough supervenes. The facies for a few moments is lachrymose and depressed, expressing, it would seem, helplessness to prevent the recurring attack. Instead of this analysis of sequence, one may say that during each spasm the patient acts as one who laughs so hard that he cries. Upper extremities: H. is right handed. He has full use of the right arm; none at all of the left. The latter shows posthemiplegic contraction. Tendon reflexes are increased on the right and greatly exaggerated on the left side. Pin pricks are everywhere felt, but an attempt to take note of sensory discrimination was abandoned. Questions as to touch experienced elicits the usual spasm, but pin pricks alone do so likewise. Thus we note that spastic response may be as readily initiated by general sensory percepts as by those of special sense. Examination of the chest and abdomen is negative. The abdominal skin reflex cannot be elicited. Dribbling of urine is constant and frequent slight incontinence of the bowel occurs. Lower extremities: The legs are noticeably thin. Slight movement in

the left shows partial recovery from complete hemiplegia of that side. The right leg, too, is moved very stiffly. Cremaster reflexes absent; knee jerks are exaggerated, greatly so on the left side. Babinski phenomenon absent on both sides. Slight extension of the proximal phalanx of the left toe, *i.e.* a beginning hammer toe.

Fig. 2.

To summarize, three years after a single apoplectic attack, a patient presents a left hemiplegia, with paresis of the right leg evident as well. In repose and upon volition, the effect of a left hemiplegia is noted in the lower facial muscles. The tongue, lips, soft palate, and vocal cords, too, are paretic. But facial muscles paretic in respect to volitional effort contract normally when symbolizing an emotion, *i.e.*, in movements depicting laughter. Such contraction, however, is purely spasmodic and occurs without appropriate feeling tone.

Disturbances of phonation bulbar in character appearing immediately subsequent to an apoplectic attack make plain their cortical origin, *i.e.* the case is one of pseudobulbar paralysis. Nevertheless, some nuclear degeneration coexists, as is proven by atrophy of the tongue, muscular relaxation and turning out of the lips, absence of the jaw jerk, and more prominent nasolabial fold (overaction of the zygomatici), all on the left side. This is, therefore, a mixed case such as the pathological findings of Oppenheim show are not infrequent. The etiology of pseudobulbar paralysis is now well recognized. Somewhere in their course from cortex to bulbar nuclei the pyramidal fibers are involved practically always through multiple lesions. Thus is explained how various observers, through many years, found typically bulbar symptoms associated with disease now of the cortex, in other cases at varying levels of the subcortical white substance, of the basal ganglia and finally of motor fiber below the latter, yet supranuclear. An interesting chapter of neurology is that which records these initial findings, but it is not my intention to discuss them or the resulting clinical picture in its entirety. My purpose is to call attention to a few facts concerning a single symptom, the type of recurring spasm which the above case presents.

First, a few words as to terminology. Forced laughing and crying or spastic laughing and crying, the terms used by Continental writers to designate the facial spasm under discussion, is obviously a misnomer because both laughing and crying refer to facial movement inspired and accompanied by appropriate emotions. Nevertheless, I have adhered to the usual terminology in the text so as not to lengthen nomenclature already sufficiently unwieldy. In the title of this paper, however, a more correct designation of the facial spasm, as I believe, has been used, *i.e.* facial spastic movements symbolizing laughter.*

Regarding the classification of cases, individual instances have been described as either spastic laughing or spastic crying, or as mixed cases presenting both phenomena. I speak of my case as only symbolizing laughter because at the beginning of the convulsive movement the corners of the mouth turn up (Fig. 2) and because they are likewise seen to be upturned just before the spasm ceases.† At the height of the seizure (Figs. 5 and 6) the mouth continues upturned and yet distress is pictured in the eyes. I believe the appearance of distress is real and inspired by inability to prevent the annoying spasm. But we need remember that expression of the eyes is not discriminating even at the acme of normal facial contraction during the act of laughing or crying. For instance, the twinkle of the eye is an initiatory, emotional movement that accompanies the smile, while on the other hand, tears characterize sadness only when they are associated with the beginnings of muscle play depicting sorrow. Again, were we compelled to rely solely upon oral movements, only the upturning of the corners of the mouth as they initiate a smile or these turning down while the brow contracts in a frown, tell us the nature of the emotive display which the sequent widening of the mouth portrays. Assistance is lent us in interpreting symbolic facial movements, on the one hand, by the character of the emotional appeal to one's self that certain speech or action effects, and on the other, by the audible evidence of mirth or sadness which follows emotive facial movement. Everyone has had experience regarding this, when at some time a chance remark has effected in another facial contraction expressing extreme emotion, the nature of which remains in doubt until respectively audible laughter or sobbing gives the key to the situation. It is because of

*One recalls that normally both laughing and crying may at least in part be spastic, namely, when and to the extent that these, although appropriately initiated, get beyond our control. Another phase in these varying conditions develops when the same "overaction" is obviously due to a pathological condition (Magnus and Romberg's case). In all there is accumulative evidence that in so

Fig. 3.

far as the act of laughing or crying is spastic it is probably subcortical and non-intellectual.

†Fig. 2, which shows the mouth as if smiling, really portrays a seizure in its decline and just before its close. Equally well, however, it depicts the facies as the spasm is being initiated.

these facts that one may desire to learn the criteria upon which classification was made in cases of spastic laughing and crying. Particularly, as regards the mixed cases, in what manner will one recognize both laughing and crying in identical recurring

Fig. 4.

spasms which are neither initiated nor accompanied by appropriate emotion?

Considering its remarkably dramatic character, it is surprising how little the phenomenon in question has interested English-speaking didactic writers. Many textbooks including the last imprint of Osler's "Practice" (eighth edition) do not speak of it. Some writers record as frequent in pseudobulbar paralysis an exceedingly mobile emotional state leading to undue laughter or frequent crying without cause. Lack of emotional control in this as in other cerebral affections is not rare. But mere muscle play, reflex or at most attended with consciousness below the threshold of volition and hence devoid of accompanying appropriate feeling tone is obviously a different matter. It would seem as if this condition might easily be differentiated from excessive emotivity, and, in fact, it has long since in isolated instances been well recognized. The following is a condensed account of a case reported in 1835 by Ulrich and quoted by Romberg[1] under the caption of *risus convulsivus:*

A young man of 24 years had suffered from repeated attacks of erysipelas. Within several years a squint of the left eye, present from childhood, became more marked. His speech "lost its sound;" his gait became stiff. At times he was giddy and obliged to catch at support. After an exposure to great cold, speech and gait suddenly became worse. He now often laughed unintentionally. These laughing seizures never again left him and formed the characteristic feature of the disease. The strabismus increased, the patient seeing double. Progressive paresis of all extremities developed, also spasms in the great toe on stepping or when the extremities were touched. After an attack of tertian ague the patient could walk but a few steps while lending support of his hands. Deglutition and expectoration became difficult. There were several attacks with fever during which occurred spasm of the limbs, retching, and vomiting. The involuntary laughing increased and broke out whenever a movement was arrested. Finally the patient became utterly speechless, but by winking selectively while letters were repeated to him, words were spelled out. The lower jaw hung down and the lips could not be closed, causing great difficulty in administering beverages.*

Ulrich assumed that the medulla was diseased and found upon autopsy areas of softening in it and adjacent parts of the pons. The same involved the pyramids and olivary bodies. Also, there was tumefaction in the shape of "an oblong projection the size of a French bean on the lower surface of the right half of the medulla and a little higher a smaller tumefaction. Several spots of the dura 'strongly reddened' and also the 'remarkably red but not thickened roots' of the 9th, 10th, 11th, and 12th nerves," suggest the process to have been, in part at least, inflammatory. The spinal cord is reported to have been normal. Evidently no examination of the basal ganglia or cerebral tissue above these was made nor are the liver or other abdominal viscera spoken of.

A few other early reports which emphasize association of supranuclear lesions and bulbar symptoms (including emotionalism), with overresponse on the part of muscles of facial expression, merit notation.

Magnus' case chronicled in 1837 was again reported by Romberg,[1] who later attended the same patient. Here the lesion proved to be gyral, two convolutions of the right hemisphere being destroyed by "a hemorrhagic cyst the size of a walnut at the external edge of the right hemisphere of the cerebrum where the anterior lobe adjoins the middle one." It will suffice to say here that this patient presented bulbar symptoms as regards mastication, deglutition, and articulation. Smiling and laughing were normally performed, but as Romberg states, "when she laughed violently she then uttered a peculiar grunting animal sound of which she was in a measure ashamed and which she would have willing suppressed; she therefore tried to shorten it as much as possible; however, the sound continued even after the movements of laughter had ceased and at a time when in a healthy individual no further sound would have been emitted." Even in this case, despite initiation of the laugh by appropriate stimulus, to merely speak of the condition as "emotionalism" is misleading because of abnormal overaction. It is true, sounds of normal laughter cannot be said to be deliberately intentional either, never-

Fig. 5.

*This reference to the lower jaw which eventually could not be closed, together wth the rigid character in general of the paralysis, recalls features of progressive lenticular degeneration[2] whose pathology involves atrophy of the liver and degeneration of the lenticulæ.

theless, in this instance exaggeration of symbolic reflex sounds was pathological. The grunting could not be suppressed as audible laughter usually can. It was therefore due to forced or spastic movement.*

Ross,[4] in his noteworthy essay on labio-glosso-pharyngeal paralysis of cortical origin, *i.e.* pseudobulbar paralysis, does not discuss the disturbances of emotional expression now recognized as exceedingly frequent in this affection. However, he quotes the following circumstances regarding one case (Dr. Croyden's), in which there existed complete facial paralysis subsequent to several hemiplegic attacks involving first the left and then the right side. "When amused the face would be drawn up into an expression of laughter, but never a smile." Clearly this reaction, invariably an over-response in muscles paralyzed to volition, is an example of spastic laughter. We are told that "the tongue was paralyzed, deglutition difficult, power of speech and articulation almost abolished, but the jaws clenched from spasm of the masseters."

This scant recapitulation of a few cases from the literature is pertinent to the fact of subsequent recognition of pseudobulbar paralysis as a clinical entity. In particular, however, it recalls (1) the early recognition that paralysis of bulbar type may be associated with lesions of the corpora striata, and (2) the clinical observation of about the same period, recording the pseudobulbar syndrome associated with unintentional movements of laughter. Clinical and pathological findings of later decades were required to furnish the connecting links, as it were, viz., that forced movements of laughing and crying are a frequent concomitant of pseudobulbar paralysis, and that where these occur frequent lesions of the basal ganglia (most often of the lenticula), or nearby subdivision of the encephalon exist.

Pathology.—This remains an obscure domain. Like the pseudobulbar syndrome in its entirety, the symbolizing movements under discussion occur in association with lesions diversely situated. Nothnagel regarded the optic thalami as the centers for movements of facial expression. Bechterew,[5] too, concludes as a result of experiment and pathological observation that the optic thalami play an important part in the expression of varied perceptions, sensations, and emotional activities. He regards them as motor centers through the intermediation of which the congenital movements of expression, namely, of laughing and crying, are principally executed. These conclusions were voiced more particularly with reference to paralysis of the facial movements expressing emotion when voluntary action of the same muscles was retained. Softening or tumor of the optic thalamus has been found in such cases, but there is not lacking in similar instances other observations wherein this organ remained intact. Lewandowsky[6] goes so far as to say that the idea of a relation between the thalamus lesion and emotion as expressed by the facies may be entirely erroneous. Nevertheless, thalamic lesions again become in evidence in the findings at autopsy of cases which in life had presented forced movements of laughing and crying. But involvement of another basal gray mass, namely, the lenticula, is even more frequently noted. In a few instances subcortical foci of softening within the white matter of the hemispheres and without involvement of the basal ganglia has been exclusively noted.

Costantini[7] tabulated the results of autopsy in respect to localization of diseased areas in forty-nine cases of spastic laughing and crying. These are herewith appended.

Thus we find disease of the thalamus 11 times, of the caudate nucleus 17 times, of the lenticular nucleus 32 times. In a majority of instances more than one of the above were simultaneously involved. If now we note the frequency with which a single basal ganglion with or without other lesion of the encephalon above it, was affected, we find the count as follows: thalamus 1, caudate nucleus 2, lenticula 12. Very frequently (26 times) there occurred lesions of the pons or bulb (or both). This fact is entirely compatible with the theory that the lesion of forced lauging and crying lies at no lower level in the central axis than that of the basal ganglia. In accordance with this idea disease of the pons and medulla would present as its characteristic sign certain neurotrophic effects which mark true bulbar paralysis, but no spastic facial movements. Meantime the frequent association of true and pseudobulbar disease as proven by autopsy, has already been noted. In three cases of the above series (Karplus 2, Ransohoff 1), lesion of the pons alone

*Previous to the Magnus report Richard Bright[3] also had observed several cases presenting the pseudobulbar syndrome. More than this, he not only differentiated such disturbance of articulation from that in a patient presenting real aphasia but also commented upon the relation of all articulatory symptoms to lesions of the subcortical white matter and corpora striata. A condensed history and report of autopsy in a case presenting the commonly observed bilateral apoplectic attacks with articulatory disturbance is as follows: "A lady of fifty years, previously a person of talent, experienced three or four hemiplegic attacks of the left side. Her articulation was much affected. Her spirits were generally downcast, but still she occasionally burst into an hysterical laugh. She was collected but her mind was weak. A later attack deprived her of the use of the right side. She was scarcely able to articulate, but tried apparently to put out her tongue when desired, though she was unable. Sectio cadaveris: eight softened places in the right hemisphere and nearly the same appearance in the medullary portion of the left hemisphere. Some of the little cavities appeared like vesicles in Parmasan cheese; others were simply softened brain. One soft portion was in the posterior part of one of the corpora striata." He writes concerning cases we would classify as motor aphasia: "Sarah Dodds, single woman, aged thirty years, admitted into Guy's Hospital, the subject of hemiplegia of the right side not affecting the muscles of the face. Her articulation was exceedingly imperfect; but the most remarkable circumstance in her condition was the total inability of connecting her words, when she could utter them, with the ideas she wished to express, or the things to which she meant to refer. . . . When asked, for instance the name of her hand, at which I pointed, she said 'a pin,' but immediately signified her knowledge that this was not the right word, though she could not tell what the right word was." Extensive softening and evidence of hemorrhage were found to accord as to probable time of the fatal, as well as of a previous apoplectic stroke. He does not take into account that a brain lesion of one side should affect the opposite one of the body. At the same time he states "the situation of the cerebral lesion . . . occupying chiefly the posterior part of the corpus striatum is further in accordance with an impression I have received from observation and inculcated with regard to lesions which influence the articulation." In another case, in which occurred "a singular incoherence of speech . . . it was manifest that this arose from an inability to collect his words so as to make them representative of his ideas, coupled with some slight difficulty of articulation." A partial recovery occurring, he says "it is not possible to speak positively respecting the exact nature of the cerebral affection in this case, . . . the probability appears to me that the same part of the corpus striatum which has been injured in the last case . . . became the seat of derangement." Thus Bright appears as a very early harbinger of Marie.

SPASTIC LAUGHING

No.	Author	Thalamus	Caudate Nucleus	Lenticular Nucleus	Anterior Segment	Knee	Posterior Segment	External Capsule	Claustrum	Pons	Bulb	Cortex	Other Lesions of the Encephalon
1	Burzio	....	....	r	r	r	r	....	....	....	....	.....	.....
2	Colman	....	....	....	....	....	r, l	....	....	....	....	.....	.....
3	Giannelli	....	....	r	r	....	....	....	....	....	....	.....	.....
4	Giannelli	r, l	l	r, l	l	....	....	....	....	....	....	Left calcarine fiss. and cuneus	.....
5	Halipré	....	....	....	....	....	....	....	....	+	....	.....	.....
6	Kirkhoff	....	r	r	....	....	....	r	r	....	....	Right insula	.....
7	Mingazzini	....	r	r, l	....	r	....	l	....	+	....	.....	.....
8	Mingazzini	l	....	r, l	....	....	....	....	....	+	....	.....	.....
9	Ransohoff	....	....	....	....	....	....	....	....	+	....	.....	.....
10	Shaffer	r	....	r	....	....	r	....	....	....	....	.....	.....
11	Strumpel	....	....	....	....	....	....	....	....	....	....	.....	Atrophy and softening of right frontal lobe
12	Glazer	....	....	....	....	....	....	....	....	+	....	.....	Degeneration of pyramidal paths

r = lesion right side. l = lesion left side. + = presence of lesion.

SPASTIC CRYING

No.	Author	Thalamus	Caudate Nucleus	Lenticular Nucleus	Anterior Segment	Knee	Posterior Segment	External Capsule	Claustrum	Pons	Bulb	Cortex	Other Lesions of the Encephalon
1	Comte	....	....	....	....	....	....	....	....	+	....	.....	Numerous, scattered subcortical foci
2	Comte	....	....	r, l	....	....	r, l	....	....	+	....	.....	.....
3	Guizzetti	l	....	r, l	....	l	....	....	....	+	+	.....	Foci of oval center and of right frontal lobe
4	Karplus	....	....	....	....	....	....	....	....	+	....	.....	.....
5	Lepine	r	....	r, l	....	....	r, l	....	....	....	....	.....	.....
6	Mingazzini	....	....	....	....	l	l	....	....	....	....	.....	.....
7	Mingazzini	....	....	r, l	r	....	....	r	r	....	....	.....	Subcortical foci; right front convolution
8	Mingazzini	....	....	r	....	....	....	....	....	....	....	.....	.....
9	Mingazzini	r	....	r	....	....	....	....	....	....	....	.....	.....
10	Mingazzini	....	....	r, l	....	....	r	l	....	+	....	.....	.....
11	Mingazzini	r, l	l	r, l	....	....	r, l	....	....	+	....	.....	.....
12	Mingazzini	....	....	r, l	r	....	....	....	....	....	....	.....	.....
13	Oppenheim and Siemerling	....	....	....	....	....	r, l	....	....	+	....	.....	.....
14	Otto	....	....	r, l	....	....	....	....	....	+	....	.....	Cerebral hemorrhage left hemisphere cavities in corpus callosum
15	Pahron	....	r, l	r, l	....	....	....	....	....	....	....	.....	.....
16	Touche	....	r, l	r	....	....	r	....	....	....	....	.....	.....
17	Berger	....	r, l	l	r	....	....	....	....	....	....	.....	.....
18	Bechterew	....	r	r	r	....	....	....	....	....	....	.....	Scattered foci in encephalon

r = lesion right side. l = lesion left side. + = presence of lesion.

is recorded.* Involvement of the anterior segment of the internal capsule occurring twelve times and the posterior segment sixteen times against six times of the knee (the last being so frequently noted in cases of true aphasia), may be significant. But to deduce any conclusion from this would be precarious since recognized nerve bundles change their position as regards the knee at different horizontal planes. *On the other hand, it is remarkable that twenty-seven times in which there occurred involvement of some part of the internal capsule and also disease of one or more of the basal ganglia, the lenticula of the same side (sometimes of both sides) was invariably involved.* In three cases in which a lesion of the internal capsule is reported without involvement of the lenticular nucleus, there is, likewise, no mention made of a lesion in the thalamus or caudate nucleus.

These facts, as well as a study in general of the foregoing tabulation, demonstrate our need to note conditions which relate to subcortical lesions. Here localization refers to nerve tracts, of projection and association, and in case subcortical gray masses be involved, as the added factor, reflex centers inherent to these ganglia. Hence modification of cortical impulses upon basal gray masses may be as effectively brought about by tract interruption or irritation as by lesions of ganglia themselves in which central neurons are rearranged or through which cortical projection fibers pass. *For this reason, for instance, frequency of lenticular disease in the face of evidence that such lesions are vital to forced movements of laughing and crying fails to negative a like effect from softening of supranuclear tracts communicating with this ganglion.* The controversy as to whether cortical fibers reach

*In Ulrich's report, also, only a lesion of the pons was found. However, since the observer's conception of his case was thus verified, it is quite probable that disease within the cerebrum was not looked for.

SPASTIC LAUGHING AND CRYING

No.	Author	Thalamus	Caudate Nucleus	Lenticular Nucleus	Anterior Segment	Knee	Posterior Segment	External Capsule	Claustrum	Pons	Bulb	Cortex	Other Lesions of the Encephalon
1	Berger	....	l	l	....	....	l	....	....	....	....	.....	.....
2	Bourneville and Guerard	r, l	....	....	....	....	....	....	....	+	+	.....	Indurated plaques, both cerebellar peduncles and corpus callosum
3	Brissand	....	....	r, l	r, l	....	....	....	....	....	....	.....	.....
4	Comte	r	....	r	....	....	r	....	....	+	....	.....	Foci of central oval
5	Comte	....	....	....	....	....	....	....	....	+	....	.....	Scattered foci of hemispheres
6	Dupre and Devaux	....	l	r, l	l	....	....	....	....	....	....	.....	.....
7	Francheschi	....	r	r, l	r	r	r, l	r	r	....	....	Lesion 3d left frontal convolution	.....
8	Halipré	....	r, l	....	....	....	....	....	....	+	+	.....	.....
9	Halipré	....	....	r, l	....	....	r, l	....	....	+	+	.....	Scattered foci in cerebral hemispheres
10	Karplus	....	....	....	....	....	....	....	....	+	....	.....	.....
11	Lemcke	....	r, l	r, l	....	....	....	....	....	+	+	.....	Foci in oval centre
12	Mingazzini	....	....	r, l	l	....	....	....	....	....	....	.....	.....
13	Mingazzini	r	....	r, l	r, l	....	r	....	....	+	....	.....	.....
14	Oppenheim and Siemerling	....	r	....	....	....	....	....	....	+	+	.....	Numerous foci oval centre
15	Otto	....	r, l	....	....	....	....	....	....	+	....	.....	Numerous foci oval centre
16	Raymond and Alquier	....	r, l	r, l	....	....	....	....	....	+	+	.....	.....
17	Rose	....	....	....	....	....	....	....	....	+	+	.....	Foci in oval centre
18	Rummo	....	....	l	....	l	l	l	....	....	....	.....	Lesion faiculus pedunculo-frontale inferior
19	Witte	r	l	....	....	....	....	....	....	+	+	.....	Hemorrhage central oval of right occipital lobe and left insular

r = lesion right side. l = lesion left side. + = presence of lesion.

the lenticula directly or only by way of the optic thalamus may be put to one side.* In any case communication between cortex and optic thalamus and between the latter and the lenticula is known to be extensive, *hence disease affecting this path at a point above or within the thalamus is consistent with the idea that actual motor disturbance emanates only from the lenticula.* I is useless to review the literature in regard to this matter beyond the clinical aspect of cases and the topography of lesions found post mortem because we are bound to end as we begin with theory. The last in respect to the lenticula has long leaned toward a motor function. Mingazzini unequivocally regards this ganglion as a motor organ within which are centers for movements of various parts of the body, including the movements which facially depict emotion. Head and Holmes[9] in their monumental work which enables us to comprehend as never before the characteristic emotive-sensory overresponse associated with disease of the thalamus, have not failed to record occasional associate movements to which class forced movements of laughing and crying also belong. Nevertheless we cannot at present bar the possibility of motor activity emanating from the thalamus itself because, no doubt, all fibers connecting basal ganglia with each other and with the cortex have not been mapped out nor have the functions of known connections been established.* One may

*However, the opinion of Wernicke, which beyond the contention that the lenticula receives no fibers direct from the cortex, regarded this ganglion and the caudate nucleus as independent structures from which fibers originate (*i.e.* gray matter homologous with the cortex), is incompatible with the view that the lenticula is the center for emotive facial movements. This for the reason that identical facial contraction occurs as movements associated with earliest, purely reflex action (*i.e.*, that which effects the initial cry of the new-born babe), merely marking vigorous respiration. It is taught that at this period cortical action is as yet in abeyance. We know that in the beginning this facial contraction occurs with automatic precision and sameness of degree, also that it is enacted in like manner in response to the next stimulus, the sense of physical discomfort induced by hunger. One may assume beginning cortical direction when instead of an invariable cry or crowing laugh, the child facially expresses degrees of emotion by a frown or a slight or broad smile. Tanzi[8] has remarked upon the partial loss of such emotive muscle control at the other extreme of life. He says, "In senile involutions the motor innervation loses its power to express the various shades of emotion by minute and complementary movements (amimia of delicate expressions); but it acquires as if in way of compensation a greater force in the expression of fundamental feelings by means of principal movements (hypermimia of coarse expressions), as Tonnini has observed. This is known to actors, who in playing the parts of old persons, take advantage of it, making themselves what might be termed macromimics."

*Deroubaix,[10] reporting a case of spastic laughing and crying, in which upon necropsy a large area of softening had destroyed the lenticula, anterior limb of the internal capsule, and the white matter of the frontal lobe, all on the right side, interpreted these findings to mean that fibers passing from the cortex through the lenticula to the thalamus were destroyed. He speaks of the faciothalamic bundle. Following Nothnagel, Bechterew, and Brissaud, he believes the thalamus to be the seat of automatic movements of emotive expression, especially of laughing and crying.

say, however, that clinical and pathological observations considerable in number point to abnormal lenticular function as the cause of spastic facial movements devoid of feeling tone or of spastic overaction of normal emotive display. In the last one might see an emotive-motor analogue of super-emotive-sensory perception ascribed by Head and Holmes to abnormal thalamic function.

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EARLY RHINOPLASTY.*

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Celsus[1] appears to be the first writer asserting the possibility of transplanting living tissue. He says: "When the loss of substance (curta) of the nose, lips, or ears is not great one can repair it, but if it is great one will produce a more shocking deformity. The operation should not be performed upon aged or sick persons for it may give rise to cancer in those so predisposed." Galen[2] says: "We designate as coloboma the voids existing at the lips, ears and alæ of the nose. These are cured by detaching the skin of the two sides, excising the callosities on their edges, and reuniting them by sutures or sticking plaster." Paul of Ægina[3] (630? A.D.) copied Galen's ideas respecting the restoration of the lost tissue of the ears and mouth, but not that of the nose.

No mention is made of restoring the loss of a nose by any European or Arabian writer since Galen's time until 1295 when Lanfranc of Milan came to Paris. Lanfranc[4] states: "They tell of the nose being completely detached, the patient carrying it in his hand and that after his nose had been fixed on the wound cicatrization occurred; but this is a signal lie because the spirit which presides over life, nutrition, and motion is instantly removed from that part which is separated from the body." He admits, however, the possibility of restoring by bandages or ligatures a nose which is still partly attached to the face. Guy de Chauliac[5] declared himself against "the tricksters who pretended to have restored a nose which was completely severed from the face, because it was often impossible to restore a partly severed one." Peter Ranzano,[6] Bishop of Lucera, recites the following in the Annales Mundi (1442): "At this time there flourished a Sicilian named Branca, the first surgeon of the world, for he had discovered a thing very amazing and unbelievable—the means of repairing the loss of a nose." Branca[7] was credited with being able to restore a lost nose by taking the needed material from either the patient's arm or from the nose of a slave. Branca's son perfected this operation. This new art probably came to Sicily from the East Indies, and not from the Arabs as no mention is made of rhinoplasty in their writings. It is known that the East Indians practised another form of rhinoplasty about this time. Ranzano assures us that this operation by Branca senior was original with the latter. From Sicily the art passed into Calabria, the adjacent Italian province, where it was practised by a family named Vianeo,[8 9] Vioneo, or Bojano. Vincent Vianeo of Maida[10] was probably the first to perform the operation in Italy. After his death his son Peter[11] and nephew Bernardin continued to do it and enjoyed such a reputation at Tropea that their work was designated *Magia Tropæensium*.[12]

Fig. 1—Gaspard Tagliacozzi, 1546-1599, the creator of Autoplasty. From "Les Collections Artistiques de la Faculté de Médecine de Paris.

Alexander Benedetti[13] gives us the first exact information regarding the Vianeo family as follows: "During my time, about the commencement of the sixteenth century, they also learned to correct the deformity of the nose. A flap is detached from the arm and cut in the form of a nose to be applied to the stump of a nose. They detach the skin from the arm with a bistoury, scarify the nose and attach the arm to the head in such a manner that the two wounds are applied one to the other. When union is perfect they cut off, with admirable skill, as much skin of the arm as is necessary to form a new nose. But this artificial nose endures with difficulty a hard winter, and when first put on it is very necessary to guard against having it pulled, because it is liable to be pulled off." Gabriel Fallopius[14] (1523?-1563) and Andreas Vesalius[15] (1514-1564) allude to the Vianeos. They did not think, however, that the flap which was taken from the arm was a simple skinflap but that it in-

*I am indebted to Dr. Noé Legrand, librarian of the University of Paris for the photograph of the statue of Gaspard Tagliacozzi.

cluded some of the fibers of the biceps muscle. Fallopius was of the opinion that it was better to remain mutilated, without a nose, than to submit to an operation which lasted twelve months. According to Jean Baptiste Cortesi,[16] a colleague of Tagliacozzi's who traveled through the Province of Calabria in 1599, all the Vianeos were then dead and even their art of restoring noses was forgotten.

Toward the end of this century rhinoplasty flourished in Bologna, for Gaspard Tagliacozzi[17] [18] (Tagliacotius or Talliacottus) was born here in 1546. He was a pupil of Cardan and received his degree of doctor of philosophy in 1570 and occupied the chair of anatomy and surgery in the University of Bologna for thirty years. Tagliacozzi is regarded as the creator of autoplasty for he was the first to enrich the subject and present it in its ensemble. Little is known of his life. He died at Bologna in 1599 and was buried in the church of Saint John the Baptist in this city.[19] Whether Tagliacozzi devised the operation named after him or obtained the idea from those who practised rhinoplasty before him is not known. In his book, which was published some time after he had performed a number of these operations for restoring the nose, he makes no mention of any one performing this operation before he did. Some of his contemporaries, taking the initiative, wrote upon this subject before the appearance of his book. Paré[20] (1517-1590) tells of an Italian surgeon restoring the nose with remarkable skill; making a pit in the biceps muscle and placing the stump of the nose in it and maintaining the two parts in contact for forty days, adding "but in every case the operation is extremely toilsome for both physician and patient, thereby diminishing its importance." Paré cites also the case of a certain Chevalier de Saint-Thoan who after wearing a silver nose for a long time underwent the operation and obtained thereby a nose of flesh resembling his original one. Paracelsus[21] also treats of rhinoplasty but he could not have alluded to Tagliacozzi as the former died in 1541.

Jerome Mercuriali thought the restored nose was made from the muscle of the arm. This false impression and others of a similar nature were denied by Tagliacozzi in a letter written to Mercuriali[22] in 1586, in which he declared that the stump of the nose was not placed in an incision in the arm, and that he did not use muscle to form a new nose because he could only use the skin of the arm, "in the same way as the gardener uses the bark of a good branch for grafting a tree." Tagliacozzi gives the names of several patients "who were almost more satisfied with their new noses than with those which they carried before."

Tagliacozzi's only work entitled, "De curtorum chirurgia per insitionem, seu de narium et aurium defectu per insitionem arte hactenus ignota sarciendo, etc.," appeared at Venice in 1597 and at Frankfort in 1598. This work became so rare it was reprinted in Berlin in 1831. "He made much noise," says Eloy,[18] "by a work which teaches a method of adjusting a new nose and new ears or lips which were cut out from the flesh. If this physician had not written that he himself had performed this operation one would be tempted to believe it was not so." In the introduction of Tagliacozzi's book, he treats of the importance of the face, particularly the nose, using citations not only from the works of prose writers and poets, but even from the lives of the saints. He gives credit to no one for devising the operation of restoring the nose, although, as we have seen, it was known before his time but says the process of grafting trees inspired the idea and contends there is no part of the body better fitted to replace the lost part than the skin of the arm.

Tagliacozzi concedes the practicability of obtaining the flap for restoring the lost part of the nose from another person, but said this was not always successful, because it was impossible for two persons to be fastened immobile for so long a time. He maintains that his method of operating is free from all danger to a noncachectic patient. He describes what he calls the different degrees of mutilation, and the difficulties of restoring the lost part, saying that they increase in the same proportion. He discusses the preparation of the patient, the instruments, the patients' clothing, his assistants, and the operation itself. In order to render the part from which he obtained his flap more mobile, he pulled upon the skin over the biceps several times with his fingers, then caught the skin between a large flat fenestrated pair of pincers, plunged a bistoury through the fenestra of them and cut the skin through the part exposed by the fenestra. He then passed a bandage through the wound, carefully raised the pincers and daily drew the bandage as a seton through it. When this bridge of tissue became strong and firm enough, through the employment of repercussives, antiphlogistics, astringents, etc., and all symptoms of irritation had subsided, which usually occurred about the fifteenth day, he cut through the upper part of the bridge of tissue. The flap was then turned over and the wound treated. "They say," says Tagliacozzi, "that it is better to detach the flap on three sides, as it saves time for and avoids pain to the patient, but the flap retracts too much and easily becomes gangrenous."

When the flap of skin which Tagliacozzi calls "propago," had cicatrized he proceeded to fasten it to the nose. After the patient's head and beard had been shaved the patient put on a shirt with a hood, the hood fitting his head perfectly. The complicated bandage which was to keep the arm and nose in juxtaposition was also put in position ready to be applied. Tagliacozzi then scarified the stump of the nose with a bistoury and sharp forceps so as to make an even wounded surface. A piece of paper was cut the same size and form as the facial wound, and placed upon the flap, which, after its under surface was scraped, was cut according to the paper pattern. Interrupted sutures of wax-thread were then passed through the flap and the stump of the nose, the arm lifted to the nose and the sutures tied (the sutures being more widely separated from one another on the stump than on the flap). The bandage was then applied and fastened.

When cicatrization had taken place between the flap and stump, which usually occurred about the twentieth day, Tagliacozzi removed the bandage and cap, and while his assistants were holding the patient's arm he cut the flap, at its base, away from the arm. At the same instant the new nose became white and cold, "but," said he, "this phenomenon need not occasion any uneasiness." While his assistants dressed the wound on the arm, hot fomentations followed by a four-tailed bandage were applied to the nose.

On about the fifteenth day, when the nose was firmer, he measured the length of one-third of the

face which is about the average length of the nose and marked with ink its future tip, and the lower borders of the alæ and septum. After cutting out an opening in the flap for the nostrils and making a small flap for the lower end of the septum, tents soaked in white of egg were introduced into the nostrils. Cicatrization of the nostrils usually took place anywhere from the twenty-first to the fortieth day when the operation upon the septum was performed. The stump of the septum and under surface of the flap for the septum were scarified and sewed together with curved needles. The sutures were usually withdrawn on the fourth day.

He placed tubes made of lead, silver, or gold in the nostrils and covered the nose with a cap of the same material, which could be lined with cloth in winter. The tubes and cap were fastened together and the patient was compelled to wear them for two

Fig. 2—A copy of a plate in the work of Gaspard Tagliacozzi ("De Curtorum Chirurgia Per Insitionem. Part II, Page 18) published at Venice in 1597.

years, but sometimes he was permitted to go without them during the day or in hot weather. It was considered very beneficial to expose the nose to the sun's rays which tended to give it a natural color. The application of the bile of a turtle was considered the best means for effacing the cicatrices. "It is possible to restore the lips in the same manner," adds Tagliacozzi, "but the flap of integument for the lower lip should be taken from the forearm and if it is for the ear it should be taken from behind the ear."

Fabricius Aquapendente[23] says the operation is so long, dangerous, and painful that there are few who would submit to it. He states he has had no personal experience with it and that for information those writers should be consulted who have written "ex professo" upon the subject. "I could," says he, "report a great number of observations upon this subject did I not know that the artist himself had written a large work upon it." Jean André de la Croix[24] did not believe in the operation of Tagliacozzi because "the parts are too dissimilar to unite well." Fortunio Liceti[25] thought that Tagliacozzi's operation served to explain the occurrence of double monsters. The celebrated jurist Paul Zachias[26] gave the opinion that if a malefactor was condemned to lose his nose and thereby lost it, it was legal to have it restored by the operation of Tagliacozzi because the operation could be considered a punishment on account of the time required to perform it and the pain it occasioned.

John Baptiste Van Helmont,[27] the Flemish chemist, relates the case of a native of Brussels who had a new nose made by Tagliacozzi at Bologna from the arm of a street porter and that he lost it three months later after his return to Brussels at the instant the street porter died in Bologna. "This example," he says, "proves up to what a distance magnetism and sympathy can act." Samuel Butler[28] (1612-1680) alludes to Tagliacozzi as follows in his Hudibras:

> "So learned Taliacotius, from
> The brawny part of porter's bum,
> Cut supplemental noses, which
> Would last as long as parent breech,
> But when the date of Nock was out
> Off dropt the sympathetic snout."

George Frank von Frankenau,[29] the German scholar and physician, recommended the operation not only for restoring the nose but for other mutilated parts of the body. Nicholas Blegny[30] tells what he considers a doubtful story of a person who, having bought a slave, cut off his nose and had it fastened to another individual. De la Vauguyon[31] thought, as Paré, that it was necessary to force the stump of the nose into an incision made in the arm of the patient, or better a person paid for the purpose, and when union had taken place to cut a sufficient flap of tissue and shape it for the nose. "The ancients," says he, "often made use of their slaves for this purpose." Charles Musitanus[32] was convinced that a nose made from the arm of a patient would adhere firmly to the face. He tells the following: "A gentleman having lost his nose in a duel had a new one made by Tagliacozzi's method but he hesitated to blow it, fearing to tear it off. In order to prove his fear groundless the surgeon seized him by his new nose and pulled him around the house." Carpue[33] says that in an English journal, "The Babillard," (1709-1710) they advise young men to conduct themselves well, because they cannot find a Tagliacozzi on every corner of the street who could restore their noses destroyed by syphilis. W. Rolfinck[34] considers the operation so ordinary that, he says, "When the nose is lost one makes another after the manner of Tagliacozzi."

As time went on Tagliacozzi became more misunderstood and many physicians considered him an impostor. P. Dionis[35] denied that one could make a nose and G. de la Faye[36] reported that he had ineffectually attempted to perform the operation upon animals which had their noses cut off. L. Heister[37] did not believe it possible to restore a nose which had been entirely separated from the body. He doubted the possibility of Tagliacozzi's operation. G. Mauquest de la Motte[38] says: "He must have more faith than reason not to perceive the thing is impossible and the writers who sustain the contrary are liars, as it is not only im-

possible to keep the arm immobile and fixed to the head for the time which is necessary for perfect union, but, as the skin cannot suffice, it is necessary to so injure the muscles that the arm is certainly paralyzed; and finally the new nose is only a foreign body which must sooner or later become gangrenous. Supposing such a piece of flesh could unite, it never can develop nerves or vessels in it and if it is difficult to guarantee a natural nose against the rigors of winter how can one guarantee a false one in which there is no circulation?"

The operation of Tagliacozzi for restoring the nose apparently fell into disrepute and oil-cloth, papier-maché, wooden, and silver noses took its place.

About 1794 Thomas Pennant[39] announced in England that an "artist" of Poonah made a new nose from the skin of the forehead for an Indian who had his nose cut off by the order of the Sultan Tippoo, and that the patient could blow this nose and distinguish odors. Two English surgeons, Thomas Findley and James Cruso,[40] report having seen the operation performed several times at Bombay by a surgeon named Maratte. Carpue says this art existed from ancient times among the Indians where it was transmitted from father to son among certain families or castes.

The so-called Indian method was practised in 1803 in London, without success, by a surgeon named Lucas. Carpue[33] experimented upon cadavers a number of times before performing the operation upon a man (in 1814) who had lost the tip, septum, and cartilages of the nose from a "maladie mercurielle." Before the work of Carpue was known in Germany C. F. Graefe[41] had already performed in Berlin (1816) the operation of Tagliacozzi for restoring the nose, and the following year he performed the Indian operation. At this time Reiner introduced the Indian operation at Munich, having seen the second operation performed by Carpue in England. As the operation of Tagliacozzi was so long and as the Indian operation produced a new scar on the forehead Graefe modified the former and performed it in almost the same manner as Tagliacozzi's operation, which operation then became known as the German operation.

The history of the portrait of Tagliacozzi (Fig. 1) is interesting.[18] A portrait of Ambroise Paré, reputed as having been painted by Pourbus, the elder, was presented the Faculty of Medicine in Paris on February 5, 1852. A medallion in the upper left hand corner read as follows:

Fig. 3.

When in 1903 the portrait was sent to the Louvre to be cleaned and restored evidences of another inscription were seen underneath this medallion. The medallion naming Paré was easily removed and the second medallion (Fig. 4) was revealed. The false superinscription was probably made to obtain a high price for the portrait, which resembled the father of French surgery, Ambroise Paré. But whose portrait was it?

"Coelum non Solum—(Heaven not Earth.)
A.D. 1593, Age 46."

The figures were clues—"A.D. 1593, Age 46." Tagliacozzi was born 1546 or 1547—in 1593 he

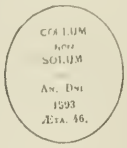

Fig. 4.

would have been 46 or 47 years of age. Another clue was the two pictures in Tagliacozzi's work "De curtorum chirurgia per institionem," 1597, representing patients being treated by the Tagliacozzi method, whose costumes resembled that seen in the portrait. As no picture of Tagliacozzi could be obtained among the prints in the National Library at Paris, a photograph of the portrait was sent to the authorities in Bologna to ascertain if the portrait in question might not be Tagliacozzi's.

The following is the answer to that communication:[18]

"Bologna,
"September 21, 1909.

"The photograph of the portrait you sent me is

Fig. 5—Statue of Gaspard Tagliacozzi in the theater of the Anatomical Institute at Bologna. "And in order to make his work known to posterity they put a nose in his hand." (Eloy.)

surely that of Gaspard Tagliacozzi, the celebrated anatomist of Bologna, to whom is dedicated an inscription in marble and a statue, by A. Levanti, which stands in the Theater of the Anatomical In-

stitute. I enclose a photograph of the statue. Both photographs correspond perfectly.

"ALBANO SORBELLI,
"Librarian,
"(Library of Bologna.)"

The statue "resembles him," says Eloy, "and in order to make his work known to posterity they put a nose in his hand." Sorbelli[18] wrote in a later letter, October 16, 1909, that, "having succeeded in restoring the nose, ears, and other parts of the head, the most noble part of man, Tagliacozzi was considered a new creator, almost a God, and Mutio says of him: "'*In utraque mendenti arte, pene divinus.*'" This "Almost Divine" explains the "Cœlum non Solum" discovered on the portrait.

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205 EAST TWENTY-THIRD STREET.

MILD MANIFESTATIONS OF SYRINGOMYELIA,

WITH REPORT OF THREE CASES.

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THE increasing number of reported cases of syringomyelia appearing in American literature bears noteworthy testimony to the more widely spread knowledge possessed by the general practitioner and to his greater care in examining cases.

FIG. 1—Case I. Note the atrophy of the forearm and the flattening of the palmar eminences. The symmetry of the shoulder is preserved.

Syringomyelia gradually evolved into a clinical entity between the years 1882 and 1888, due to the correlation of a symptom complex with the morbid anatomy by Schultz of Dorpatt, and Kahler of Prague. Practically unknown in this country 20 years ago, and only rarely detected 15 years ago, commonly classified as a disease of the motor system, confused with amyotropic lateral sclerosis and chronic myelitis of all varieties, it has now come to fill many pages of medical literature and typical cases are readily recognized by the practising physician. There are, however, a group of cases, mild or incipient they may be called, whose real status passes unrecognized until they drift into the neurologist's clinic. From such cases a careful elicitation of the history alone serves to arouse suspicion as to the nature of the affection, *e.g.* a stiffness, numbness, and loss of dexterity in the fingers, grad-

nally increasing in severity, usually without pain, associated at one time or another with an accidental painless burn; a slowly healing and painless traumatic ulcer on the hand; a visual sense of injury to the hand, rather than a pain-perceptive

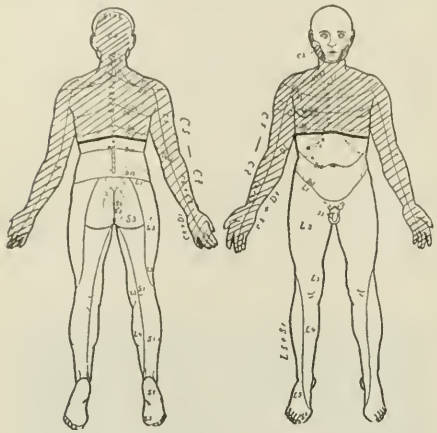

Fig. 2.—Case I. Area over which heat and cold are not distinguishable and a sharp pinprick is not painful.

sense makes it possible to hazard the diagnosis. The suspicion is readily confirmed by physical examination. The following cases serve to illustrate this type:

Case I.—Mr. J. B., aged 21, was graduated from one of the leading technical colleges in the country one year ago, as a mechanical engineer. He had always enjoyed the best of health and had taken an active part in athletics. Family history negative. He appeared in Dr. Joseph Collins' clinic on June 13, 1913, complaining of numbness and slight clumsiness in the fingers of the left hand and his attention had been called to a diminution in the size of the left arm. There was never any pain. He had passed through the hands of numerous physicians and had as many diagnoses, *e.g.* "atrophy," "progressive paralysis," and by one physician the cervical vertebra was radiographed. The patient was an expert violinist and he first noticed about a year ago that the fingers of the left hand were not entirely obedient in fingering the strings. He would blow upon his fingers or slap them upon his knee "to get better circulation." He found that he could no longer hold a cigar between the index finger and thumb of the left hand, with ease; that when he did, he would often drop the cigar or jab it into his lip instead of his mouth. He further discovered, being athletically inclined, that when inserting the left hand into a baseball glove the fingers fumbled clumsily about when getting into the glove fingers. During the past winter the lack of skill in fingering the strings of the violin gradually became more marked, so that by February, 1913, he was compelled to put the fiddle on the shelf for good. On a cold day especially "the hand would feel numb" and the fingers would be inaccurate in performing finer movements. There has never been any appreciable loss of strength in the arm, but this spring (1913) an impairment in static control was manifest in finishing a swing with a baseball bat; the left hand upon which the chief stress comes at the end of the swing would frequently "forget" and let the bat slip away, unless he particularly put his mind on holding it. The same was true of carrying a suitcase, the hand would suddenly let go. He did notice, however, that in washing his head or in carrying a towel to the opposite side of the chest, he could bring very little pressure to bear with the left hand. In drafting he finds difficulty in holding down the T-square and triangles exactly with the left hand. He has never experienced any difficulty in the use of the right hand or arm.

Physically, the patient is a well-developed young man of excellent physique. His sole defect is confined to the left upper extremity. The arm and forearm show a degree of diminution in volume which is just appreciable, and there is mild atrophy of the intrinsic muscles of the hand, chiefly the thenar eminence, and to a less degree the hypothenar muscles. The left arm is slightly ataxic, but adiadokinesis is not present. The gross power of the flexors and extensors, supinators and pronators of the forearm, and the hand grasp are diminished. The contour

Fig. 3.—Case II. Note the straightened border of the left hypothenar eminence and the redundant skin and flattening of the thenar eminence, due to mild atrophy.

of the shoulders is preserved; the lower extremities are normal; the face is uninvolved; in fact, the physical examination is otherwise negative except for the most sur-

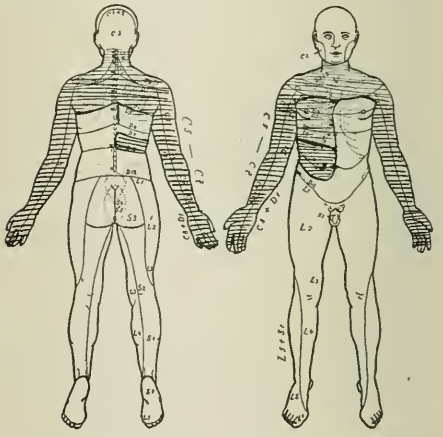

Fig. 4.—Case II. Area of dissociation of heat and cold and diminished pain sense.

prising and most important discovery that he is completely anesthetic to temperature and to pain from the crown of his head to the tenth dorsal vertebra, and from his chin to the seventh rib, quite symmetrically and including both arms. The lesion is thus placed high in the cervical cord, the gliosis encroaching upon the indicated

sensory tracts of the cord from the first cervical to the seventh dorsal segment (see chart). The cerebrospinal fluid was entirely negative.

Case II.—July 6, 1913. Mr. W. W., aged 28, a clerk, of Swedish descent. His present complaint is a flattening of the hand at the base of the left thumb. He is not conscious

Fig. 5.—Case III. Note the kyphosis and slight flattening of both shoulders. The patient is unable to hold the thumb in the abducted position. Note also the wasting of the thenar eminence.

of any loss of power and has no pain. On July 13, 1910, having been previously entirely well, the patient went for a swim in the ocean. On entering the water he noticed with some alarm, having been an expert swimmer, that he could not strike out with strong strokes of his arms. After several trials he gave it up and left the water and went home. The evening of the same day patient lay down on the bed and fell into a light sleep, from which he was awakened by severe pains over the precordial region. He got out of bed, but fell, owing to the weakness of the left leg. He then discovered that he was unable to raise left arm. There was no numbness nor pain in the extremities at that time. The next day he had an occasional shooting pain down the left arm, and two days later there developed inflammation of the left eye and a purulent watery discharge from the left ear, although there had been no previous pain in the ear. A buzzing sensation began in the head and there was also, as he thought, "a buzzing sound" in the left arm. This he thought audible to other people. The left arm and leg gradually became stronger. About two weeks later it was noticed that there was some flattening of the muscles at the base of the thumb. The flattening increased until it was quite marked, at the same time his strength returned, as he thought, completely, and although left handed he noticed no impairment in the use or power of the left arm or hand. One very peculiar symptom has remained as a vestige of his original attack, namely: when he falls into light sleep in a sitting posture, and occasionally when in bed, he is usually awakened by palpitation of his heart, which subsides immediately when he stirs about.

On inspection he presents a picture almost identical with the previous case. There is no shoulder atrophy; the atrophy of the arm and forearm is less, but that of the muscles of the hand, especially of thenar eminence, is more marked. The supinators and pronators of the left forearm are slightly weakened; hands grasp by manometer, left 90, right 100. The tendon reflexes at the knees and ankles are a trifle plus. The skin reflexes of the upper and lower abdomen and right cremaster are absent. No Babinski. There is no scoliosis. Heart and other viscera normal. Wassermann reaction negative. The sensory examination reveals perfect tactile sensibility, but an absence of pain and temperature sense from the occiput to the scapular spine on the left and to the twelfth dorsal vertebra on the right; anteriorly from the chin to the third rib on the left and to below the umbilicus on the right. There is a band on the right where the anesthesia is not complete (see chart). This finding likewise places the lesion high in the cervical cord and the cardiac symptom is probably due to extension of the gliosis into the region of the vagus nucleus.

This case is especially interesting because of the violent precipitation of the initial symptoms and the possibility of its being of infectious origin from a purulent otitis, though it is probable that this was a coincidence and that a syringal hemorrhage, as described by Gowers, had occurred.

Case III.—July 18, 1913. K. N., aged 39, a book-binder. His previous history is negative, except for typhoid fever at 18 years. Venereal disease denied. He began to notice a feeling of numbness in the little finger of his right hand about ten years ago. Some two years later he was conscious of a similar numbness, as though he "had been lying on it," in the entire right arm, right side of the trunk, and even extending into the right lower extremity. This sensation became constant and still remains, but has at no time interfered with work. Five years ago the right little finger began to curl in and he could not straighten it. Some months later the ring finger did the same thing. Since then there has been gradual loss of strength in the right arm, and an inability to detect injury, *i.e.* a cut or burn, on the right hand. Originally a right-handed individual, he now finds it easier to use his left hand in performing finer movements.

Physically, he is a short, thick set German-Jew with a mild scoliosis and rounded kyphosis of the upper thoracic spine. The contour of both shoulders has been flattened by deltoid atrophy. Atrophy of the right forearm is apparent, but is more marked in the hand where thenar and hypothenar eminences and the interossei are considerably wasted (see photograph). There is a corresponding loss of power in the hand, right 70, left 100, and abduction of the fingers is impossible; when forcibly spread abduction is extremely weak. The flexors of the wrist are of fair strength, but extension is very weak. There is no trophic change in the nails, although the hand shows evidence of frequent injury. Coordination of the arms is not impaired. The left hand, although not very strong, shows no atrophy, nor do the feet show any change. The sensory examination again discloses the real nature of the disease, as there is an anesthesia to hot and cold and pin prick from the occiput to points just below the scapular spines and from chin to the second intercostal space on the trunk. On the right arm anesthesia prevails throughout,

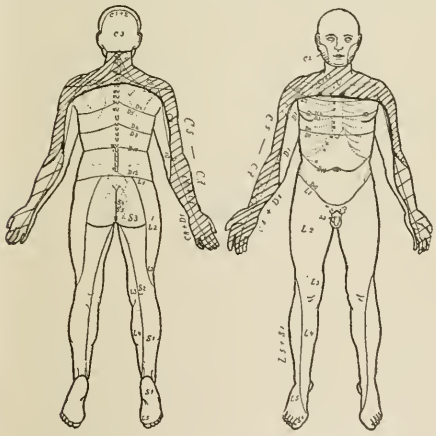

Fig. 6.—Case III. Area of pain and temperature anesthesia is heavily shaded; area of hypesthesia is more lightly shaded.

except over the inner surface from the elbow up where sensation is normal; on the left arm anesthesia extends down the outer border to the elbow. Distal to this there is hypesthesia. The ulnar border of hand and arm preserve normal sensation (see chart). Wassermann negative. The lesion in this case is likewise in the cervical

cord, extending from the third to the eighth cervical segment.

These cases show a great disparity between the motor inconvenience experienced by the patient and the unsuspected sensory disturbance. The mild degree of atrophy and other trophic disturbance and the comparatively slight loss of motor power indicates the remarkable manner in which the depredation of the spinal gliosis is confined in the early stages, at least, to the sensory tracts bearing thermic and pain sensations, tactile and postural sense being unimpaired. The symmetry of the sensory disturbance is worthy of notice favoring the belief that the anlage of the disease is of congenital origin consisting of an inclusion of glial cells in the posterior median fissure of the spinal cord during the involution of the neural ectoderm. The value of careful sensory examination in cases of slight motor disturbance and even before this stage, in the period of paresthesia, perhaps, need not be dwelt upon, except to point out that such cases as those described above wander from one physician to another until someone manifests sufficient interest to devote the short time necessary to make a few sensory tests, then the true nature of the disease is disclosd.

THE ROENTGEN RAYS IN THE DIAGNOSIS OF DISEASES OF THE STOMACH.

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Since the introduction of the Roentgen rays in medicine, they are proving not only of great use to the surgeon, but also to the internist, and even to the physiologist and pharmacologist. The internist they have furnished with another pair of eyes, enabling him to peer into the recesses of the body and spy out some of its secret workings. They enable him to see the diaphragm move with respiration, to see the heart beat, following the pulsation from the sinus down the auricle to the ventricle. He can see the bismuth meal starting at the mouth pass down the esophagus into the stomach. He can see it forced through the pylorus into the duodenum, rush rapidly through the small intestine into the cecum, and then trace it from there to the rectum. The Roentgen rays give us a definite idea of the shape, location, and size of the stomach. They tell us of the depth, rapidity, and direction of the peristaltic waves. They enable us to determine the motor power of the stomach, and also by the aid of variously coated bismuth capsules of different weight, the amount and character of the secretions. Any one diagnostic aid that can tell us all these things cannot but be of great aid to the physician.

But it cannot be too strongly emphasized that the *x*-rays are not to be invoked as a first aid. Alone they do not make the diagnosis. They are simply a diagnostic aid, and should only be employed in conjunction with all other aids. A history must be taken and a careful examination, both physical and laboratory, must first be made, and then only should a Roentgen examination be undertaken to supplement or complete the previous examination. The Roentgen rays, whether we use the fluoroscope or radiograph, give us only a picture, and it is its interpretation that is all important. The *x*-ray examination must be checked up and controlled by all other methods, and if it contradicts the other findings, great care must be used in coming to a conclusion. In gastrointestinal work we make use of both the fluoroscope and the radiograph. Both are important and necessary, but between the two, the screen work is by far the more valuable. The radiograph gives us a picture of the stomach at a given moment. As the stomach constantly changes, owing to the peristalsis, the information so obtained is limited. Lately the cinematograph has been used to remedy this deficiency. But even this only partially overcomes it, besides the larger number of plates necessary makes it time consuming and expensive. The fluoroscope, on the other hand, enables us to observe the stomach for five, ten or even fifteen minutes continuously. The peristaltic waves can be studied, whether the indentations are of shallow, normal, or abnormal depth; whether the rate is normal, and whether antiperistalsis is present. The food can be seen passing into the duodenum. We can see whether there is an incontinence of the pylorus; also whether the food passes in slowly or in jerks or squirts. It enables us to determine whether the stomach is movable or adherent to the neighboring organs. Also in the study of hourglass stomach, we must often decide between a true and pseudo-hourglass contraction. In the former case forcing the food upward with the hand back of the screen, we can see whether the contraction is permanent or disappears. The picture or radiograph is important as a matter of record, and also because it enables us to study the plate at our leisure, and, occasionally, small details, which are not brought out on the fluoroscope, can be observed.

In the chest, owing to the contrast in density between the heart and lungs, we can examine the patient without any preparation. In abdominal work, owing to the density of the organs being nearly alike, in order to get a contrast some metallic salt must be used. Bismuth subcarbonate or barium sulphate is usually employed. The patient is given the bismuth meal and examined immediately after or six hours later. In the former case the patient must be seen at the end of six hours to determine whether the stomach has emptied itself. When the patient is first examined six hours after taking his meal, a second bismuth meal may be necessary, if the first has already left the stomach, to determine its location, shape, and peristalsis. This latter method was introduced by Haudek. My preference is for the one meal and two examinations. Two bismuth meals six hours apart are not always agreeable to the patient. The large amount of bismuth ingested, equaling three ounces or more, is, however, free from danger. As said before, by this means we are enabled to determine the shape, size, and location of the normal stomach. The Luschka form, as pictured in the anatomies, that is, a stomach placed nearly horizontally, the pyloric outlet nearly on a level with the cardiac orifice, does not exist. Two forms have been described, one by Rieder, the other by Holzknecht. The former has shown that the stomach is shaped like a fishhook or letter J. The axis of the stomach is nearly vertical, the pylorus is placed considerably above the lower pole. He found this type in about 80 per cent. of normal cases. Holzknecht, on the other hand, has described the cow horn form as the normal. It differs from the Rieder form in that, instead of being vertical, its axis is about 45° and the pylorus

is near its lowest point, there being no "Hubhöhe" or short arm of the letter J. This type is found in about 20 per cent. of adults. But despite this, Holzknecht believes this to be the normal type. He ascribes the presence of the Rieder form in 80 per cent. to pathological changes. Holzknecht argues that the cow horn form is best suited for rapid emptying. This is true, replies Rieder, but for digestion, the letter J stomach is more suitable, as it allows the food to remain in the pars pylorica longer, becoming more intimately mixed with the gastric juice, and better ground up before passing into the intestine. The large majority are with Rieder on this question.

The *x*-rays have also taught us that normally the empty stomach is in a state of collapse, *i.e.* the walls are in apposition, it is only when food enters it that a cavity becomes visible. If we watch the entrance of a mixture of bismuth and water into the stomach, we at first observe a narrow streak along its left wall, which reaches to its lowest part, if more be swallowed the streak becomes wider and wider, but there is very little descent of the lower pole. The walls of the stomach firmly hug the food, the upper part of the fundus remains clear, and that is filled with gas. This "Magenblase" or stomach bubble is always present when there is food in the stomach. It is the tonus or contraction of the stomach musculature that causes its walls to firmly grasp the food within it. In a widely dilated stomach the food at once falls to the bottom. As more food is swallowed, the lower pole of the stomach stretches and sinks. No matter how great the meal, such a stomach wall never squeezes its contents.

The Roentgen picture of the stomach changes somewhat with the change in position. Both the fluoroscope and radiographic work is mostly done in the standing position, and the above forms refer to this position. In the reclining position, the stomach appears more horizontal. Respiration, drawing in the abdominal walls, as well as pressure of the organs within the abdomen, may change the form and location of the stomach.

The Roentgen rays also permit us to judge of the motor function of the stomach. We observe its peristaltic movements, also the length of time the food remains in it. The peristaltic waves begin immediately after the ingestion of the food. They begin about the middle of the organ and move towards the pylorus. The waves are of varying depth at the antrum pylori, they are so deep as to completely obliterate the cavity. Their function is, no doubt, to bring about a better mixture of the food in the pyloric area. The emptying time of the stomach is determined by observing it at varying intervals after the ingestion of the bismuth meal. Rieder and Jolasse place the normal at three hours, Kastle two to three and one-half, Holzknecht and Haudek between two and six hours. All are agreed that food remaining in the stomach longer than six hours is pathological.

The Roentgen rays give us an easy way of determining a gastroptosis. The picture is characteristic. While the normal stomach does not reach much below the navel, the ptosed stomach reaches far below. The stomach itself is long and narrow, its axis practically vertical. There is, however, no disturbance of the muscular tonus in an uncomplicated gastroptosis. There being no increase in size, the Rieder meal fills the entire stomach. The stomach is rarely the only organ involved. Usually the kidney, colon and other organs are also lower in the abdomen than normally. Enteroptosis is not as a rule due to faulty dress or pregnancy. It is very common in the male, and is frequently encountered in young children. In ninety per cent. of the cases it is due to what Stiller calls "Asthenia Universalis." In other words, it is usually a constitutional condition. In this type I am inclined to believe with Boninger that it is due to an abnormally long development of the body—the steeple style of architecture, as I am inclined to call it. The stomach is long and narrow, but not out of proportion to the rest of the body.

As was said before, the normal stomach wall closely grasps its contents. When the muscular tonus is lost or diminished, we have atony of the stomach. Atony, however, does not mean disturbance of the motor function, as the atonic stomach may empty itself within the normal limits; while on the other hand, food stagnation may occur when there is even muscular hypertrophy, as in the early stage of pyloric obstruction, either organic or reflex. Frequently the two go together. An atonic stomach is characterized in the Roentgen picture by its length, but differing from the ptosed stomach by also being broader than normal. The cavity of the stomach, in other words, is larger, and, consequently, the same amount of food does not fill it. The food at once drops to the lower pole. No matter how large the meal, the lower portion of the stomach is the only part filled. The atonic stomach is usually ptosed also, the lower border, the lesser curvature and the pylorus all being lower than the normal. The ptosed stomach may be atonic, the latter when present being secondary. The distinction between the two conditions is, the ptosed stomach is simply longer, but not larger than normal, the walls grasping the food; the atonic stomach, on the other hand, is larger, the muscular walls do not firmly hug the stomach contents, there is a loss of what Stiller calls the peristolic function. Clinically, the diagnosis of atony or dilated stomach is frequently made from the presence of succussion or splashing sounds obtained on tapping the abdomen. The succussion sounds are always obtained when a large area of stomach is close to the abdominal wall. In ptosis without atony, succussion sounds are obtained. It is a question whether a dilated stomach is ever due to muscular weakness. It is usually synonomous with pyloric obstruction, either organic or reflex. The sign of a dilated stomach is stagnation of food.

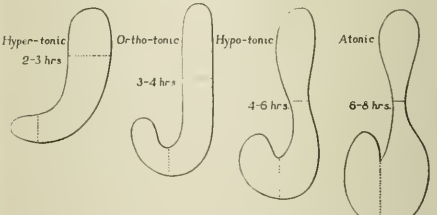
Does the *x*-ray help us in the diagnosis of ulcer of the stomach? In 1906, Hemmeter reported three cases in which he made the diagnosis of ulcer of the stomach by means of the *x*-rays. He interpreted the dark spots within the stomach shadow due to bismuth adhering to the base of the ulcer. The belief today, however, is that in simple ulcer the bismuth does not help us to locate the lesion. In fact, Haudek and Clairmont excised bits of the mucus membrane from the stomach of dogs, and sewed lead markers in these areas, and in no case did the bismuth deposit coincide with the markers. But even though the Roentgen rays do not alone diagnose the ulcer, they can, however, be of great use in reaching a diagnosis, as we know in a large number of cases of ulcer of the stomach, there is a sensitive spot in the epigastric area. But this is not a pathognomonic sign, and ordinarily we are not able to say if the painful spot corresponds with the location of the ulcer. When we have the patient before us, and the stomach shadow on the fluoroscope and then

test for the painful spot, we can at a glance tell whether it falls within this shadow or not. We can even go further and note whether this spot moves with the stomach, when we tell the patient to draw in the abdomen. If the spot moves with the changed position of the stomach, it must of necessity be connected with it. Thus, it can readily be seen that the determination of such a painful spot is of much more diagnostic value than simply a sensitive spot on the abdomen. Then it has been observed and verified by operation that in ulcer of the stomach there may be reflex disturbance of the shape of the stomach at a point distant from the ulcer. For example, in ulcer of the lesser curvature, frequently on the greater curvature there is a decided drawing in of the stomach wall, making an hourglass stomach. While this is not a constant find, yet its presence makes the diagnosis of ulcer of the lesser curvature almost a certainty. These ulcers, especially when of long standing and contracting, lead to a characteristic formation. The pylorus is found higher than normal and far to the left, giving the stomach the so-called snail or "Schneckenform." By far the most common Roentgen symptom of ulcer, no matter in which part of the stomach located, is a disturbance of the motor function. Even when the ulcer is far from the pylorus, there is at times a reflex spasm of this part, and consequently stagnation of food. Six hours after a test meal a fair portion of the food can still be found in the stomach. Haudek says that he has never failed to observe this with ulcer. Personally, I cannot agree with him. I have seen cases of undoubted ulcer proved at the operating table, where there was no six hours' rest. Faulhaber is also of this opinion. In cases of chronic ulcer at the pylorus leading to stenosis, the diagnosis by means of the *x*-rays is very simple. The stomach under these circumstances is immensely dilated. The bismuth meal at once drops to the bottom of the stomach as if it fell into a bag. Six hours later examination shows a characteristic rest. It is half-moon shaped and extends considerably to the right. There is another form of ulcer of the stomach in which the *x*-ray makes a positive diagnosis. In fact, this is the only means of making a diagnosis previous to the operation. I refer to the "ulcus penetrans callosum" of Haudek. We sometimes encounter a callous ulcer in the stomach. The walls about the ulcer become indurated and thick. There is an obliterating endarteritis. The stomach grows adherent to the surrounding organs like the liver or pancreas. The ulcer extends crater-like into these organs, forming what Haudek calls a "Nische" or diverticulum. The bismuth finds its way into this pocket, and remains there for some time, and, consequently, both on the screen and plate, we find a dark area surmounted by a clear space above, which is filled with gas. These ulcers are usually located on the lesser curvature, and invariably there is a painful spot directly over it. A picture of this kind once seen is so characteristic that it can never be forgotten.

We have still another type of stomach that can be diagnosed with certainty only by means of the *x*-rays. Formerly the diagnosis was only rarely made. Now it is a very simple matter. I refer to the hourglass stomach. This results usually from ulcer or cancer. An hourglass stomach is one that has two pouches connected by a narrow channel. An *x*-ray picture of the condition is very convincing. The surgeon often sees these cases on the operating table, but does not recognize them, for at this time the stomach is empty and collapsed. To make the diagnosis, the food must be seen first in the upper pouch, and then in the lower. So the surgeon is in no position to contradict the Roentgen diagnosis of hourglass stomach.

The stomach, as the result of perigastritis or adhesions, may be adherent to the surrounding organs or structures. The adhesions cannot be seen with the *x*-rays, yet we are able by this means to suspect their presence. If the stomach be drawn to one side, and while making a fluoroscopic examination, we try with the hand to separate and push it in its normal position, and are unable to do so, or if we tell the patient to breathe deeply or draw in the abdomen, and the stomach remains fixed, we can again suspect adhesions. But this is a diagnosis that must not be made hastily by the roentgenologist. He must not diagnose more than he sees, for by so doing he brings discredit on this means of diagnosis. Better diagnose too little than too much. Haudek advises the greatest caution, and himself rarely makes a diagnosis of adhesions.

And now we come to a very important chapter of this subject, namely, the diagnosis of cancer by means of the *x*-rays. Can the *x*-ray diagnose cancer in the early stages? I am sorry to say that in its incipiency it cannot, nor can any other means. We are greatly in need of a method to detect this dread condition in its very earliest stages. The number of means proposed is an indication of this lack. But as a matter of fact, even though we had such a sure means, the onset of cancer is often so insidious, and its progress so gradual, that when the patient presents himself to the physician, the disease has progressed so far that the diagnosis is very simple by the ordinary means at our disposal. In these cases, when the diagnosis is made, there is nothing more to be done, as the time has already gone by when even surgery is able to offer any hope of cure. Cancer of the stomach is so common and its outlook so hopeless that any means which may aid its earlier detection should be taken advantage of. What can the *x*-rays do to help us? When a tumor is present, which encroaches on the lumen of the stomach, by means of the Roentgen rays we can see the defective shadow. There is an absence of the bismuth shadow, corresponding to the location of the growth. This can often be discerned before the mass is palpable. This already is a great gain. But we can often suspect cancer even before there is a break in the bismuth shadow.



Types of stomachs and their emptying times. (Schematic, after Schlesinger.)

There should be a definite relation between the shape, peristaltic wave, and the motor function of the stomach. Schlesinger has divided stomachs into four types, according to the rapidity with which they empty themselves. These he calls hypertonic, orthotonic, hypotonic and atonic. The hypertonic,

or Holzknecht's cow horn type, should normally be empty at the end of three hours; the orthotonic, or the Rieder type, at the end of four; the hypotonic at the end of six; the atonic at the end of eight. Consequently, a hypertonic stomach with a six hours' rest would be pathological, while the same sized rest in an atonic-shaped stomach would not permit the same conclusion. Likewise a stomach showing normal or increased peristalsis and a six hours' rest would lead to different diagnosis than the same shaped stomach with shallow peristaltic waves. But the *x*-ray tells us more than that a growth is present. It tells us something of the nature of the growth, whether a scirrhus, medullary or contracting carcinoma is present. It also gives the surgeon valuable information in regard to the possibility of removal of the growth, its size, relation to the surrounding structures, and frequently saves the patient an operation. In other words, the Roentgen picture takes the place of an exploratory operation. Although in the diagnosis of cancer unfortunately, as yet, the Roentgen rays do not make the early diagnosis possible, yet I believe it may safely be asserted that, if all cases were seen early enough and *x*-rayed, the prognosis of the surgical treatment of gastric cancer would be much better.

In conclusion, I can but reiterate that the *x*-ray is not a nickel-in-the-slot machine, where the patient comes out with the diagnosis attached. The interpretation is all important. In all cases it is wise to be conservative, not to diagnose too much, and above all not to neglect every other diagnostic method that may be of aid. Only by careful comparison and checking will grave errors be avoided.

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THE FREQUENCY OF AMENTIA AS RELATED TO SEX.*

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The statistics of various institutions for the feeble-minded have repeatedly shown that there is a preponderance of males among inmates. This has led to the statement by general writers, and also by men of science, that there are more mentally defective (idiotic, imbecile, and feeble-minded) individuals among males than among females. Careful reflection on our present social organization, however, suggests to the student of social questions the fallacy in this conclusion. Observation of patients as they are brought to the clearing house for mental defectives strengthens this suggestion. The question arises as to whether the social conditions which lead defectives to the clearing house, and hence to institutions, apply equally to both sexes; and whether statistics of institutions have any validity as an index of the real frequency of amentia as related to sex.

Havelock Ellis,[1] in a chapter on "The Variational Tendency of Men," makes this comment: "Idiocy is almost everywhere recognized as more common in males than in females." E. L. Thorndike[2] says: "Greater male variability should result also in a great preponderance of men amongst the most idiotic idiots. Just this seems to be the case." The Royal Commission of Great Britain of 1904 realized the fallacies involved when conclusions are drawn from institutional statistics and sought to ascertain more exactly the facts with regard to the incidence of amentia in the population. Tredgold[3] gives a table based on the report of the Royal Commission and remarks upon it as follows:

"SEX OF 12,120 AMENTS: ROYAL COMMISSION, 1904

	Idiots	Imbeciles	Feeble-minded		Totals
			Children	Adults	
Males.....	303	959	3244	2179	6685
Females...	282	848	2193	2112	5435

"It is thus seen that, considered either in regard to each degree or collectively, there is a slight preponderance of the male sex, the relative proportion of males to females being practically 6 to 5."

These data are, of course, much more reliable than those upon which previous conclusions had been based, but the Royal Commission was not especially interested in the frequency of amentia as related to sex, and its members do not seem to have considered the fact that their procedure was scarcely designed to apprehend as many females as males, though much more thorough in this respect than previous methods. In the first place it is obvious that the definition of *feeble-minded person* which they adopted, "One who is capable of making a living under favorable circumstances, but is incapable from mental defect existing from birth or from an early age (*a*) of competing on equal terms with his normal fellows, or (*b*) of managing himself and his affairs with ordinary prudence," applies unequally to males and females. Females belong to a non-competitive and dependent class and are not so readily recognized as defective since they do not have to compete mentally to maintain themselves in the social milieu. A second source of error lies in the fact that the Royal Commission did not, so far as stated,[4] investigate the mental status of professional prostitutes. There is little doubt that a very considerable number of imbecile and feeble-minded females would have been discovered in this class. Indeed, precise data are already available on this point. Goddard[5] having published in 1911 a study of 56 wayward girls, 52 of whom were found to be feeble-minded according to the Binet measuring scale.

It is notable that in the table reproduced from Tredgold the preponderance of males increases as the degree of defect decreases. Among the lowest idiots the ratio of male to female frequency is 1.07; among imbeciles it is 1.13; among feeble-minded children it is 1.47. This suggests that the females slip through detection into an ever higher and higher classification. Tredgold adds: "It is probable that of all aments born a considerably greater preponderance than this are of the male sex; but that the number of these is subsequently diminished by a relatively higher infantile mortality." He does not tell us, however, whether he ascribes the greater preponderance of defective male infants to a greater relative frequency of amentia among males, or to the fact that the birth rate for males in general is higher than for females.

Goddard[6] tested by the Binet measuring scale 1,547 school children, this number comprising one whole school system, and he gives the distribution of mental status for girls and boys separately, thus:

*I am indebted to Dr. Max G. Schlapp, director of the Clearing House for Mentral Defectives at the Post-Graduate Hospital, in New York City, for permission to study and to cite these data.

TOTAL BOYS AND GIRLS

	4 7 Yrs. Be low	3 Yrs Be low	2 Yrs. Be low	1 Yr Be low	At Age	1 Yr Abv	2 Yrs. Abv	3 Yrs. Abv	4 Yrs. Abv	Tot al
Boys..	31	36	87	192	290	168	24	7	0	835
Girls	22	43	68	121	261	163	25	7	2	712

Goddard remarks upon this table as follows: "It will be seen by looking at the figures for the boys and girls * * * that there are more backward boys than girls. This is a very neat confirmation of the tests, since it agrees with statistics everywhere that there are more defective boys than girls. There are more in institutions for the feeble-minded, and although this is usually accounted for by the explanation that girls are more easily taken care of at home, therefore do not get into institutions, yet in view of the facts, there is no doubt that there are more feeble-minded boys than girls. There are more boys in the special classes in London and in the *Hilfsschulen* in Germany, and in the special classes so far formed in the United States, and everything agrees with this."

Goddard tested a total of 835 boys and 712 girls. Thus 54 per cent. of the whole number of pupils tested were boys. Therefore, if there is really a greater number of boys among the deficient, the proportion of boys in each degree of retardation, or on the average for all degrees of retardation greater than one year, *must be more than* 54 *per cent.* Any percentage less than this will indicate a preponderance of girls. Computation shows that in the class 4-7 years retarded, the proportion of boys is 58 per cent.; in the class 3 years retarded, the proportion of boys is 45 per cent.; in the class 2 years retarded, the proportion of boys is 56 per cent. If we average these three numbers we find practically no difference between the sexes, the average proportion of boys being 53 per cent. as compared with the 54 per cent. to be expected. Thus actually of the pupils from 2 to 7 years retarded, *there is a preponderance of girls* amounting to about 1 per cent. Goddard, however, considers real feeble-mindedness to be present only in those from 4-7 years retarded. And here there are 58 per cent. of boys as compared with the 54 per cent. to be expected.

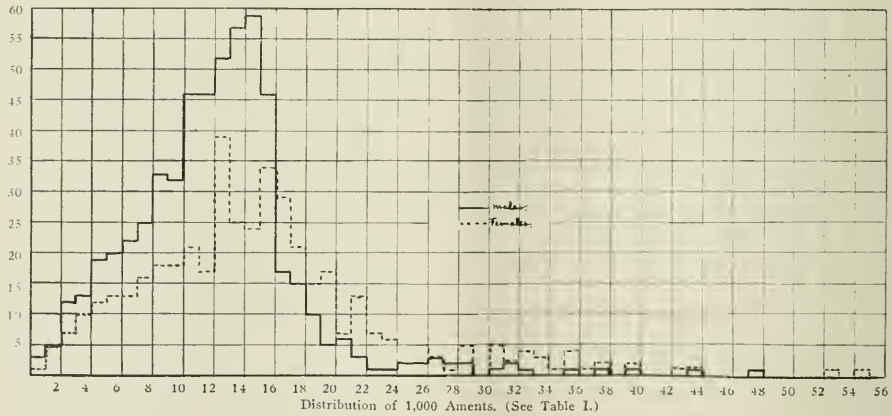
There is a larger preponderance of boys among those 1 year retarded than in any other degree of retardation, while their proportion among the normal is only 53 per cent., and 50 per cent. for each year of acceleration. There are *no* boys four years beyond their age, while there are two girls. These facts seem to indicate that Goddard's results are to some extent complicated by the earlier maturity of girls at the years nearest puberty. It is often stated that girls are more apt to be ahead of their actual age at puberty, and this would tend to leave the boys back a year or two.

The Present Investigation.—It was thought that light might be thrown upon this matter by a statistical investigation of defective individuals who pass through the Clearing House for Mental Defectives. The investigation was formulated with these questions in mind:

1. Is the frequency of mental deficiency greater among males than among females?

2. What have been the means of economic support in the case of those individuals, both male and female, who have survived outside of institutions till beyond the age of 16 years?

Method.—The procedure was as follows: 1,000 consecutive cases of mental defect were taken from the cases diagnosed at the Clearing House during the years 1912 and 1913. These cases included microcephaly, hydrocephaly, mongolianism, cretinism, Little's disease, birth palsy, idiopathic idiocy, idiopathic imbecility (mental and moral), idiopathic feeble-mindedness, and one case of porencephaly. The males and females were tabulated separately. In the case of individuals 16 years of age and over the means of economic support, the number of children known to have been propagated, and the immediate cause of appearance at the Clearing House were noted. In the case of all individuals the mental age (Binet) and actual age at examination were noted.



Distribution of 1,000 Aments. (See Table I.)

Results.—Of the 1,000 individuals thus tabulated, there were 568 males and 432 females. Of individuals over 16 years of age there were 78 males and 159 females. Of individuals over 30 years of age there were 9 males and 28 females. The curves found on this page show this distribution graphically. Both sexes show curves of distribution much skewed toward the high ages. For males the mode falls at 14-15 years; for females the mode falls at 12-13 years. At the age of 1-2 years the frequency for the sexes is equal. From 2 to 16 years the frequency for males is very much

greater than for females. At the age of 16 the curve for the females crosses that for the males, and from that point on the frequency for females is much greater than for males. The range for males is from less than 1 year to 47 years; the range for females is from less than 1 year to 54 years. Table III shows these facts in terms of per cent. and ratio.

TABLE I.—DISTRIBUTION BY ACTUAL AGE

Actual Age, Yr.	Males	Females	Actual Age, Yr.	Males	Females
0–1	3	1	28–29	2	5
1–2	5	5	29–30	0	0
2–3	12	7	30–31	1	5
3–4	13	10	31–32	2	2
4–5	19	12	32–33	1	4
5–6	20	13	33–34	0	3
6–7	22	13	34–35	0	1
7–8	25	16	35–36	1	4
8–9	33	18	36–37	0	1
9–10	32	18	37–38	1	2
10–11	46	21	38–39	0	0
11–12	46	17	39–40	1	2
12–13	52	39	40–41	0	0
13–14	57	25	41–42	0	0
14–15	59	24	42–43	0	1
15–16	46	34	43–44	1	1
16–17	17	29	44–45	0	0
17–18	15	21	45–46	0	0
18–19	10	15	46–47	0	0
19–20	5	17	47–48	1	0
20–21	6	7	48–49	0	0
21–22	3	13	49–50	0	0
22–23	1	7	50–51	0	0
23–24	1	6	51–52	0	0
24–25	2	5	52–53	0	1
25–26	2	5	53–54	0	0
26–27	3	0	54–55	0	1
27–28	2	1			

Table II shows the relation between mental age (Binet) and actual age at the time of examination at the Clearing House, for each sex separately. In some cases, because of language difficulty, blindness or similar circumstance, the patient did not take a Binet test and diagnosis was arrived at without this aid. Hence the number of cases treated in this table does not total quite 1,000. It will also be noticed that there are 4 males and 6 females who passed the Binet test for 12 years, and since the tests given at the Clearing House run only through 12 years, this shows an undetermined mentality. These individuals are included under the diagnosis of moral imbecile.

This table shows that for all mental ages the average actual age of examination at the Clearing House is older for girls than for boys—this difference becoming very marked after the mental age of 6-7 years. The figures show that a female with a mental age of 6 years survives in the social milieu about as well as does a male with a mental age of 10 or 11 years. The average deviations from the above averages are greater in all cases for females than for males, indicating that any boy of a given degree of defectiveness is much more certain to be brought at a given average age than is any girl of the same degree of defectiveness.

TABLE II.—SHOWING THE RELATION BETWEEN MENTAL AGE AND ACTUAL AGE AT THE TIME OF EXAMINATION

Mental Age, Yrs. (Binet)	Actual Age When Brought to the Clearing House					
	Males			Females		
	Average	A.D.	Cases	Average	A.D.	Cases
0–4	7.1	3.2	92	8.1	3.8	65
4–5	9.2	2.4	29	11.4	4.3	16
5–6	12.6	4.2	25	13.2	4.3	32
6–7	11.4	2.9	42	15.8	6.0	40
7–8	13.5	2.9	76	15.0	4.6	45
8–9	12.9	2.5	82	17.2	5.1	56
9–10	14.0	2.7	70	17.3	4.3	53
10–11	15.2	2.7	57	18.5	5.4	46
11–12	14.2	1.0	20	17.7	2.5	27
12+	13.0	0.0	4	16.8	2.9	6

TABLE III.—SHOWING, FOR EACH SEX, THE PERCENTAGE OF THE TOTAL NUMBER (MALE AND FEMALE) IN EACH FIVE-YEAR PERIOD OF ACTUAL AGE, SHOWING ALSO THE RATIO OF MALES TO FEMALES

	Under 5 Yrs.	5–10	10–15	15–20	20–25	25–30	30–35	Over 35	Tot. %
M....	7.2	15.8	26.0	5.3	0.9	0.8	0.4	0.4	56.8
F....	4.8	8.6	13.9	8.9	3.6	1.1	1.4	0.9	43.2
M–F.	1.5	1.8	1.9	0.6	0.3	0.7	0.3	0.5	1.3

Those individuals who survived in the social milieu till the age of thirty years and over constitute a group of peculiar interest from our point of view. On what economic basis had they lived all these years? And having so long survived, what was the immediate cause for their appearance at the Clearing House? The histories of these individuals give the following facts:

ECONOMIC STATUS OF THE 28 WOMEN OVER THIRTY YEARS OF AGE.

Married	9
Housework, living with relatives	9
Housework, for wage, always in very menial capacity	5
No economic status or occupation mentioned	5

IMMEDIATE CAUSE OF APPEARANCE AT THE CLEARING HOUSE OF THE 28 WOMEN OVER THIRTY YEARS OF AGE.

Illegitimate pregnancy (often the second or third)	6
Husband died	2
Husband abandoned	2
Accompanied their feeble-minded children to the Clearing House and were noted by physicians	2
Brought by those in charge of nurseries	2
Brought by social workers	5
Death or sudden incapacity of relatives	3
Specific disease	1
Complaint of minister	2
No immediate cause mentioned	3

ECONOMIC STATUS OF THE 9 MEN OVER THIRTY YEARS OF AGE.

Porter	1
Janitor	1
Chores at home	1
Transfer from almshouse	1
No economic status or occupation mentioned	5

IMMEDIATE CAUSE OF APPEARANCE AT THE CLEARING HOUSE OF THE 9 MEN OVER THIRTY YEARS OF AGE*

Disease	2
Drunkenness	1
Transfer or recommittal	2
No immediate cause mentioned	4

*It will be noted here that the number of men really surviving outside of institutions till this age is *only* 7, since there are two cases of transfer and recommittal.

The average mental age (Binet) of the 28 women over 30 years of age was 7.5, with an average deviation of 1.9; the average mental age of the 9 men over 30 years of age was 9.5, with an average deviation of 2.6. Thus females with an average mental age of 7.5 years survive in society at least three times as well as males with an average mental age of 9.5 years.

A matter of incidental interest is the number of children procreated by these feeble-minded individuals. In no case was there a history of procreation by the males, but the 159 females over 16 years of age had 44 children which were living and acknowledged, 31 of which were illegitimate, and 10 women were pregnant at the time of their examination at the Clearing House. Of these 159 women, furthermore, 16 were, or had been, married, 2 were engaged to be married, 2 were living with men to whom they were not married, 15 earned money by prostitution, and 56 were definitely known to have been victimized.

Interpretations.—The facts are as follows:

1. More males than females are brought to the Clearing House in a ratio of about 1.3:1.0.

2. At the age of 1-2 years the frequency for males and females is equal. From the age of 2 to the age of 16 there is a very marked preponderance of males. At the age of 16 years the curves cross

and from that point on there is a very marked preponderance of females.

3. Females survive in the social milieu till beyond the age of 16 years twice as frequently as males; females survive in the social milieu till beyond the age of 30 years three times as frequently as males.

4. The Binet measuring scale shows that for all mental ages the average actual age at examination is older for girls than for boys—this difference becoming very marked after the mental age of 6 years. The figures show, for instance, that a female with a mental age of 6 years survives in society about as well as a male with a mental age of 10 or 11 years.

5. The average deviations from the above averages are greater in all cases for girls than for boys, indicating that any male is much more certain to be brought to the Clearing House at a given average age than is a female of the same degree of defectiveness.

6. Of the 159 women over 16 years of age, the majority had had a more or less secure economic basis for survival either in housework or in prostitution.

These facts are interesting and significant for all who are immediately or remotely concerned with social problems. To interpret them we have but to reflect on our social organization. Women are not a competitive class. Their work is housework, performed in isolation and not in competition with others for a wage. Moreover, in our social organization, sex as such may easily become a commercial asset to women, and opens to them ways wherein they can survive without much regard to mental deficiency. Men, on the other hand, form a highly competitive class, working together in competition, for a wage. The boy who cannot compete mentally becomes at an early age an object of concern to relatives, is brought to the clinic and is directed toward an institution. The girl who cannot compete mentally is not so often recognized as definitely defective, since it is not unnatural for her to drop into the isolation of the home where she can "take care of" small children, peel potatoes, scrub, etc. If physically passable, as is often the case, she may marry, thus fastening herself to economic support; or she may become a prostitute, to which economic pursuit feeble mentality is no barrier. Thus they survive outside of institutions. Our data here reveal how accidental are the causes which finally bring them after thirty years to the Clearing House. The writer has frequently questioned those who accompany them when they come. Answers like these are typical: "Her husband has just died"; "She got rheumatism and can scrub no more"; "She was a prostitute, but physical illness has driven her from the street." No one can doubt that there are scores of feeble-minded women at large to whom these accidents have not happened.

Conclusion.—The greater frequency of amentia among males has come to be rather commonly credited and is sometimes cited as a proof of the greater variability of males. But all the facts gleaned from these data point to the conclusion that if social pressures had applied equally to male and female, enough additional females would have come to the Clearing House to equal the 568 males. The figures are certainly sufficient to suggest that if our social habit and organization ever changes so that sex as such is no longer of commercial and economic value to women, and so that women become mentally competitive to the same extent as men, the number of females in institutions for the feeble-minded will be materially increased.

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THE TONSIL—A VESTIGIAL RESPIRATORY ORGAN.

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If the postulate regarding the evolutional antecedents of the tonsil presented herein seems at variance with generally accepted views, the writer's defense must be that the theories were promulgated from the doctrines of foremost evolutionists, and that, reasoning from such premises, the conclusion arrived at appears tenable.

The tonsils are probably vestigial organs of respiration, a modified form of gills or branchiæ, surviving from the piscine and amphibious periods of man's descent; yet not deciduous, as were the gills of most amphibians that permanently abandoned aquatic habitats.

Darwin states that: "Still earlier the progenitors of man must have been aquatic in their habits; for morphology plainly tells us that our lungs consist of a modified swim-bladder, which once served as a float. The clefts on the neck in the embryo of man show where the branchiæ once existed."

Haeckel, in his "Evolution of Man," says: "The most important process we meet with in the further ontogenetic development of the intestinal canal in the human embryo is the origin of the gill openings. At the head of the human embryo, the wall of the throat very early unites with the outer wall of the body, and four openings then form on the right and left sides of the neck, behind the mouth, and these lead directly from without into the throat-cavity. These openings are the gill openings, and the partitions separating them are the gill-arches. These embryonic formations are very interesting; for they show that all the higher Vertebrates, when in a very young state, reproduce in accordance with the fundamental principle of Biogeny the same process which was originally of the greatest importance to the development of the whole vertebrate tribe. This process was the differentiation of the intestinal canal into two sections: an interior, respiratory part, the gill-intestine, which serves only for breathing, and a posterior, digestive part, the stomach-intestine, which serves only for digestion.

* * *Afterwards, however, the gill-intestine, which is a memorial of the fish-ancestors, as such, is entirely lost. The parts that remain take a wholly different form; but notwithstanding that the anterior section of our intestinal canal thus surrenders entirely its original form of gill-intestine, it yet retains its physiological function as a respiratory intestine."

Haeckel also says in "The Wonders of Life": "In the lower aquatic vertebrates (acrania, cyclostoma,

and fishes) the gills are the sole organs of breathing; in the higher animals, that live in the air, they fall into disuse, and their place is taken by the lungs. Nevertheless, heredity is so tenacious that we find from three to five pairs of rudimentary gill-clefts in the embryo right up to man, though they have long ceased to have any function. This is one of the most interesting of the palingenetic facts that prove the descent of the amniotes (including man) from the fishes."

When man's progenitors periodically forsook the waters, the organs we now know as lungs gradually developed from the swim-bladder and, *pari passu*, the gills, not being required during protracted periods, would cease to functionate and would become noticeably atrophied. Yet we can conceive that in consequence of subsequent inundations, or to escape attack by terrestrial pursuers, countless successive generations of these amphibious creatures would intermittently be compelled to resume aquatic habits temporarily, thereby again requiring the functions of the gills as oxygen transmitters. It is reasonable to suppose that unnumbered repetitions of this experience, extending over countless æons, would eventually develop a faculty of regenerating gills, and adjusting their forms and functions to the respective prevailing conditions, eventually resulting in the form of an irregular ovoid body set between a pair of practically parallel muscles, the palatoglossus and palatopharyngeus, known to us with their coverings as the anterior and posterior pillars of the pharynx. These muscles, in man, are supplied by branches from the facial nerve, whose function is largely motor. Contraction and relaxation of these muscles, in the amphibious stage, would result in alternate compression and release of the tonsil, with consequent pumping in and out of the circumfluent water. Examination of the tonsil in its present rudimentary form, particularly as seen in children, reveals a smaller or larger body, dotted with mouths of crypts whose cavities are lined with epithelium. Surely it is not a wild flight of fancy to imagine that the object of this arrangement was to present a greater surface to the water which swirled through the throat, thereby giving additional opportunity to absorb the necessary oxygen. In man, the tonsillar bodies are supplied by branches from the trigeminus and glossopharyngeus nerves, both of which may be traced to the lateral columns of the medulla into the region of the reputed respiratory center, which also might imply a former respiratory function.

When the tonsils have been incompletely removed in very young children there is a marked tendency to regeneration, reminding one of the salamander, who regenerates a leg or an eye so long as there is a fragment of the original left from which the new growth may spring. While the cases are not parallel, both indicate a tendency to restore an organ which may again be necessary to sustain life in the face of hazardous exposures which innumerable progenitors had survived. Only such salamanders remained alive to propagate their species as were able to regenerate a leg or an eye; those unable to do so soon perished and left no descendants. Only those progenitors of man who retained rudimentary gills could continue their existence when a tidal wave washed them off some rocky shore back into their ancestral watery home. Those whose lungs had already become their sole oxygen supplying organs were incontinently drowned. In this manner, when the world was younger, and the waters periodically overflowed the land, a natural selection took place; those individuals who could successfully bring their rudimentary gills into action surviving their more unfortunate brethren. Through incomprehensible periods of time and incalculable repetitions of such experiences an innate faculty of regenerating an "under water" breathing organ was developed which rudimentarily still persists in man, although he has long since become solely a lung-breathing animal by reason of the great changes in the topography of the earth's surface.

This seems to offer a reasonable explanation of the phenomenon frequently seen when an imperfectly removed tonsil shows a tendency to regenerate rapidly. Nature appears to rush to the rescue from force of habit. Only possessors of tonsils survived; and so long was this a law of experience that nature has not yet unlearned the lesson.

If these random thoughts should stimulate some other to delve deeper into a subject the surface of which has only been touched in this paper, the writer will feel amply recompensed.

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Medicolegal Notes.

Privileged Communications—Assisting Surgeon.—In an action for personal injuries it appeared that the attending physician deemed a surgical operation necessary, and called another physician or surgeon to assist in performing the operation. Upon the trial the facts and circumstances which led up to and rendered the operation necessary were brought in issue. It was held that any information acquired by the assisting physician at the operation or subsequently acquired by examination of the parts removed by the operation was privileged information under the provisions of Section 5958 of the Idaho Revised Codes, and could not be given in evidence without the consent of the patient.—Jones v. City of Caldwell, Idaho Supreme Court, 130 Pac. 995.

Stepfather's Liability for Professional Services.—In an action for physician's services it was held that the defendant was liable for services rendered to his stepchild who lived with him, although the child's father was alive, and, on divorce from the child's mother, had been ordered to pay her $5 monthly during the child's minority for its support. The defendant stood in the position of parent to the child and was liable under the principle that the law implies a promise where a parent with full knowledge of the facts and without objection allows and approves of his child being furnished with necessaries.—Monk v. Hurlburt, Wisconsin Supreme Court, 138 N. W. 59.

Accepting Gifts from Patients.—In an action to set aside a deed it was held that the relation of a physician to his patient is one of trust and confidence, and while it does not forbid acceptance of a gift or conveyance from the patient, the burden of establishing perfect fairness, adequacy and equity is thrown upon the physician. A confidential adviser is not permitted to avail himself either of the necessities of his client or his good nature, liberality, or credulity to obtain undue bargains.—Matthaei v. Pownall, Pennsylvania Supreme Court, 84 Atl. 444.

Observations Made by X-Rays as Evidence.—A witness who has qualified as an expert in the use of the *x*-ray and fluoroscope may be permitted to give the result of his observations, notwithstanding such observation discloses the shadow of the object, and not the object itself. *X*-ray photographs, sciagraphs or radiographs, which are no less representative of the shadow and not the substance, are properly admissible in evidence.—McCauley v. Chicago City Ry. Co., 163 Ill. App. 176.

State Board of Medical Examiners Performs Ministerial Duty.—The Oklahoma Supreme Court holds that the state board of medical examiners in hearing charges filed before it pursuant to Comp. Laws, 1909, Sections 4242-4264, for the purpose of having revoked a license theretofore issued by it to practice medicine and surgery in the state, on the ground that the same had been obtained through fraud, and also charging the certificate holder with unprofessional conduct, is engaged in the performance of a ministerial duty, and does not exercise judicial power, and a writ of prohibition thereto will not lie.—Janneson v. State Board of Medical Examiners, 130 Pac. 923.

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THE ETIOLOGY OF GASTRIC ULCER.

THE etiology of gastric and duodenal ulcer has been one of the standard mysteries of medicine for many years. Recent years have served to throw some light on the question and with the aid of animal experimentation we are now able to see at least a little way into the darkness. Aschoff has shown that ulcer of the stomach generally begins as a hemorrhagic erosion and has presented beautiful demonstrations of the manner in which the ulcer develops. That the immediate cause of the hemorrhagic erosion may be found in a thrombosis of some of the finer vessels must be admitted. The stomach is furnished with such ample blood-supply that ligation of many of its vessels may be performed without disastrous results. Thrombosis or embolism of the finer twigs nevertheless results in the production of an infarct and from this may develop an ulcer. The source of such thrombosis or embolism is undetermined, but it has been produced experimentally, and while the work is far from complete enough has been done to point a definite road for further investigation.

D. P. D. Wilkie, in pursuing this study (Laboratory Reports of the Royal College of Physicians, Edinburgh, vol. xii), operated upon cats and rabbits and dissected the human cadaver. He found that in infancy the veins of the portal system are provided with competent valves but that with age the great majority of these become incompetent. After these valves no longer serve to regulate the blood flow through the veins in which they are situated there is a rather frequent tendency to an "oscillation" of the blood in the portal vessels. Under the influence of changes in the blood-pressure, respiratory movements, or the distention of the stomach with food, the blood returning from the omentum may be diverted from its usual course and may traverse the gastric venous plexus, which thus comes to act as a filter for the omental blood. After a study of the omentum, Wilkie concludes that one of the important functions of that tissue is to aid in the localization of peritoneal inflammation and that in the performance of this function it is apt to suffer injuries from which it does not fully recover. He was able to demonstrate that thrombosis occurs readily in the thin-walled veins of this tissue and believes that thrombi in such a mobile situation would easily become broken up. In order to test out his hypothesis he produced thrombi in the omental veins by means of a simple ligation or by searing the tissues alongside the vein with a hot platinum needle. Later he produced artificial emboli by injection into the veins of emulsions of charcoal or dermatol in oil. The animals were killed in from three to seven days after the operation and careful autopsies performed. In every instance he found numerous minute infarcts in the liver, thus showing that embolism had taken place along the normal blood course in the portal system. In a certain percentage of his animals he found in addition that there were multiple hemorrhagic erosions in the gastric mucosa. In addition to the erosions there was in three instances definite ulceration of the gastric mucosa and one animal showed an ulcer of the duodenum. These ulcers were punched out, sharply circumscribed areas and similar in every way to the acute gastric ulcer found in man. Microscopic examination showed that beneath the ulcerated area in the mucosa the minute vessels were thrombosed and that the thrombi moreover contained charcoal or dermatol when these substances had been injected into the omental veins.

It is known that in the course of attacks of acute or chronic appendicitis the patient not infrequently suffers from hematemesis and the same occurrence has been reported following a herniotomy in which it was necessary to remove a portion of the omentum. It is known also that there is a certain class of patients who suffer from symptoms referable entirely to the stomach but in whom at operation the only lesion demonstrable is a chronic appendicitis. The relation to the above experiments would seem to be quite close. Indeed, one is almost forced to the conclusion that injury to the omentum or its involvement in an inflammatory process has provided a source for emboli whose lodgment in the stomach has so injured the mucous membrane as to give rise to hemorrhages. There is no reason to suppose that similar emboli might not come from other veins in the portal system and that a continued insult of the stomach from, say the appendix, might not bring about secretory changes in the stomach, thus giving rise to the symptoms from which these patients suffer. It is admittedly going too far to say that all ulcers are caused in this manner and there must be many contributing causes which tend to alter the character of the lesion. The work is really only begun. The lesions found have been acute ulcers which show a persistent tendency toward healing. It would be interesting to know what effect such thrombosis has upon the character of the gastric secretion and if the course of the ulcers could be influenced by bacterial infection. The animals should be allowed to live for longer periods of time to see if in some instances the ulcers might not become chronic. The field is a broad one and important. The treatment, both medical and surgical, of ulcer of the stomach and duodenum is in the highest degree unsatisfactory and any help will be welcome.

THE HARDENING OF CHILDREN.

A topic that has received considerable attention in the popular hygienic books and journals and that appeals with particular force to the average parent is the hardening of children. The theory upon which this belief is based holds that a certain amount of exposure to cold and wet is a good thing for the child and serves to protect it subsequently against many ailments caused by sudden changes of temperature. The physician is frequently asked to express an opinion on this subject and it is quite likely that in most instances he will hesitate before giving an answer, which is more apt to be vague than definite. The reason for this is that the risks of an injudicious method of hardening are greater than those of a careful nurture of the young. The specter of rheumatic endocarditis more than counterbalances the virtue of wet feet, of bare knees, and of gauze underwear. There are so many factors to be considered: the individual child, the climate, the season, and the environment, that the problem of hardening becomes one of careful study and deliberation, rather than one of vague generalization. The question may be asked: are there any accurate scientific data upon which one may base a rational method of hardening? Fortunately an affirmative answer is available.

The subject of hardening is discussed in its broader physiological and clinical aspects by Alois Strasser in the *Zeitschrift für physikalische und diätetische Therapie,* July, 1913. He emphasizes the necessity of this hardening, but it should be accomplished with due regard to the age and constitution of the child. The fact should be borne in mind that the surface covering of the child with reference to the latter's weight is an extensive one, and that the tendency to loss of heat and the irritability of the nervous system are greater than in the adult. These circumstances decree that rigid systems of hardening are not only unnecessary but may be of distinct danger. Neither during the first few weeks of life, nor at any rate during the first years, can the child tolerate a hydrotherapeutic process of hardening. For the first few years of life the open-air method of hardening is the more important. The question is not so much one of exposure to the ever-varying changes of the outer air as one of adaptation of the uncovered skin to the atmospheric temperature variations of indoor air, and the adaptation of the body suitably clad to all sorts of weather outdoors. Pouring cool water over the child while the latter is in a lukewarm bath is more a process of stimulation than one of hardening, and it is of no great importance if the daily bath, which at any rate should not be too warm, about 90° F., is cooled a few degrees while the child is in the bath. Mild hydrotherapeutic measures may be employed in the case of children three or four years of age, but these measures should not go beyond a mere sponging of the body. Showers and douches of low temperature are at this age detrimental. The morning hours are the best for giving the sponge bath, unless definite therapeutic indications, such as insomnia and enuresis, demand that the bath be given in the evening.

During the later years of childhood up to puberty the order in the carrying out of hydriatic procedures is of greater moment than a mere intensification of the latter. As a rule a single short stimulating bath in the morning is sufficient, and this must be adapted to the susceptibility of the child. Safety and comfort are the criteria upon which the mode of bath should be based. Physiological observations have shown that psychic influences, such as fear, have a profound influence in changing and even in reversing the physiological effect of thermic stimuli.

With reference to the age of the child an important point is emphasized by Strasser. During the period of growth there are certain stages of rapid increment of organic development, during which the body needs all of its resources for growth and during which any excessive strain upon the nervous system, upon the heat-regulating mechanism, etc., is apt to produce disastrous consequences. These periods of rapid growth are between the fourth and fifth, the ninth and tenth, and the thirteenth and fourteenth years of life, and particularly in the girl at the time of puberty. During these critical periods one should be particularly cautious in carrying out any hardening measures.

MIXED DIET AND METABOLISM.

While it has always been recognized that a mixed diet embracing all the food elements was a necessity for the maintenance of health and for good nourishment, yet it is only since the recent studies in metabolism that this precept has been given definite foundation. Nature intended, in the creation of the many articles of food, that they be partaken of in variety. The overconsumption of one food product overworks the organs concerned in its utilization to exhaustion, after which they can no longer perform their functions properly. In this way the overconsumption of carbohydrates for only a temporary period causes a transient glycosuria, because the organism cannot convert and utilize the overplus. The organ concerned in the utilization of carbohydrates is the pancreas. If the overfeeding is temporary the pancreas accommodates itself to this, and gives warning through the glycosuria, but after continual abuse, and disregard of these warnings, there is exhaustion damage of a permanent nature, and diabetes. This is the carbohydrate theory of diabetes.

On the other hand, the overingestion of proteins may have the same effect, especially if accompanied with an unphysiological quantity of carbohydrate. Besides, it is now understood that protein and fat are themselves prolific sources of sugar, and help to augment the quantity actually taken into the body in the form of carbohydrates. Overindulgence in protein causes an overproduction of the toxic albuminoids, the end-products of protein digestion, and acids, like uric acid, which have to be rendered innocuous by the liver, but especially the pancreas. Incomplete combustion of this excess protein matter results in the production of such acids as acetone, diacetic acid, and β-oxybutyric acid, which, as we

know, are present in other toxemias besides diabetes. With an undamaged pancreas and normal sugar utilization, these bodies are converted in the presence of utilized carbohydrates, which act as catalytic agents, into carbon dioxide and water, and thus rendered harmless. The acids, even if not of the acetone variety, render the blood underalkaline, and manifest themselves in disturbed nutrition, indigestion, and the symptom complexes commonly classed under the heading, irregular gout.

Another phase of this lack of a mixed diet manifests itself, however, not so much in a want of variety in the food elements, as in a lack of variety in the articles of food consumed. While the former condition is common in the richer classes, the latter is the rule in the poorer. These subsist on the same articles of diet year in and year out; they can predict their menu a year in advance. Contrary to the general opinion the quantity of food is not small, yet these people are spoken of as undernourished and underfed. Food variety satisfies the appetite in smaller total quantities than a larger total quantity of one article of diet. The natural repulsion felt toward sameness in food is merely an expression of the organism's intolerance of it. This repulsion can perhaps be accounted for on the theory of anaphylaxis. Anaphylaxis is the increasing susceptibility or intolerance acquired by the organism to the same substance or toxin. Anaphylaxis has, moreover, been used to explain the untoward symptoms of intoxication in certain individuals after ingestion of certain articles of food. The end-products of every food, while essentially similar, if composed of the same food elements, have their own peculiar characteristics and it is possible that the organism acquires an increasing intolerance to the ever same end-products. Or the intolerance may be an inability to assimilate, resulting in anemia, malnutrition, and asthenia. For such individuals a change of diet, even without regard to the component food elements, is essential.

MODERN TREATMENT OF GENUINE EPILEPSY.

The number of remedies, old and new, which are able in some degree to decrease the number of epileptic paroxysms is very large, and includes many sedatives, hypnotics, narcotics, antispasmodics, etc. These effects are also genuine because suggestion should play little or no rôle in the therapeutics of this disease. Other substances, the mode of action of which we know nothing, are also efficacious. Of late years much labor has been devoted to preparing patented remedies containing the most efficacious anticonvulsives, just as in prebromide days physicians used to combine in one formula belladonna, valerian, zinc, etc.

Hence to be able to sum up in a few broad strokes just which of all alleged remedies excel the rest should be the task of a man incessantly at work at all aspects of the subject; such as Jödicke, for example, a prolific writer. At a session last spring of the Wissenschaftlicher Verein der Aerzte zu Stettin (*Berliner klinische Wochenschrift,* September 22) this author naturally gives first praise to the halogens—bromides and chlorides—for in addition to clinical experience we have recently learned that the rationale of the bromide medication is bound up with the reciprocal relations between Br and Cl. Jödicke lays much stress on the use of bromides in cookery. The chlorides, administered in all forms, internally and externally, are the natural remedies for bromism. The mortality of status epilepticus has been brought down from 10 per cent. to 0 by a combination of rest, amylene hydrate enemata, venesection, and saline infusion. A new patented substance has been shown to exert a powerful influence on the most severe types of convulsions, but it produces such severe collateral effects as not to be utilizable.

Indications for Inferior Bronchoscopy.

As is well known many specialists do not practice superior bronchoscopy because of the possibility that even with strictest indications and technique subsequent tracheotomy will be required, and the simpler operation with inferior bronchoscopy may therefore be preferable as a routine procedure. Friedrich of the Medical Society of Kiel reported a case last summer to illustrate this point (*Muenchener medizinische Wochenschrift,* September 23). The patient was a boy aged 5 who had swallowed a carpet tack. The symptoms were mild and an *x*-ray examination located the foreign body at the left sternal margin and fourth rib. Superior bronchoscopy, done under narcosis with patient seated, eliminated the left bronchus. Succeeding examinations of both kinds then located the object in the right middle bronchus. As upper bronchoscopy had now become difficult, much mucus having accumulated, the operation of tracheotomy was done and a tube passed directly into the right middle bronchus. Through the tube the nail was grasped and everything was drawn out at once. The tack was half an inch long, with a flattened head about one-third of an inch in diameter. A considerably larger tube can be used in inferior bronchoscopy.

Radioactive Waters

So much is being said now in the newspapers regarding the therapeutic uses of radioactivity that a warning recently issued by the Bureau of Chemistry against possible misrepresentation in the advertising of radioactive mineral waters is timely. The Department of Agriculture is now investigating a number of so-called radioactive waters with the object of securing evidence that can be made a basis of prosecution for misbranding. Some of these bottled waters are, as they came from the ground, radioactive, but this property is due almost entirely to radium emanation and is rapidly dissipated. The department's circular states that if the radioactivity of a water at its source is 100, four days after bottling it will be only 50, twelve days after bottling 10, and in a month practically nothing. It is evident, therefore, that any water, the therapeutic efficacy of which depends wholly or in part upon its radioactivity, must be taken at the spring, and if it acts at all in a curative way, when bottled, this activity will depend upon its contained salts and not upon its radioactivity. The officials of the Bureau of Chemistry fear that a fraudulent trade in so-called radioactive waters will develop, just as a fraudulent trade in other mineral waters was de-

veloped some time ago, to the point where people with strong imaginations will supply the bottlers with testimonials asserting that these waters have effected wonderful cures. Hence the issuance of a warning to the public.

Quarterly of the Federation of State Medical Boards.

We have received the first number of this journal which, as its name indicates, is the organ of the newly established Federation of State Medical Boards. It is under the editorial charge of Dr. Otto V. Huffman, secretary of the Federation, and also of the New York State Board of Medical Examiners. Although primarily intended for the convenience and information of members of the various State licensing boards—and the first number gives promise that this function will be well performed—the journal contains much that will hold the attention of all interested in medical education. "Preparation for the Professions," by Henry S. Pritchett; "The Homœopath's Viewpoint of Medical Education," by Royal S. Copeland; "Chief Needs and Functions of the Federation of State Medical Boards," by N. P. Colwell; "An Address to State Boards," by W. A. Spurgeon; "Uniform State Laws—a Necessity," by Charles Thaddeus Terry; "Rules and Regulations Governing Examinations," by John M. Baldy; "Discipline of the Character in Medical Education," by Eugene A. Philbin, and "Universal Reciprocity," by Beverley D. Harison, are the articles in this first number. In addition it contains the constitution and by-laws and a list of charter members and fellows of the Federation, news notes, excerpts, and editorials. Much is hoped from this association in the way of unifying medical laws and standardizing State examinations, all of which must be preliminary to universal reciprocity, and the *Quarterly*, if conducted on the lines and in the way shown forth in its first issue, will be of invaluable service in furthering these ends.

News of the Week.

Report on the Canal Zone.—The Department of Sanitation of the Isthmian Canal Commission reports that during the month of August, 1913, the total number of deaths from all causes among employees was 39, of which 21 were due to disease and 18 to violence, giving an annual average death rate of 8 per thousand for the month, which is two points lower than the rate for the same month in 1912. Including both employees and civil population the annual average death rate per thousand in the cities of Panama and Colon and the Canal Zone for the month was 24.23, a slight decrease as compared with last year. Among employees the principal causes of death were the following: Lobar pneumonia, 4; malarial fever, 3; pulmonary tuberculosis, 3; abscess of the liver, entamebic, 2. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

Hospital Dedicated.—The new wing of the Misericordia Hospital on East Eighty-sixth Street, New York, was dedicated on October 13 by Cardinal Farley. The addition of this wing, which provides for 275 beds and will be used for surgical cases, makes the hospital the second largest Roman Catholic hospital in the city.

International Anti-Tuberculosis Association.—Under the patronage of the Empress of Germany the Eleventh International Anti-Tuberculosis Conference was held in Berlin on October 22 to 25. For the general meetings the program was divided into four parts: (1) Tuberculosis and Mankind, discussed by Prof. Landouzy of Paris, Prof. T. Shennan of Edinburgh, and Prof. Franz Hamburger of Vienna; (2) "The Surgical Treatment of Tuberculosis of the Lungs," discussed by Dr. Brauer of Hamburg, and Dr. Tuffier of Paris; (3) "The Influence of Insurance in Anti-Tuberculosis Work: Private Life Insurance," by Dr. Lee K. Frankel of New York; "Mutual Insurance," by Dr. Emile Fuster of Paris; and "State Insurance," by Prof. Kaufmann and Prof. Koch of Berlin; (4) Schools for Pretuberculous Children, by Prof. Blumenthal of Moscow, Dr. Chaptel of Paris, and Prof. Franz of Berlin. Twenty-six national societies are now included in the association.

Personals.—Dr. Joseph W. Moore of the Manhattan State Hospital, Ward's Island, N. Y., has recently been appointed first assistant physician at the Matteawan State Hospital.

Dr. D. Bryson Delavan, his many friends will be rejoiced to learn, has completely recovered from the serious illness and operation from which he suffered last spring, and has resumed practice at 40 East Forty-first street.

Col. William C. Gorgas, chief sanitary officer of the Canal Zone, arrived in New York on Monday of this week. He is on a leave of absence to go to South Africa to direct the sanitation in the mines where 200,000 natives are employed and where the mortality is excessive.

Dr. John R. Slattery of Boston, physician-in-chief to St. Elizabeth's Hospital in that city, has been honored by Pope Pius X, who has created him a Knight of the Holy Sepulchre.

Mr. Frederic B. Morlock, for the past ten years chief clerk and assistant treasurer at the Presbyterian Hospital, New York, has recently been appointed superintendent of the Flower Hospital, which for the past six months has been under the direction of an acting superintendent.

Prof. Carl Voegtlin, associate professor of pharmacology in Johns Hopkins University, has been appointed professor of pharmacology in the Hygienic Laboratory, United States Public Health Service, Washington, to succeed Prof. Reid Hunt who recently resigned to accept the chair of pharmacology in the Harvard Medical School. Dr. Voegtlin's work has covered researches in pathological protein metabolism, the treatment of tetany with calcium salts, the function of the liver in anaphylaxis and jaundice, etc., and he will continue along these lines in his new field.

Dr. Richard Lewisohn of New York City has moved his office to 565 Park avenue.

Charitable Bequests.—The will of the late Mr. Benjamin Altman of New York, who died on October 7, distributes an estate of about $50,000,000 largely for public purposes. In addition to the bequest of his invaluable art collection to the Metropolitan Museum, donations to charitable institutions in New York City were made as follows: To Mount Sinai Hospital, $100,000, to be kept as a separate fund, one-half of the income thereof to be used for the benefit of the department of nervous diseases, and the remainder for the general purposes of the hospital as the directors may deem best; and to St. Luke's Hospital, the German Hospital and Dispensary, the New York Eye and Ear Infirmary,

and the Lincoln Hospital and Home, $25,000 each for the general purposes of the institution.

By the will of the late Miss Rebecca L. Bringhurst of Philadelphia, the University of Pennsylvania receives a bequest of $15,000 to be used to endow three beds in the orthopedic ward of the University Hospital.

By the will of the late Mrs. Mary L. Parsons of New York, the New York Post-Graduate Medical School and Hospital receives a bequest of $2,000.

Mt. Sinai Hospital, the German Hospital, and the Montefiore Home receive bequests of $2,500 each by the will of the late Max E. Bernheimer of this city.

A number of charitable institutions are remembered in the will of Mr. Samuel J. Silberman of New York, who died recently. The Beth Israel Hospital receives $5,000; Mt. Sinai Hospital, $2,500; Lebanon Hospital and the Montefiore Home, $1,500 each; Hospital for Deformities and Joint Diseases, Har Moriah and the National Jewish Hospital for Consumptives, Denver, $1,000 each.

Cedar Valley-Austin Flint Medical Society.—This society will assemble for a two-day sessions in Fort Dodge, Ia., on November 10.

Holyoke Medical Association.—The annual meeting was held in Holyoke on October 3, when officers for the ensuing year were elected as follows: *President,* Dr. J. J. Carroll; *Vice-President,* Dr. Forrest L. Leland; *Secretary-Treasurer,* Dr. Fred H. Allen.

New Home for Nurses.—A home for the nurses of the Women's Homeopathic Hospital of Philadelphia, recently erected at a cost of $35,000, was formally opened on October 15 with appropriate exercises. The building is colonial in architecture, three stories high and constructed of brick and stone. It will accommodate about 35 nurses.

City Death Rate.—The death rate for the week ending October 11 in New York City was 12.63 per 1,000 of population, representing a total of 1,301 deaths, as compared with a rate of 14.05 per 1,000 and a total of 1,393 deaths for the corresponding week of last year. Because of the epidemic of typhoid fever on the East Side, 27 deaths due to that disease were reported, an increase of 80 per cent. over the same week of 1912.

Vermont State Medical Society.—The 100th anniversary of this society was marked by the three days' annual convention in Burlington, October 8 to 10. The following officers were elected for the coming year: *President,* Dr. A. Lawrence Miner, Bellows Falls; *Vice-President,* Dr. Grace Sherwood, St. Albans; *Secretary,* Dr. J. M. Hamilton, Rutland; *Treasurer,* Dr. Charles F. Dalton, Burlington.

Wisconsin State Medical Society.—At the annual meeting in Milwaukee on October 2 to 4, Dr. Charles S. Sheldon of Madison, who had already served the society as secretary for 25 years, was elected president. The following vice-presidents were also elected: Dr. Curtis A. Evans, Milwaukee; Dr. C. J. Combs, Oshkosh, and Dr. E. Kinne, Elkhorn. The other officers will be elected by the Councilors in January.

Medical Association of the Southwest.—The following officers were elected at the annual meeting of this association in Kansas City, Mo., on October 8: *President,* Dr. Samuel S. Glasscock, Kansas City; *Vice-Presidents,* for Missouri, Dr. J. D. Griffith, Kansas City; for Texas, Dr. J. D. Dodson, Vernon; for Oklahoma, Dr. D. A. Meyers, Lawton; for Arkansas, Dr. L. R. Ellis, Hot Springs; *Secretary-Treasurer,* Dr. Frederick H. Clark, El Reno, Okla.

Obituary Notes.—Dr. William B. Zineman of Philadelphia, a graduate of the Baltimore University School of Medicine in 1896, died at his home recently.

Dr. Robert L. Brodie of Charleston, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1849, a medical director in the Confederate Army during the Civil War, and a member of the American Medical Association and the South Carolina State and Charleston County Medical Societies, died at his home on October 2, aged 84 years.

Dr. William John Bradley of Cedar Rapids, Ia., a graduate of the Rush Medical College, Chicago, in 1890, and a member of the American Medical Association and the Iowa State and Linn County Medical Societies, died at his home from typhoid fever, on October 2, aged 47 years.

Dr. John N. Merrill of Skowhegan, Me., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1869, a veteran of the Civil War, and a member of the Maine State and Somerset County Medical Societies, died at his home, after a brief illness, on October 2, aged 71 years.

Dr. Charles Sinclair Elliott of Kansas City, Mo., a graduate of the Pulte Medical College, Cleveland, O., in 1886, professor of nervous and mental diseases in the Kansas City Hahnemann Medical College, and author of several medical text-books, died at his home on September 27, aged 50 years.

Dr. L. V. White of Marathon, Tex., a graduate of the Southern Medical College, Atlanta, Ga., in 1886, died at his home, after a brief illness, on September 30.

Dr. Horatio Henry Brown of Jackson, Tenn., a graduate of the Lincoln Memorial University, Medical Department, Knoxville, Tenn., in 1899, died suddenly from uremic poisoning at his home on October 7, aged 42 years.

Dr. Jonathan Burmond Garber of Dunkirk, Ind., a graduate of the Jefferson Medical College, Philadelphia, in 1890, and a member of the American Medical Association and the Indiana State and Jay County Medical Societies, died at his home from injuries sustained in an automobile accident, on October 3, aged 57 years.

Dr. Robert Lyon Sanderson of Sparta, Ont., a graduate of the Cleveland University of Medicine and Surgery, Cleveland, O., in 1857, and for many years medical officer of the township of Yarmouth, died at his home on September 30, after a long illness, aged 81 years.

Dr. S. S. Huber of Brooklyn, N. Y., a graduate of the Jefferson Medical College, Philadelphia, in 1865, died at his home on October 16, aged 76 years.

Dr. Howard Patterson of Philadelphia died at Jefferson Hospital on October 15 as the result of an operation at the age of 63 years. He was graduated from Jefferson Medical College in the class of 1874, and after practising his profession for a short period at Stroudsburg, Pa., he returned to Philadelphia. He was a Mason of high rank.

Dr. Charles B. Jennings died at Reading, Pa., on October 11 at the age of 57 years. He was graduated from Hahnemann Medical College and Hospital of Philadelphia in the class of 1881. He was for fifteen years a member of the Reading School Board and he was recently appointed a member of the local Board of Pension Examiners.

Dr. L. H. Hartsell of Youngstown, O., died of scarlet fever at Philadelphia on October 12, while serving as interne in the Municipal Hospital for Contagious Diseases. He was graduated from Jefferson Medical College in the class of 1912.

Dr. C. S. Britton of Smithville, S. C., a graduate of the Medical College of South Carolina, Charleston, in 1885, died at his home on October 10, aged 70 years.

Dr. James H. Snowden of Center Ridge, Ark., died at his home on October 7, aged 65 years.

Dr. William H. Wathen, LL.D., of Louisville, Ky., a graduate of the University of Louisville, Medical Department, in 1870, a member of the American Gynecological Society, one of the founders and for many years dean of the Kentucky School of Medicine, which in 1908 was merged with the Medical Department of the University of Louisville, and since that time professor of abdominal surgery and gynecology in the latter institution, died at St. Anthony's Hospital, Louisville, after a short illness, on October 7, aged 67 years.

Dr. Hiram Raleigh Kennedy of Green Hill, Ala., a graduate of the University of Louisville, Medical Department, Louisville, Ky., in 1879, died at his home on October 7.

Dr. William F. Minard of Waterbury, Vt., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1887, died at the Massachusetts Homeopathic Hospital, Boston, on October 9, aged 46 years.

Dr. Timothy Miles Leatherwood of Tuscaloosa, Ala., a graduate of the University of Alabama, Medical Department, Mobile, in 1891, and a member of the Alabama State and Tuscaloosa County Medical Societies, died at Asheville, N. C., after a long illness, on October 8, aged 50 years.

Correspondence.

THE TREATMENT OF RHEUMATISM.

To the Editor of the Medical Record:

Sir:—Most physicians give the salicylates in the treatment of acute rheumatism. In fact it has been said that anything which does not yield to the salicylates is not rheumatism. The longer I practise medicine and the more I observe the disease, the more I come to look at it in that same light myself. I look upon those so-called cases of rheumatism that last three months and six months and possibly become chronic as not rheumatism at all. They are a good deal more apt to be septic in nature and would be more likely to yield to antistreptococcus or some other serum if the exact nature of the offending germ could be determined. It matters not what form of salicylate is taken, it is absorbed as salicylate of sodium. When it gets into the system it breaks up and salicin unites with the uric acid and is eliminated as salicyluric acid. But what becomes of the sodium? This does not vanish as a dream!

In the blood of a rheumatic patient there is present lactic acid. That lactic acid is the cause of the symptoms can be readily demonstrated by injecting enough of it into the veins of an animal to render the blood anywhere near neutral, when the animal will show signs of pain. It is my opinion, and simply my opinion, for I have no authority for this statement, that the lactic acid unites with the sodium and is eliminated as lactate of sodium. If this is so, it would seem that the proper treatment of rheumatism would be to take a teaspoonful of baking soda in a half glass of water at meals. But here comes the trouble: the stomach in health contains hydrochloric acid and the minute this meets bicarbonate of sodium it forms sodium chloride, and salt will not cure rheumatism. The rectum is alkaline, neutral, and occasionally slightly acid. For a long time I have treated rheumatism by injecting bicarbonate of sodium into the rectum. I dissolve one teaspoonful of bicarbonate of sodium in one glass of water and every twenty minutes inject one ounce into the rectum with a glass syringe. I wish others would give the treatment a trial.

Geo. W. Greene, M.D.

Auburn, N. Y.

THE CAUSE OF MIGRAINE.

To the Editor of the Medical Record:

Sir:—Permit me to refer concerning migraine to my report in the *Post-Graduate*, 1903, IV, 504, demonstrating that these temporal hemicranias, migraine, tic, etc., are usually, if not always, reflexes depending upon, and originating from, variously formed hypertrophies of the septal mucous membranes, situated at the lower border, or just beneath the expansions of the olfactories. Two severe cases are cited out of many milder. Miss K., age 23, a sufferer from these neuralgias since earliest childhood and worst on the left side, presented these hypertrophies on both sides of the septum. They were much larger on the left side, posteriorly nearly three-eighths of an inch thick, puffy. Cauterization, under cocaine, of the left side first relieved the pains on this side promptly and four weeks later she returned for treatment of the right side. A young man, 25, had for years pains on the left temple of sufficient severity temporarily to incapacitate him for business. Cauterization of the very large hypertrophies on the left side relieved him and there was no return in two years. In explanation the centripetal course would seem to be through the superior maxillary branches of the fifth through Meckel's ganglion into the temporal expansions of the inferior maxillary, but because of at times accompanying occipital and frontal neuralgias higher centers may become irritated.

C. Am Ende, M.D.

319 West Forty-fifth Street, New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPENING SESSION—CHANGES IN HOSPITALS AND SCHOOLS—INTRODUCTORY ADDRESSES — AMALGAMATIONS—OBITUARY.

London, October 3, 1913.

Our Winter Session has begun. The traditional opening day—October 1—was duly observed at the Medical Schools; the Introductory Lectures have been delivered and sundry dinners duly honored. There are some notable changes in connection with the hospitals since last year; one of the most important is the removal of Kings College Hospital from town to a suburban district. It was expected this would have been completely carried out by the first but delay has been caused by a strike in the building trade. The Session was, however, formally opened on Wednesday. The new building is much larger than the old, contains 600 beds, and is equipped with every modern provision for hospital work. The removal is the more interesting an event as it is generally thought the ex-

ample will be followed by the Westminster and St. George's hospitals.

The Women's Medical School enjoyed a veritable triumph—nothing less than governmental recognition. Sir Charles Lukis had been announced to give the address. His subject was the "Medical Needs of India," and he took the opportunity of telling this greatly interested audience that he was authorized to state that the Indian Government had approved of a grant of £10,000 a year for a service of medical women under the Dufferin Association. He described in considerable detail the conditions of the scheme, but few of these needed notice, the great point being that it was at once to be put in force. At first 25 female doctors, from 25 to 30 years of age, will be engaged for service in India and Burma, to be retired at 48. Sir Charles expressed great pleasure that the scheme had materialized during his office of Director-General. He told the ladies that the civil surgeons were not the enemies they supposed and that he felt strongly that the bitter attacks made by them on their brethren were not at all deserved. He hoped men and women would work in complete harmony now that all irksome restrictions were being removed.

Charing Cross School, by its association with the London University and with King's College, has been enabled to make better accommodation for students, who now take preliminary subjects at King's.

The Public Health Department is greatly benefited and the laboratories can be more occupied with clinical research. Dr. William Hunter (the Dean) in his address said the students had increased in number since the new arrangement. They gained by the change by getting the best scientific education the University could give, while the School by freeing its energies and finance for the final, strictly hospital work, also gained. The principle of concentration between university and schools was sound and could be extended to other schools but the idea was not to include getting everything into one building.

At St. Thomas' Hospital a special department for tuberculosis under the control of a paid medical director has been arranged so as to form a part of the scheme for dealing with the disease as a matter of public health. There is a ward for diagnosis and the administration of tuberculin, also a bacteriological laboratory and the necessary equipment for the use of *x*-rays. A midwifery department to meet the requirements of the University is supplemented by a baby clinic for those born in the hospital, so enabling students to watch their progress from birth. It is to be hoped the physician in charge will appreciate his clinical opportunity and not suffer nurses to intrude on his functions and circulate old wives' fables in place of scientific study and instruction. Of course, the Children's Department remains as before in case of need after babyhood has passed, and there is a Lady Almoner's Department which is carried on toward all.

At University College a Department for Mental Diseases is being organized by Dr. Bernard Hart, thus filling a lacuna in the educational facilities. A more important development perhaps, may be considered the new special Department for Inoculation provided by the generosity of Sir H. Waechter. This will afford Drs. Thiele and Embleton the opportunity of carrying on those valuable researches on immunity with which you are no doubt familiar as they are important waymarks in the progress of bacteriological investigations. The department will be under the care of these scientists and will include an out-patient clinic.

The changes at Guy's Hospital School are, I am assured, now completed. They have been going on so long that one almost regarded them as permanent proceedings. Provison for research seems to be made in all departments. Close to the hospital the dispensary for tuberculosis will be utilized for teaching by the out-patient staff. Separate departments are also being arranged for children's diseases including orthopedics and infantile nutrition.

At the Middlesex Hospital changes are still going on; a new block is being built for pathology and hygiene, which it is hoped to complete by another year. At the opening the prizes were presented by Sir Squire Bancroft and the introductory lecture delivered by Mr. Sampson Handley, who set forth the importance of scientific teaching of medicine and lamented that present-day statesmen and politicians were most of them destitute of scientific equipment. He excepted, however, Mr. Balfour, who had shown keen interest in research, and Mr. Chamberlain, to whom the advances in tropical medicine owe so much.

At St. Mary's Hospital Sir Prescott Hewett presented the prizes and addressed the meeting on the work that had been done by the profession for the health of India where he was himself at one time a Lieutenant-Governor (Agra and Oudh). Wonderful results had been achieved as to epidemics, improved death rates, infant mortality, and general hygiene.

At St. George's Hospital Sir William Osler gave a scathing criticism of the examinational system which he was inclined to abolish, for it had gone to such excess as to consign a large proportion of students to the care of grinders and to no purpose. The spirit was taken out of instruction, teachers and taught went down together into Ezekiel's valley and stayed among dry bones. He would to a great extent substitute reports of work done, a plan which was in operation in Canada. He would replace the Chinese by the Greek spirit and enable the student to seek knowledge for itself, not for the end of passing examinations.

At the Westminster Hospital dinner last evening the approaching amalgamation with St. George's Hospital was mentioned, Dr. P. Stewart saying that a new institution would have to be built, the site of which was not yet fixed upon. Dr. de Havilland Hall spoke of two sites on offer and said the selection would be by a joint committee of the two hospitals. The medical officers of each of the uniting hospitals will take the same posts in the new institution and will, no doubt, find work enough. If the staff thus seems too large it will be easy to diminish it by not filling up vacancies for a time.

Recent deaths include Surgeon-Major David Woods, late A. M. S., in his eighty-fourth year. He was formerly surgeon in the artillery and on retiring from the army became medical officer to the W. W. District of London Post Office. At the early age of 48 another army medical officer, viz., Major George Johnstone Buchanan, died lately in consequence of a gunshot accident. He had passed over 17 years of his brief life in India, where he had seen active service, received honors, had charge of station hospitals, and been examiner in Indian languages. Dr. Tempest Anderson, consulting ophthalmic surgeon to York hospital and physician

to the Lunatic Asylum, retired from practice a few years ago in order to give himself entirely to scientific work. He was Hon. D.Sc. of Leeds, 1904. He wrote a volume on "Volcanic Studies," and was a fellow and president of several scientific societies.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

GERMAN SOCIETY FOR THE CONTROL OF VENEREAL DISEASES—SEXUAL DISEASES AND SOCIAL PROBLEMS—VENEREAL DISEASES AND INFANT MORTALITY—SEXUAL DISEASES IN RELATION TO MARRIAGE LAWS—THE TEACHING OF SEXUAL HYGIENE.

BERLIN, Sept. 15, 1913.

THE recent annual meeting of the German Society for the Control of Venereal Diseases was opened with a report of the progress made in the past year. One of the important events was the organization of a National Committee composed of physicians, jurists, government officials, and legislators. The exhibit dealing with sexual diseases, which exhibit formed a part of the Dresden Hygienic Exposition was utilized as a traveling exhibit, which was presented in various German cities. Provision was also made for the production in different parts of Germany of the drama by Brieux, entitled "The Shipwrecked."

"Sexual Diseases and Social Problems" was the title of a paper by Marcuse of Ebenhausen. He pointed out that the modern evolution of economic and social life gave rise to certain difficulties in the struggle for existence and in the maintenance of family life. Moreover, infant mortality and sexual diseases have a profound influence upon the race. Whereas on the one hand the limitation in the size of the family is accompanied by a diminution in infant mortality and hence by an improvement in the race, nevertheless, on the other hand, sexual diseases have a most pernicious influence upon racial hygiene. Preventive measures alone are effective in the campaign against these diseases.

The same theme was discussed by Blashko of Berlin, who perceives in venereal diseases one of the most potent causes of infant mortality. Since the cities contribute the largest number of cases of venereal disease, and since the cities continue to get larger and larger, the conclusion is reached that the influence of venereal diseases upon the birthrate is an increasing one. The attempt has been made to prohibit the use of prophylactics against venereal diseases, because some of these measures also serve to prevent conception. But it must be admitted that under certain circumstances the prevention of conception is justifiable. The increasing cost of living, particularly in the large cities, causes an unconscious restriction in the size of the family. When social and economic reforms succeed in stemming the tide of migration from the country into the city, then only will it be possible to predict the evolution of a healthier urban population.

Heller, a physician, of Berlin, and David, a jurist, of Breslau, discussed the subject of sexual diseases in relation to marriage laws. It was pointed out by the speakers as well as in the discussion that any change in existing laws is not necessary, inasmuch as present procedure is in most respects perfectly rational. Certain difficulties in judicial decisions will always arise in connection with sexual diseases. One must take account of a relative cure, in which the danger of contagion is minimized. Later non-contagious sequelæ may develop. Since besides there is no absolute guarantee for a perfect cure, and since the law can take into account only a standard of normal health, the legislator has given to the courts such a degree of latitude in applying the law that a miscarriage of justice is quite exceptional.

The teaching of sexual hygiene as a phase of the Society's activity for the future was a subject the discussion of which was opened by Chotzen of Breslau. The conclusion reached was that in spite of the difficulties in this sphere encountered by the Society and by school physicians, there was a growing need of instructing the youth in the principles of sexual hygiene. In a number of cities extension courses in this subject for teachers have been inaugurated. An important need is to awaken in parents a realization of the importance of this form of instruction.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 9, 1913.

1. Address of the Chairman of the Section of Tuberculosis. J. F. A. Adams.
2. The Importance of Education in the Tuberculosis Campaign. L. A. Jones.
3. The Tuberculosis Problem from the Point of View of Local Boards of Health. B. H. Peirce.
4. Need of Co-operation Between Local and State Forces in Tuberculosis Work. J. B. Hawes, 2d.
5. The Value of the Roentgen Method in the Study of Chronic Appendicitis and Inflammatory Conditions, Both Congenital and Acquired, About the Cecum and Terminal Ileum. A. W. George and I. Gerber.
6. Medical Contribution of the State Board of Insanity of Massachusetts: Introductory Note. E. E. Southard.
7. Our Little Balloons. Some Observations on Gas and Ptosis. E. A. Codman.
8. Report of a Few Cases Where Sutures Instead of Packing Have Been Used After Submucous Resection of the Nasal Septum. M. L. Noyes.

5. X-Ray Study of Chronic Appendicitis.—A. W. George and I. Gerber state that in a series of cases which clinically show severe constipation, and more or less indefinite gastric symptoms, *x*-ray examination has shown the causes to be definite surgical conditions in the right lower quadrant. In all of these cases the demonstration of mere ileal stasis or obstruction is not as important as the more positive demonstration of the actual conditions. In chronic appendicitis the kinked and adherent appendix is shown. In case of Lane's kink one can demonstrate the fixed and distended terminal loop of ileum. In cases of Jackson's membrane one can show the effect of the adhesions under the fluoroscope, as well as the presence of a characteristic mechanism of filling. Various adhesions in this region as the result of old inflammatory disease or congenital anomaly can also be shown in the same manner. *Cecum mobile* and left-sided appendicitis can be readily demonstrated.

7. The Balloon Effect of Gas in the Hollow Viscera.—E. A. Codman discusses this subject. He states that the *x*-ray shows at least four little abdominal balloons which are constantly present in all individuals: (1) the stomach, (2) the hepatic flexure, (3) the splenic flexure, and (4) the small intestine. The last is a coiled compound balloon. The sigmoid and rectum might also be included and doubtless are the safety valves of the system since their gaseous content is more or less under one's voluntary control. First, the rectal balloon very nearly fills the bottom of the pelvis; over that the sigmoid fits quite naturally and almost fills the remainder of the pelvis. Now with much difficulty and crowding the distended small intestine is forced in under the transverse colon and the omentum nicely tucked down in front of it. The abdominal wall is then closed. The transverse mesocolon is

held up like a shelf by the compound balloons underneath it. On top of this shelf rests the stomach. It cannot drop down, and if the omentum is long and nicely tucked in it keeps the small intestine from bobbing up in front of the colon. With reference to ptosis the author states that many interesting questions come up, as follows: Should one not feed ptotic individuals with gas-producing foods, and teach them to endure temporary distress from distention for the sake of crowding their organs up into place? Should we not urge these individuals to retain the gas which they seem impelled to eruct or expel? What are the effects in the standing patient of inflation of the colon as seen by the *x*-ray? Do different articles of food produce different kinds of intestinal gas? Are different kinds of gas equally agreeable to the intestine? What are the toxic effects of the absorption of different gases? Why is it that some patients who are obviously not distended complain of distress from gas? What are the laws governing the manufacture and absorption of intestinal gas? Do individual coils rise and fall in the abdomen according to the weight of their contents?

New York Medical Journal.

October 11, 1913.

1. Differential Diagnosis of the Appendix by Aid of the Röntgen Ray A. J. Quimby.
2. Movements of the Two Halves of the Chest in Disease. L. Napoleon Boston and J. F. Ulman.
3. Tubercular Leprosy in a Negress. J. L. Kirby-Smith.
4. The Use of the X-ray in the Diagnosis of Diseases of the Chest and Abdomen. L. Glendening.
5. Vagitus Uterinus. J. H. Telfair.
6. Intravenous Injection of Salvarsan and Neosalvarsan. D. T. Miller.
7. Physicians in English Literature. J. B. Neary.
8. The Value of Immunized Milk as a Prophylactic and Cure for Typhoid and Tuberculous Infection. J. Rosenberg.

1. **X-Ray Diagnosis of Appendicular Lesions.**—A. J. Quimby concludes that in chronic constipation due to delayed or inhibited peristalsis the appendix is usually diseased. In the differential diagnosis of diseases of the appendix the *x*-ray is essential. When the appendix is tied up in a mass of adhesions an accurate *x*-ray determination of the position of the appendix enables the operator to rapidly locate it at operation. Accurate determination of conditions present in appendicitis should be made before operation. When there are obscure symptoms in the abdomen which cannot be traced to a definite organ an *x*-ray examination of the appendix may show that it is adherent to some distant organ.

2. **Movements of the Two Halves of the Chest in Disease.**—L. Napoleon Boston and J. F. Ulman state that the facts obtained from the physical examination of the chest in a variety of pulmonary and cardiac diseases, abdominal disorders and cerebral lesions have for many years led Boston to believe that an accurate record of the movements of the two halves of the chest would furnish clinical data of special interest. The authors set about to determine chiefly (a) the difference in the amplitude of the curves of the pneumogram as produced by the respiratory movements of the two halves of the chest; and (b) delayed movements upon the side in which respiration was inhibited. A correlative study of the pneumograms of the two halves of the chest renders immediately apparent the fact that organic lesions of the lung and pleura, and both liquid and air in the pleural cavity, give unmistakable evidences through this method.

8. **Immunized Milk in Typhoid Fever and Tuberculosis.**—J. Rosenberg reports the results of his investigations as follows: Cows and goats can be immunized against tuberculosis and typhoid fever without any ill effects. During and after immunization the milk remains wholesome, differing in no respect from other milk. The milk of immunized animals contains antitoxins and bactericidal substances, differing in no respect from those of blood serum. The usual laboratory tests demonstrate the presence of agglutinins, precipitins, and bacteriolysins. Immunized milk is inimical and destructive to the microorganisms against which the animal is inoculated. Immunized milk lessens the liability of infection, owing to its bactericidal properties and producing passive immunity. It is useful and indicated in cases in which passive immunity is desired, and subcutaneous injections are impractical and contraindicated. Passive immunity and protection against infection are obtained by drinking the milk of immunized animals. The drinking of six ounces five alternate days produces protection against typhoid fever and tuberculosis. The milk must be taken on an empty stomach.

Journal of the American Medical Association.

October 11, 1913.

1. Gastroscopy. H. H. Janeway.
2. One Hundred Cases of Water-Trap Stomach. G. Reese Satterlee and L. T. LeWald.
3. Points of Value in Roentgenoscopy of the Gastrointestinal Tract. R. W. Mills.
4. The New Immigration as It Affects Orthopedic Surgery. W. Blanchard.
5. Local and Spinal Anesthesia in Gynecology and Obstetrics. G. Gellhorn.
6. Spinal Anesthesia in Gynecology, Obstetrics and Abdominal Surgery. W. W. Babcock.
7. Further Points on the Sterility of Women. E. Reynolds.
8. Functional Test (Phenolsulphonephthalein) of the Kidney in Scarlet Fever. M. Frohlich.
9. Results Obtained in the Non-Surgical Treatment of Tuberculosis of the Joints. H. W. Orr.
10. The Whitman Operation for Talipes Calcaneus Paralyticus. J. P. Lord.
11. The Relative Values of the Roentgen Ray and the Cystoscope in the Diagnosis of Vesical Calculi. E. Beer.
12. A Streptococcus Producing Symptoms of Chorea in a Dog. G. F. Dick and T. Rothstein.
13. A Scarlatiniform Rash from Atophan. W. W. Herrick.
14. A Simple Method for the Relief of Ordinary Fainting. J. A. Hawkins.

2. **The Water-Trap Stomach.**—By G. R. Satterlee and L. T. Le Wald. (See MEDICAL RECORD, July 5, 1913, page 40.)

3. **Roentgenoscopy of the Gastrointestinal Tract.**—By R. W. Mills. (See MEDICAL RECORD, July 5, 1913, page 41.)

7. **Sterility in Women.**—E. Reynolds states that the normal secretion of the vagina may be altered by disease or there may be fermentative or other changes in the secretion given out by a normal mucous membrane. It is only by close observation of these secretions that the cause of the sterility in these cases can be discovered. A secretion of any one of the parts of the genital tract is most likely to be harmless to those above it, but an alteration of an upper secretion almost necessarily implies a similar abnormality of the secretions below into which it passes. Secretions in the patent vagina are rarely absolutely normal, but the importance of the condition must be estimated differently in the nulliparæ, who form most of the subjects of sterility, and in the multiparæ. A cause efficient against conception in the former may have no effect in the latter, owing to the slightly alkaline secretion of a lacerated cervix and the greater facility of the entrance of the spermatozoa. The most common causes of the alterations of the cervical secretion alone are retention and consequent thickening of the secretion behind a pinhole os. As regards the uterine secretion, which largely depends for its normality on the free drainage, so long as it is thickened, clouded, mucopurulent, or seropurulent, there will be no pregnancy. It is not generally realized that the Fallopian tubes have a secretion, but this must be inferred from their structure. Remembering that they are morphologically a part of the uterus it would seem it must be so. The author considers that besides a regular salpingitis there may be many minor conditions which affect the tubal secretion. The existence of ovarian infertility has long been accepted as possible. The alterations that are most common in sterility cases are slight to moderate enlargements caused either by the presence of numerous small to medium sized retention cysts, or of

unduly large, persistent, and frequently cystic corpora lutea. The claim that bilateral enlargement of the ovaries by retention cysts is a cause of sterility cannot at present be proven, but the importance of persistent corpora lutea is better established. The author has in his records cases of this kind and veterinary practice has recognized it in cows. As regards treatment the alterations of the vaginal secretion are apparently always due to infection, with the exception of profuseness, from general pelvic congestion or of those hyperacidoses from a general constitutional acidosis. Treatment naturally follows along the lines indicated by these etiologies. In alterations of the cervical secretions we should include the ordinary topical applications and perhaps curetting, but always the complete drainage of the cervical cavity. Any constriction should be done away with by operation if necessary. The only two methods of treating the uterine mucosa needing mention are curetting and disinfection and these are difficult to perform with thoroughness. Complete drainage by plastic work if necessary is essential and mere dilatation is inefficient. At the base of the whole subject lies the principle that even the ovarian infertilities are almost invariably associated with physiologically obstructive conditions, minor or major, and the patency of the genital canal is only that of its most obstructed point. This is not the mere mechanical patency, but that more complicated physiological patency allowing the conjugation of the germs and the subsequent growth which may be affected by such minute alterations that they escape diagnosis under merely routine observation.

10. **Calcaneus Paralyticus.**—J. P. Lord has demonstrated the value in this condition of the Whitman operation which he has performed twenty times in eighteen patients with most gratifying results. The technique is as follows: (1) The removal of the astragalus. (2) The freeing of the malleoli and the preparation of a new articulation. (3) The transplantation or resuture of the perinei tendons. (4) The backward displacement of the foot. (5) The fixation of the foot in equinus. A fixation plaster is kept on for four weeks, followed by an ambulatory plaster for five months. The results as given are: Correction of cavus and lateral instability, while the backward displacement checks dorsal flexion by direct contact and change in leverage, and the power of the transplanted muscles is made more effective. Most of author's patients recovered the use of their feet within three or four months. The typical or stereotyped technique is not to be absolutely adhered to since indications vary, especially when the operation is employed in conditions, as it can be, other than those for which it was originally devised.

12. **The Streptococcus in Chorea.**—G. F. Dick and T. Rothstein describe a streptococcus isolated from the throat of a patient who had had chorea for five years. Similar organisms have been isolated from more acute cases. It forms a heavy dirty white growth on blood-agar with a raised border and a wide zone of hemolysis. It grows aerobically and otherwise equally well on all ordinary media. It ferments milk with slight acid production but without clotting it. It does not ferment dextrose, lactose, mannite, inulin, or saccharose. On agar slants it is a Gram-positive organism occurring in irregular groups and short chains with an abundance of smaller Gram-negative forms, suggesting a mixed culture. In milk it grows in extremely long chains and staining shows no capsule. The intravenous injections of a dog with four agar slants produced choreic movements within twelve hours.

Lancet.

October 4, 1913.

1. The Medical Needs of India. Sir Charles Pardey Lukis.
2. Medicine as a Liberal Education. W. S. Handley.
3. The Work of the Medical Profession in India. Sir John P. Hewett.
4. Two Cases of Auricular Flutter. J. Hay.
5. Hemiplegia Following Syphilis, with Special Reference to a Case of Double Hemiplegia and Pseudo-Bulbar Paralysis. M. Mackinnon.
6. Syphilis: Its Dangers to the Community, and the Question of State Control. H. C. French.
7. Foreign Bodies in the Air Passages. W. G. Howarth.
8. Acute Epididymoorchitis Due to Bacillus Coli. W. P. Bonner.
9. A Neuromamyoma of the Mesentery. P. Paterson.
10. The Retraction Ring as a Cause of Obstruction in Labor. R. Jardine.
11. Tuberculosis of the Uterus. J. W. Thomson.

4. **Two Cases of Auricular Flutter.**—J. Hay states that he has had under observation for seven years a man aged 46 years in whom there has been demonstrated an auricular flutter with a 3 to 1 ratio and occasional irregular action of the heart. When first seen alteration of the radial pulse was pronounced; this disappeared entirely while the patient was under observation. Later a 4 to 1 ratio was observed. Then in 1908 under the influence of squill the auricular flutter changed to auricular fibrillation, which in its turn gave way to a normal sequence of contraction. The heart continues to contract normally, and the patient, much improved, is earning his living. The second case was that of a man aged 62, who came under observation with a large heart and peculiar arrhythmia. For 10 years the heart has been known to be increased in size, and occasionally irregular in its action. The auricular rate was 300; the ventricular 50 to 60, and coupled. A month later a 3 to 1 rhythm was present—auricular rate 261, ventricular rate 87. Cheyne-Stokes respiration and alteration of the pulse were noted. Large doses of digitalis produced a high grade of heart-block, but the auricular flutter persisted and is still present. The general condition of the patient is much improved. A small dose of digitalis daily is required to moderate the frequency of the ventricle.

5. **Hemiplegia Following Syphilis.**—M. Mackinnon points out that with regard to the etiology of syphilitic hemiplegia, it is well known that the vascular lesion, which is the commonest cause of this condition, is obliterating endarteritis, a condition which may be found in a number of smaller arteries throughout the body, but most frequently in the smaller terminal arteries of the brain. The pathological change affecting the vessel walls begins at a proliferation of the adventitia. The increase of newly formed fibrous tissue frequently tends to the formation of a thrombus in the contracted lumen of the vessel, and according as to whether the thrombus partially or completely obliterates the lumen of the terminal artery the result is a hemiparesis or a complete hemiplegia. There may be a condition of unilateral numbness and tingling during the stage of partial obliteration due to the ischemia of the part of the brain supplied by the obliterated vessel, and this condition may precede for several hours, or even days, the onset of sudden paralysis. This paralysis may readily be recovered from if the case is seen and diagnosed sufficiently early to allow of the appropriate antisyphilitic remedies being freely administered. Fortunately this is the result of treatment in most cases, but in a few the paralysis is permanent, on account of delay in treatment and the degeneration and softening of that part of the nervous system deprived of its blood supply. These vascular lesions are described as the early tertiary or late secondary manifestations of syphilis.

11. **Tuberculosis of the Uterus.**—J. W. Thomson notes that tuberculous disease of the uterus may be primary or secondary, usually the latter, the source of infection being a tuberculous salpingitis; but the infection may also be conveyed by metastasis through the blood stream, or directly by coitus, as pointed out by Montgomery. Tubercle bacilli have been found in the semen of phthisical patients. Those rare cases in which no other tuberculous focus is found constitute the primary form. Three varieties may be described—the corporeal, the cervical, and the combined or cervico-corporeal form. The corporeal is the most common form and may be miliary or ulcerative, and is strictly con-

fined to the body of the uterus, ending, it may be, abruptly at the internal os, as in Stewart's cases. The disease may present the features of an ordinary endometritis, the true nature being only revealed on microscopic examination, or it may involve the musculature of the uterus in varying degrees. The cervical canal may be blocked, resulting in a tuberculous pyometra—the so-called uterine phthisis. Montgomery reports a case in which the disease was confined to the myometrium and had originated there, and was probably transmitted by the blood-vessels. The cervical variety is rarer and may be of the miliary, ulcerative or papillary form, resembling the venereal wart or early carcinoma, but is less friable than the latter and has less tendency to bleed, and there is free muco-purulent discharge. There may exist tuberculous disease elsewhere, and the microscope would decide. The cervico-corporeal form is of extreme rarity.

British Medical Journal.

October 4, 1913.

1. The Medical Needs of India. Sir Charles Pardey Lukis.
2. The Problems of University Medical Education in London: Two Years' Experience of Concentration. W. Hunter.
3. The Provincial School of Medicine and the Provincial University. C. E. Sherrington.
4. Two Unusual Cases of Liver Abscess. H. D. Rolleston.
5. Splenomegaly. Sir E. Sinclair Stevenson.
6. Report on Two Hundred Cases of Ringworm Treated by *X*-rays. F. Emrys-Jones.

4. Two Unusual Cases of Liver Abscess.—H. D. Rolleston reports these cases, both of which were fatal. One was that of a man aged twenty-five years in whom intrahepatic suppuration was the result of infection conveyed by means of an exploratory needle from an empyema. The other case was that of a latent hepatic abcess in an infant ten weeks old. Hepatic abscess is more often latent in children than in adults.

5. Splenomegaly.—Sir E. Sinclair Stevenson believes that until more is known about this condition, the patient's only chance lies in resection of the spleen. Osler has grouped under splenomegaly cases characterized by idiopathic enlargement of the spleen, with anemia. Whether this is secondary to the splenic condition or otherwise, or both, or secondary to some other cause, is not known. To a group of cases of enlarged spleen and cirrhosis of the liver accompanied by ascites the name of "Banti's disease" is given; this is, the author believes, the last phase of splenic anemia. The main symptoms are enlargement of the spleen and anemia of a secondary type but without leucocytosis, with, in most cases, various hemorrhages and a downward course. The spleen is greatly enlarged; in some cases this enlargement seems to have preceded the anemia; the lymphatic glands are not usually enlarged, the average of red blood corpuscles is below normal, the hemoglobin is relatively low, the leucocytes are diminished in number, but the differential count shows no special feature. There is often marked pigmentation of the skin, and as the disease advances so does asthenia. Rolleston has summarized the above symptoms as follows: Anemia of the type usually spoken of as chlorotic, namely, a diminution of red corpuscles with a diminished corpuscular value of hemoglobin; absence of leucocytosis, usually leucopenia, considerable splenic enlargement which cannot be correlated with any other known causes such as leucemia, tuberculosis, malaria, syphilis, and hepatic cirrhosis, the long duration of the disease, and the tendency to gastrointestinal hemorrhages. The diagnosis lies between splenic leucemia, Hodgkin's disease with enlarged spleen, hepatic cirrhosis (alcholic, syphilitic, or hypertrophic), and old cases of malaria with hypertrophy. When the spleen is removed in cases of splenomegaly the blood almost immediately improves in quality.

7. Bedbugs and Leprosy.—D. Thomson refers to the work of Sanders and Long who reported in 1911 that a considerable percentage of the bedbugs experimentally fed on lepers were found to contain the leprosy bacilli. Furthermore, a large percentage of the bedbugs caught within the dwelling of lepers contained acid-fast bacilli, presumably the bacilli of leprosy, while those caught in the dwellings of healthy people contained none. The presumption was that bedbugs might play an important part in the transmission of this disease. The author sought to verify these results. In the leper asylum at Palo-seco in Panama he fed 84 bedbugs on various cases of leprosy, acute and chronic, but was unable to find any trace of acid-fast bacilli in these insects afterwards. Seventeen bedbugs were caught in the beds of the patients at Palo-seco, and the author obtained eighteen more caught on the mattresses of the beds in the leper asylum at Trinidad. All of these likewise showed no trace of acid-fast bacilli. A total of 105 bugs fed on lepers and 35 caught in the beds of lepers, therefore, gave no evidence that these insects harbor or transmit the disease. A further total of 107 bedbugs were examined as controls; 21 of these were caught in dwellings in Liverpool, the remainder were caught in the Spanish wards in Ancon Hospital in Panama. The controls also gave negative results.

Berliner klinische Wochenschrift.

September 29, 1913.

Symptomatology of Adhesive Pericarditis.—Tornai states that almost every case of this affection possesses an individuality as a result of which the adhesions differ in size, site, etc., with the patient. Thus in one subject there were firm adhesions opposite the left costal arch so that forced inspiration caused a funnel-shaped recess to form, while the cardiac pulsation was paradoxic. In all cases of supposed pericardial adhesions the author illuminates the thorax and causes the patient to assume a great variety of positions under forced inspiration. These maneuvers may bring out the existence of unsuspected adhesions. In many cases of adhesions deep inspirations cause sinking in of the end of the sternum. The author terms this depression the "inspiratory funnel breast." Pericarditic adhesions cause further symptoms. In one instance where after pericarditis and pleurisy the pericardium was widely adherent to the anterior chest wall, the apex beat was hardly perceptible by tranquil breathing. But upon forced inspiration the apex beat became very conspicuous, and at the acme the impulse was almost heaving. The liver is in almost every adhesive pericarditis somewhat enlarged. This, in the author's opinion, is in most cases due to inflammatory thickening of the hepatic capsule ("frosted" liver), with or without the secondary circulatory disturbances in the organ which arise therefrom. Tuberculous infection plays a notable rôle in the genesis of pericarditis. When edema results from adhesive pericarditis it is characteristic that in many cases not only the lower but also the upper half of the body is involved. It is possible that only the upper half becomes involved or is much more involved than the lower. The *x*-ray picture in adhesive pericarditis is always triangular, but in many cases we see projections, bands, etc., on one or the other margin of the heart shadow.

Medical Application of Diathermy.—Bergonié concludes his study of this subject as follows: Clinical results fully and completely corroborate physiological experiments. In all cases in which he has used the resource upon broken down, weak, and hypothermic subjects, the temperature, weight, arterial blood pressure, and strength have been elevated. He has further observed an improvement in the digestive functions and regular bowel evacuation. He has seen subjects in the greatest physiological nursery improve to such an extent under diathermy that in a few months they became equal to physical and intellectual activity, and remained thus when treatment was

discontinued. This admirable method, due originally to d'Arsonval has already come into extensive use. Diathermy acts upon temperature, circulation, and nutrition, and is readily mensurable. It will doubtless be of great benefit to the surgeon for sterilization of diseased tissues.

Münchener medizinische Wochenschrift.

September 30, 1913.

Icterus Neonatorum.—Ylppö, a Finnish physician who has done research work in the Berlin Institute for Combating Nursling Mortality (Queen Augusta Victoria House) has made an exhaustive study of all types of icterus neonatorum, including the physiology of biliary secretion in the fetus and newly born child. His conclusions are as follows: Icterus neonatorum is of purely hepatogenous origin; there is no hematogenous component. Children born with icterus show in comparison with the nonicteric no increased secretion of biliary coloring matter. Icterus neonatorum rests upon the fact that even for some time after birth the liver of the newly born allows a portion of its biliary coloring matter to go over into the blood, just as is the case with the fetal liver. Icterus neonatorum is therefore a physiological and simple phenomenon which at times may reach a pathological degree (icterus gravis neonatorum). In its course icterus neonatorum shows an autonomy which is not influenced by external causes like trauma and infection.

Functional Testing of Ovarian Activity.—Keller devotes much space to this subject, the data of which are so numerous and divergent that a summary can hardly be made to cover them. Cristofoletti's work, done about two years ago, allows us to believe that as a rule the ovary exerts an inhibitory action on the chromaffin system, and with extirpation of the genital glands the functional activity of the latter is increased. The chief phenomena of the menopause are such as would be produced by increased activity of the chromaffin system, as the result of abolition of the functions of the ovary. The author has worked along these lines, making use of adrenalin as equivalent to an increased activity of the chromaffin system. When small doses are given in cases of partial or complete abolition of ovarian activity the results are weak and inconstant. Hence the views of Cristofoletti and also of Adler to the effect that increased chromaffin activity is due to heightened sympathicotonus are only binding to a limited extent. Further research with atropin and pilocarpin in the same class of cases appears to show that we cannot as yet bring ovarian activity in necessary connection with heightened stimulation of the autonomous nervous system.

Diagnosis of Gastroenteric Affections with Aid of Abderhalden's Dialysis Procedure.—Kabanow of Moscow publishes a preliminary communication on this subject, the research having been made in the laboratory of Abderhalden. Besides the organs concerned, the work took cognizance of numerous diseases—achylia gastrica, chronic gastritis, acute gastritis, nervous hyperacidity, fermentative dyspnea, gastric, pyloric, and duodenal ulcer, etc. The method used agrees wholly with that pursued in the diagnosis of pregnancy, tumors, and psychoses. As in the foregoing conditions, the value of the test in comparison with others tends to vary at first, but enough evidence is obtained to show that with perfection of technique the site of the disease process can be located.

Deutsche medizinische Wochenschrift.

September 25, 1913.

Narcosis.—Traube first quotes the views of Verworn according to which narcosis represents a suffocative process exerted by the narcotics on the nervous central cells—in other words, they slow and inhibit the oxidative processes which take place within the cells. Hence, from this viewpoint narcotics are negative catalysators. The lipoid theory of Meyer and Overton has been seen to possess but a limited value in explaining narcosis. The author has studied in connection with the latter osmosis, surface tension, internal pressure, etc., in the hope of finding a physical or chemicophysical rationale based on active catalysis. Our organism is a catalytic machine, involving a constant play of catalysators. Paralysis of cell activity implies negative catalysis and stimulation active catalysis. Varying therewith is the surface tension of the cell water. Toxins lower the surface tension and inhibit oxidative processes. Yet when certain activities are slowed up others may be quickened; so that there is no absolute distinction between the two types of catalysators. It is known that a great number of drugs and poisons have power to vary the surface tension which variations in turn are responsible for the behavior of the cell activities.

Treatment of Pregnancy Toxicoses.—Engel relates an instructive case: Patient 23, iii-para. Last menses middle of April. One month later was taken with chills, fever, vomiting, diarrhea, anorexia, pains. She was too weak to sit up and at times showed marked meteorism. After three weeks in bed she began to improve but quickly resumed the lying posture. Fever persistent, high. Medical opinion varied much. Phantom pregnancy was suspected; also pyosalpinx. The existence of these was disproved. When examined by author patient should have been five months pregnant. Patient had become of a typhoid habit. In addition to pregnancy a cyst, probably ovarian, was palpable—perhaps the center of an infection. Laparotomy confirmed in part the diagnosis as a dermoid of the ovary was found. The urine was found albuminous, meteorism so great as to interfere greatly with respiration. Life being threatened vaginal cesarean section was performed, and after slow, uneven recovery patient once more became normal. The strangeness of the case lay in the complete absence of lesions such as ordinarily would cause such symptoms. There was neither peritonitis nor ruptured pyosalpinx. The dermoid, a closed tumor, was not infected. Uterus was normal. The urinary disturbance was technically an acute hemorrhagic nephritis, which, however, cleared up after delivery. The prolonged fever subsided under the same conditions. We have therefore to impute all these symptoms to the fetus itself and declare the case a hitherto undescribed form of pregnancy toxicosis, the latter, however, typical in one sense (supervision after conception, persistence until delivery, attended by a "pregnancy kidney," complete rebelliousness to treatment, incidence of gastric irritability and vomiting, etc.)

Congenital Deficiency of the Cranial Vault.—F. Langmead reports the case of a boy, aged 4 years, in whom at the posterior part of the interparietal suture a small pulsating area, the size of a dime, could be seen and felt. In this position there was a small depression admitting the top of the little finger. At the bottom of the depression a small hole existed which apparently transmitted cerebral pulsations. The up-and-down movement of the scalp was noticed by the mother.—*Proceedings of the Royal Society of Medicine.*

The Frequency of Breast Feeding.—M. Thiemich calls attention to the fact that Rietschel has recently shown that in the suckling of firstborn infants during the first six to eight weeks of life a definite number of feedings is not requisite. Some of the children thrive with five feedings, others require more, sometimes as many as eight feedings in the 24 hours. The author finds that in healthy infants it is never necessary to exceed five or six feedings in the 24 hours, provided that each time both breasts are fully emptied.—*Monatsschrift für Kinderheilkunde.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SELF SELECTION (*Continued*).

Self Selection by Those Applying for Low-priced Insurance.—Experience, generally speaking, teaches that the selection among applicants for the cheap forms of policies is adverse to the interests of the companies, and that the mortality varies inversely with the premium. On the other hand, the dictum by the eminent actuary, Mr. McClintock, that "you cannot get a high mortality on high premium insurance" emphasizes a part played by what may be called legitimate self selection among those applying for a higher grade of insurance with gratifying results as it conserves the interests of the mass of policy holders. The exercise of adverse election among certain applicants for low-priced policies is the result of the natural tendency of human nature to make the best possible bargain, and some men, yielding to this impulse, will present their interests in the most favorable light or even practice deliberate fraud by concealing or misrepresenting important facts affecting them as risks. Applicants of this character probably experience some inward admonition of trouble which cannot be detected by a medical examiner but which may be known to members of their families as well as themselves, and this may be the first motive of their presenting themselves for insurance with the hope that the doctor will not discover any physical weakness. In a few of these cases the dishonesty may be of an unconscious form, the result of a perverted mental process.

A typical illustration of the mortality rates when the exercise of self selection is not interfered with, appears in the following figures taken from an article by Hunter (Transactions of the Actuarial Society of America, Vol. 7), in which the British Offices experience, 1863-1893, in regard to different forms of policies, is compared and brought up to the American standard.

RATIO OF ACTUAL TO EXPECTED DEATHS

Plan	Insurance Years	
	1–5	All Years Combined
Term	131%	123%
Ordinary Life, Participating	98%	110%
Limited Payment Life	71%	76%
Endowment	70%	81%

The results of adverse selection are indicated in the table by the high mortality under term insurance, the experience in the first five years being especially bad. It is a mortality which may be looked for among the class of people applying for term insurance, unless precautionary measures are observed. The mortality under the ordinary life policies is also sufficiently high to call for improvement. The low mortality among those carrying limited payment and endowment policies signifies in a general way that those taking them were fully justified in entertaining a high degree of confidence that they would live past the date of maturity of the contracts. The fact that endowment policies do not show better results than the limited payment is due largely to the custom which prevails in many companies of offering endowment insurance to applicants who are not first class lives and who have applied for cheaper forms, and the endowment class, in this way, has a burden thrust upon it. If the inferior risks were excluded, the mortality in the endowment class would undoubtedly be as low, if not lower, than that under the limited payment life. As it is, the limited payment class is made up chiefly of applicants who believe in themselves, wish to finish the premium payments as soon as possible, and then live to old age free from demands for further payments.

The classic arrangement shown in the accompanying table would have to undergo considerable modification if the statistics of entrants of more recent years were studied. It is inserted chiefly with the object of exhibiting the adverse effects following the exercise of self selection before the sufficient restraining force of an improved medical selection came into existence. The technique and requirements of medical examinations have advanced and scientific discrimination has greatly modified and improved the practice of medical selection. Some companies have adopted a more stringent selection than others, so that the experiences are bound to differ; but the mortality among holders of the cheaper class of policies, on the whole, has become lighter through a closer scrutiny of the risks and the elimination of undesirables, and it is not uncommon now to find the death rate under term insurance as low as among those carrying the higher grade policies. This favorable turn in the mortality ratio does not signify by any means, however, that the element of self selection is less potent than in former years. Self selection is always at work and will be to the end of time. The more favorable conditions experienced at the present time, bringing the mortality more approximately to a normal point, if not entirely so, are due to improved methods of medical selection. They cannot be accounted for by changes in the death rate among the general population, as the advantage from the lower mortality now found in the younger ages is practically lost by the companies through the increasing rate among those in the advanced ages.

The Standardization of the Medical Blank.—The variation in the size of blank and the introduction of matter foreign to the medical examination to conform to the finished policy, make it impossible to have a blank that is uniform in size or general appearance, but Dr. H. B. Miller, Medical Director, Security Mutual Life Insurance Company, Lincoln, Neb., considers that a standard line of questions would benefit both the examiner and the company. Many of the variations are useless. A report should be so worded as to place the responsibility of the examination entirely upon the examiner and he should be held by all companies as responsible for incompetence or neglect in filling out blanks. The examiner's reports are intended to give the medical director a thorough mental view of the applicant, and accurate examinations are necessary, not only on this account, but also to give proper protection to the company and each and every policyholder. The reports should cover all the ground necessary to put each applicant in the class where he belongs. Many of these reports, Dr. Miller thinks, contain matter that might be properly considered a part of the business contract rather than a subject requiring the particular attention of the medical director.—Medical Section, American Life Convention, Hot Springs, February 26-28, 1913.

Book Reviews.

Preventive Medicine and Hygiene. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard; formerly Director of the Hygienic Laboratory, U. S. Public Health Service. With chapters upon Sewage and Garbage, by George C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by Cressy L. Wilbur, Chief Statistician, Bureau of the Census, Department of Commerce and Labor; The Prevention of Mental Diseases, by Thomas W. Salmon, Director of Special Studies, National Committee for Mental Hygiene, etc. Price $6. New York and London: D. Appleton & Company, 1913.

It is impossible in this place to enumerate the large number of topics that come within the scope of this work, which has been written by one who has had practical experience as a quarantine officer, as a laboratory investigator, and as a student of the broader problems of preventive medicine, and who has been eminently qualified to write this book. The words "preventive medicine" have such a familiar and even commonplace sound that at first thought one would say that they imply merely the enforcement of well-known sanitary regulations, and the observance of a few important rules of personal hygiene. But criteria in preventive medicine have greatly changed within the past few years. Themes and practices of less than half a decade ago have been greatly modified or entirely abandoned. Thus terminal disinfection after measles has been given up as a public sanitary measure in New York City. The belief in aerial infection is now almost obsolete. On these and numerous other questions the author presents the most advanced views. He deals with the subject of preventive medicine from two viewpoints: from that of individual, and from that of his environment. The work is divided into twelve sections, as follows: Prevention of the communicable diseases; immunity, heredity, and eugenics; foods; air; soil; water; sewage disposal; refuse disposal; vital statistics; industrial hygiene and diseases of occupation; schools and disinfection. The entire work consists of 1,074 pages, and is fully illustrated. The author writes in a style that is at once clear and elegant. There can be no doubt that this work will rank high as a standard, and will be of service to both public health officers and private practitioners.

School Hygiene. By Fletcher B. Dresslar, Ph.D., Specialist in School Hygiene and School Sanitation, United States Bureau of Education. Price $1.25. New York: The Macmillan Company, 1913.

The vast scope and importance of this volume may be readily gleaned by a perusal of its table of contents. The chapter headings are as follows: The meaning of hygiene and its relation to education; play and playgrounds; location and construction of school buildings; lighting of schoolhouses; school desks; school baths; convenient and sanitary water supply for school buildings; drinking cups and drinking fountains; toilets for schools; the need of pure air; ventilation; open-air schools; heating of schoolrooms; humidity in the schoolroom; eye defects and school conditions; the hearing of school children; the teeth of school children; stuttering; fatigue; hygiene of instruction; the care of exceptional children; medical inspection of school children; hygiene of school utensils and books; cleaning schoolroom; qualifications and duties of a school janitor; and disinfectants. This table of contents reminds one of the program of the recent Congress on Educational Hygiene. The author approaches his subject with sympathetic interest and expert knowledge. He is strictly up-to-date in his advocacy of the vacuum method of cleaning schoolrooms. One important chapter is that which deals with the hygiene of instruction. It is interesting to note that some states of our country and Switzerland have enacted laws which forbid the assignment of home study for all children below the high-school period. A list of selected references is appended to each chapter. The author has admirably acquitted his task in writing this volume, which should be in the hands of every school teacher in the land.

The Career of Dr. Weaver. By Mrs. Henry Backus. Illustrated by William Van Dresser. Price $1.25 net. Boston: L. C. Page & Company, 1913.

Dr. Weaver is a brilliant young laryngologist with money-making and social aspirations, who in the flush of his professional success forgets some of the ideals that should accentuate the conscientious practitioner. Contrasted with him is his brother, "Dr. Jim," who is content to be the assistant, but whose ideals are still untarnished. About them both there is entwined a narrative of love, of politics, and of intrigue. The story is an interesting one, and has been written chiefly with the view of holding a mirror up to some of the evils of modern medical practice. With the insight of one who has studied the profession at close range, the author discourses on fee-splitting; on medical advertising by means of reprints; on dispensary evils; on the proprietary hospital, etc. She speaks of the man who failed to succeed because "he lacked magnetism, or self-assurance, or a certain professional address which is half the battle." The trend of popular instruction in hygiene is not ignored, and the abomination of flies, the menace of typhoid fever, the controversy over benzoate of soda, and the question of a national health department all find a niche in the "medical" novel. It is quite natural as with all lay writers who write on medical topics that the author should make a few errors, partly of exaggeration and partly of fact. Her student is studying laryngology in the first year of his medical course. She speaks of "some bacteriological slides of a virulent tumor." But on the whole the author evidently has a broad knowledge of medicine and of its votaries. She writes in a charming literary style, and although much of her story consists of time-worn platitudes concerning a certain class of practitioners, her story is an interesting one and will repay reading.

Diseases of the Rectum and Pelvic Colon. By Martin L. Bodkin, M.D., New York, Rectal Surgeon, St. Mary's Hospital, the Williamsburg Hospital, and the Howard Orphan Asylum; Late Rectal Surgeon, Bushwick Hospital. Illustrations specially drawn by Francis A. Deck. Price $3.50. New York: E. B. Treat & Company, 1913.

In this handy volume of 416 pages the author has attempted to present a complete and simplified exposition of the diseases of the rectum and pelvic colon, with reference to the relation between these diseases and disorders of the body as a whole, and particularly of the upper digestive tract. The author displays a mastery of his subject and understands the needs of the general practitioner who he believes should be able to diagnose any rectal disorder, and in many instances to administer the appropriate treatment. The book is handsomely illustrated with a large number of original drawings. A new theory is advanced as to the causation of hemorrhoids. These are regarded as secondary to catarrhal proctitis resulting from digestive disturbances. The inflammation of the rectal mucosa causes a gradual hypertrophy and the sliding down of a small portion of the mucous membrane, which then constitutes a small hemorrhoid. This is soon filled with a serous exudate. It is not likely that this view of the origin of hemorrhoids will supplant the older and well-seasoned theory. In general this book is well written. But the text contains a large number of errors. Thus on page 256 occurs the following: "Cold water enema are sometimes more satisfactory than drugs." On the same page one notes the misprint, "Ung. stramonni." The description of pruritus ani is not satisfactory. The modern views advanced by the late Sir Frederick Wallis and by the late James P. Tuttle as to the important influence in the production of pruritus ani, which is exerted by inflammation of the submucous crypts leading from the sinuses of Morgagni, are not mentioned. The author correctly shows the important relation between pruritus ani and constitutional and digestive disorders. He also points out that an imperceptible moisture resulting from a mild proctitis may be an important factor in the production of pruritus. The chief merit of this volume is its originality. The author has the courage to ignore some of the established teachings. He has tried to write a work that is practical, and that is intended to be a real aid to the general practitioner.

Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung. (Mit Ausschluss der Tuberkulose.) Herausgegeben von Prof. Dr. L. Brauer, ärztlichem Direktor des Allgemeinen Krankenhauses Hamburg-Eppendorf: Redaktion: für die Originale: Dr. H. Schottmüller (klinischer und bakteriologische Teil) und Dr. H. Much (Immunitätswissenschaftlicher Teil); für die Ergebnisse: Prof. Dr. H. Lüdke, in Würzburg. I Band, 3 Heft. Price 6 marks. Würzburg: Curt Kabitzsch, 1913.

This constitutes the third and concluding number of the new and valuable periodical on the infectious diseases and immunity studies. It contains the following articles: "The Infectious Aspect of Criminal Abortion," by Lindemann; "Researches on the Course of Antibody Production," by Lüdke and Körber; "The Serum Therapy of Serpiginous Corneal Ulcer—A Review," by Gebb; "The Influence of Anaphylaxis Studies on Dermatology and Venerology," by Bruck, and "On Colisepsis," by Fejes.

Stammering and Cognate Defects of Speech. By C. S. Bluemel. Volume I. The Psychology of Stammering. Volume II. Contemporaneous Systems of Treating Stammering: Their Possibilities and Limitations. Price $5 net. New York: G. E. Steckert & Company, 1913.

The author approaches this subject from the psychological side. He presents an original theory of the origin of stammering. This theory appeals to the reader because of its simplicity and because of its agreement with established psychological data. According to this theory a person stammers because of a transient auditory-amnesia. The failure of the auditory image occurs not in the case of the consonant, but in the case of the succeeding vowel. The stammerer really has no difficulty with the consonants, he hesitates in speech, repeats the initial consonants of certain words, interpolates an aspirate sound between the consonant and the vowel, or hesitates after sounding the consonant, because he cannot bring up at the moment the auditory image of the vowel. This is the essence of the author's theory. There is thus an objective similarity between stammering and aphasia. Pure stammering is due to auditory amnesia and is uncomplicated by extraneous symptoms. Secondary manifestations may arise, such as facial contortions, which may be due to the physical effort to overcome the stammering. Autosuggestion may accentuate the difficulty. Mental confusion and fear may be added as complicating factors. The author shows the relative importance of these secondary manifestations. He discusses the various theories that have been advanced by others to explain stammering. Some followers of the Freudman school actually seek a sexual basis for it. Stekel says that "originally it is the fear of betraying some secret during speech." The author presents a lucid exposition of the method of treatment. The sufferer must first overcome the secondary manifestations, such as multiple thought, fear, and inhibitive autosuggestion. He then has to contend with the auditory amnesia. This may be partly overcome by various methods of training. An acoustic sensation can awaken the refractory auditory image. Hence the stammerer should commence the articulation of the word. This also eliminates multiple thought and vacillation of the will which both complicate the difficulty. The second volume of this work deals with the various current methods of treating stammering. These methods are classified into groups according to the emphasis placed upon some physical defect that is supposed to lie at the basis of stammering, as faulty respiration, faulty vocalization and vowel production, and faulty articulation. The author also discusses verbal exercises, mechanical appliances, psychological methods and "stammering schools" and "speech-specialists." A glossary of terms and a bibliography conclude the work. There can be no doubt that this represents a scholarly and eminently valuable contribution to both psychological and medical literature.

Aids to the Diagnosis and Treatment of Diseases of Children. By John McCaw, M.D., R.U.I., L.R.C.P. Edin., Senior Physician to the Belfast Hospital for Sick Children; Clinical Teacher of Diseases of Children, Queen's University, Belfast; ex-President, Ulster Medical Society; Author of "Aids to Infant Feeding and Hygiene." Fourth Edition. Price $1.25 net. New York: William Wood & Company, 1913.

It is unusual to find as in this small volume such a comprehensive treatment of the subject-matter. It reminds one of the thin-paper pocket editions of the classical authors. In its 431 pages of text the entire subject of pediatrics is presented with satisfying fullness of detail and comment. The following new matter finds a place in the present edition: epidemic cerebrospinal fever, mental deficiency, cerebral diplegia, the myopathies, night terrors, and status lymphaticus. The rest of the text has been carefully revised. The treatment of disease of children is accorded considerable attention. Many authorities are quoted and the latest literature is freely cited. There can be no hesitation in recommending this book to the student and even to the practitioner as a valuable guide.

Thérapeutique Clinique des Maladies de l'Estomac et des Symptomes Associés. Par L. Pron. Price 6 francs. Paris Libraire: Maloine, 1913.

The principle guiding the author in writing this volume is to emphasize the fact that chemical problems play but a small part in the treatment of diseases of the stomach, and that motility and above all sensibility dominate the symptomatology. The important rôle of the nervous system in the evolution of gastric disease is also fully recognized. The volume is a most valuable guide containing many practical suggestions and formulæ.

The Diseases of Children. By Henry Enos Tuley, M.D., late Professor of Obstetrics, University of Louisville, Medical Department; Visiting Physician Masonic Widows' and Orphans' Home, Louisville, Ky.; Secretary of the Mississippi Valley Medical Association, etc. With 106 engravings and three colored plates. Second Revised Edition. Price $5.50. St. Louis: C. V. Mosby Company, 1913.

This is a well-written presentation of the subject of pediatrics for the use of students and practitioners. The section on infant feeding is particularly complete and accurate. In the appendix there are given a large number of alternative methods of infant feeding, as recommended by Holt, Chapin, Kerley, and others. The methods and standards for the production and distribution of certified milk are given in full. These should prove a valuable guide in communities where the organization of a Milk Commission is being contemplated. The illustrations are good and the colored plates are particularly true to life. The book may be recommended as a safe and practical guide to the student and practitioner.

The Changing Girl. A Little Book for the Girl of Ten to Fifteen. By Caroline Wormeley Latimer, M.D., M.A., former Instructor in Biology, Goucher College. With a foreword by Edward Bok, Editor of the *Ladies' Home Journal*. New York: Fleming H. Revell Company, 1913.

The author shows a profound and sympathetic knowledge of her subject. The physiological and psychological transformations of the girl at puberty are described in clear and elegant language which the average parent will have no difficulty in understanding. It is questionable whether this book is suitable for the girl of ten or even of twelve. Think of the little girl of ten poring over a sentence like this: "From time immemorial girls have been taught to suppress and conceal every vestige of emotion connected with sex, not only from the world at large, but from themselves, and the result of all these years of repression has been to create a state of things in which sex instinct in women shows itself only in indirect ways!" Here is the Freudian psychology served up as a pabulum for the young. The book may, however, be recommended to the mother as a safe guide by which she may instruct her growing daughter in matters pertaining to a most delicate subject, which cannot be suitably dealt with in schools and in books for children.

Stories of Doctors, for Doctors, by a Doctor. By W. T. Bertrand, M.D. Price $1.00. Boston: The Roxburgh Publishing Company, 1913.

This book narrates the experiences of a group of seven physicians who went into the backwoods to spend their vacation together. One catches a glimpse of the trials of the country practitioner in the unwelcome tasks which the recuperating practitioners were compelled to perform in ministering to the natives who got wind of their whereabouts. The interchange of yarns forms an interesting feature of this adventure, and many of the stories told are new and interesting.

Diseases of the Eye. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. de Schweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania and Ophthalmic Surgeon to the University Hospital; Consulting Ophthalmic Surgeon to the Philadelphia Polyclinic; Ophthalmic Surgeon to the Philadelphia Hospital; Ophthalmologist to the Orthopedic Hospital and Infirmary for Nervous Diseases. With 360 illustrations and 7 chromo-lithographic plates. Seventh Edition, Thoroughly Revised. Price $5.00 net. Philadelphia and London: W. B. Saunders Company, 1913.

The popularity of a treatise on any subject in medicine is a fair indication of its fitness for the purpose for which it is designed. Judging from this standard, if from no other, de Schweinitz's work on the eye, which now appears in the seventh edition, is excellently adapted to the uses of students of ophthalmology. The present edition has been carefully revised and now presents the results of the latest authoritative studies in this branch of medicine. The newer aids in examination, as the Schiötz tonometer and the diaphanoscope; the more recently described diseases, as dystrophia, epithelialis cornæ, and massive exudative retinitis; the newer operations, as Elliot's trephining operation for glaucoma, Toti's operation for dacryocystitis, etc., are described in the present edition. The volume is a worthy product of its renowned author. It is one of the best of modern textbooks on the eye and fully deserves the popular endorsement that it has received.

Society Reports.

NEW YORK ACADEMY OF MEDICINE

Stated Meeting Held October 2, 1913.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Otology.

Concomitant Association of Otitis with Other Diseases.—Dr. FELIX COHN presented this paper, in which he first considered the various conditions under which concomitancy occurred. Otitis might be a part of a general infection, or it might be a specific part of a general infection and in concomitant relation with another specific focus. The otitis might be proximally associated with extension of inflammation in the vicinity, the inflammation occurring synchronously and not as a sequela of the otitis. The otitis might be entirely independent of the associated disease, the associated disease being either acute or chronic in character. The otitis might be the pathway through which the infection traveled producing various conditions not direct complications of the otitis, and finally the otitis might occur in the course of various diseases, chronic or acute, the relation not directly dependent upon the incumbent disease. The diagnosis of concomitancy from the standpoint of the aurist must be taken into consideration in every case where a disproportion occurred between existing symptoms and the results of the otoscopic examination, where symptoms became manifest or conditions arose which could not be referred to the otitis or to complications of the otitis. With a negative otoscopic examination showing only a moderate degree of inflammation, a sudden or gradual rise of temperature might be sufficient to create a strong probability of a complicating fatal meningitis in a case of apparently simple otitis. The author stated that the reason otitis was found associated as a part of a general infection, or as a specific part of a general infection, was based upon the pathological fact that inflammation of the middle ear was an early manifestation in almost all infectious diseases. This early otitis differed from secondary invasions in infectious diseases in that while the otitis might be catarrhal, serous, or even seropurulent, its course was usually benign. With the exception of pneumonia and cerebrospinal meningitis and these infectious forms due to a specific organism, the occurrence of otitis appeared to be due to a hematogenous, toxic, or specific infection in contradistinction to the latter forms of otitis in which the inflammation might be caused by secondary invasions of those organisms which were usually present in genuine acute otitis media. As to the frequency of these early forms of otitis Nadolescing reports its occurrence four times in one hundred cases of measles, in two cases three days, in the third five days, and in the fourth nineteen days before the eruptive stage. Braun recorded eight cases of early otitis in pneumonia in which the severe middle-ear inflammation appeared as the cause of the unusually high temperatures which were eventually found to be due to the pneumonic infiltrations. A review of the epidemics of cerebrospinal meningitis in recent years had demonstrated that concomitant otitis media was a comparatively frequent association of this disease. The importance of a bacteriological examination of the aural contents in purulent forms of otitis and early lumbar puncture for the early recognition of this association was evident. Occasionally tenderness about the region of the mastoid and even further back toward the emissary vein, simulating ostetitis, was found concomitant in the early stages of pneumonia and typhoid fever. Such cases were occasionally first referred to the aurist until further developments established the diagnosis. In regard to the third group of cases, the speaker said that the proximal association of otitis was so closely allied to the complicating forms of otitis that it needed but passing mention as the aural inflammation was of secondary importance. However, the existence of primary ostetitis, primary subdural abscess, primary brain abscess, and serous and purulent forms of meningitis might be worthy of mention. Cases of otitis followed by meningitis were much more frequent both in children and in older individuals than was generally assumed and the importance of being on the lookout in apparently simple cases of otitis should always be borne in mind. In considering those cases in which the otitis was entirely independent of the associated disease the author cited a number of cases including instances of the association of otitis and polioencephalitis, otitis and hysteria, otitis and malaria, otitis and syphilis, otitis and tuberculosis, and otitis and the toxemia of pregnancy, and also a case of chronic otorrhea and streptococcus meningitis, in which it had to be assumed that the meningitis was induced by the tonsillitis and a concomitant exacerbation of the chronic otorrhea and that the middle ear was the pathway of the meningeal infection. In discussing more in detail the association of otitis and meningitis, Dr. Cohn stated that cases of acute otitis with meningitis due to other organisms besides the meningococcus presented a clinical picture like that of fibrinopurulent meningitis in which, as in the epidemic form, the meningitis was apparently primary and accompanied by an acute otitis of varying intensity. These cases gave such a distinct picture that it seemed proper to segregate them from cases of otitic meningitis. In otitic meningitis the infection was transmitted by extension of suppuration through preformed channels from the middle ear, or through the labyrinth by contact with diseased bone, or through intermediate circumscribed lesions. The extension of the inflammation to the brain occurred at all stages of the disease, the lapse of time before the onset of the meningitis depending on the intensity and location of the primary affection. The clinical course of this form of meningitis presented a striking similarity in all the cases coming under the author's observation and resembled that form of meningitis which had been described as the creeping form consisting of two stages, a latent stage with uncertain prodromata, and a terminal stage with all the symptoms fully developed, as found in the final stage of every purulent meningitis. The classical symptoms usually associated with the initial stage of meningitis were entirely absent in all the cases. Until the onset of the terminal stage, the temperatures were uniformly low and the pulse rate in proportion to the temperature. There were two symptoms which were apparently pathognomonic, the difference between the rising temperature and the otoscopic findings, and the rising temperature and diminishing pulse rate. The writer then considered briefly otitis associated with intestinal disturbances in infants, with the later stages of pneumonia, with empyema of the chest in children, and finally its association with endocarditis, leucemic conditions, nephritis, etc. The otitis associated with these diseases differed from the protopathic type in that it was always perforative. While otitis of the ordinary type might often lead to the severer aural complications, the otitis of this form, with the exception of the hemorrhagic type, ran, according to his observation, an almost invariably benign course. In searching for the etiology of this class of cases one had to consider such contributory factors as embolic conditions, a degeneration of the epithelial cells of the mucous membrane producing a diminished resistance to microbic infection, minute hemorrhages in the mucous membrane of the middle ear, and possibly in some cases especially localized selection of metastatic invasions through blood or lymph channels. The otitis occurring in the later stages of pneumonia with empyema of the chest in children was characteristic of this form of otitis The otitis associated with endocarditis, leucomia, nephritis, severe forms of icterus, etc., in the final stages of these diseases presented similar characteristics. The purulent discharges might dry up and the otitis resolve a number of days before the fatal issue. The association of otitis with gastrointestinal disturbances in infants had been made the subject of special study by Ponfick and Preysing. The former held the view that the gastrointestinal condition was caused by the direct absorption of toxins from the middle ear, or by the mechanical ingestion of pus through the Eustachian tube; the latter, on the other hand held that the intestinal disturbance was the primary condition and the otitis was caused by the general debility, although admitting that the views of Ponfick could not be easily cast aside and that in some cases the otitis might be the primary condition. The prognosis of this form of otitis was naturally entirely dependent upon the associated disease.

Dr. ISAAC ADLER said that the mass of clinical material that was presented was of the greatest value to all, not alone the otologist but the general practitioner as well. Although he felt somewhat timid in speaking before such an audience, with some hesitancy he said he wished to mention one point that Dr. Cohn had not brought before them, a form of otitis which all met with so frequently and he believed few of them knew sufficiently about. It occurred concomitantly associated with rheumatism. This was a form of otitis, fortunately a harmless one, which as a rule preceded rheumatic affections. There was the usual exudate in the middle ear, but so far as his experience went it was not purulent but serous. It was absorbable. There was found a peculiar sensitiveness about the mastoid and even some swelling. Dr. Adler said he knew of a number of cases in which this rheumatic otitis

had been taken for an ordinary suppurative mastoiditis and operated upon. He recalled one case in which both mastoids were opened but not to the advantage of the patient. Therefore, he believed that this was a form of otitis which was well worth studying. It occurred before the general rheumatic affection as a rule. There were cases in which the rheumatism disappeared first, the otitis remaining and for a long time. Conditions were present which might be termed rheumatic osteitis. Antirheumatic medication did the most good in these cases.

Dr. W. Sohier Bryant said that the concomitance of otitis with other diseases was so usual that it might be compared with the concomitance of fire and smoke. This general concomitance of otitis with other diseases was due to the physiological location of the ear and to its anatomical connections. Whatever inflammatory diseases affected the digestive or respiratory tracts, must, of necessity, cause corresponding changes in the ear. Pharyngitis or pneumonia, tonsillitis or typhoid fever had their bearing on the ear and betrayed themselves by a catarrhal otitis media, a purulent otitis media, otitis externa, or an auditory neuritis. The reverse of this proposition was also true, that was, that otitis caused diseases of the respiratory and digestive tracts. The ear being located between the nasopharyngeal and the cranial cavities diseases of these regions easily reached the ear by extension. Obviously the ear was brought into relation with other diseases through the blood and lymph streams, through the multitude of nerves with which the ear was connected, and by juxtaposition with other organs. Diseases of organs situated near the ear caused otitis by direct extension or aspiration, for example, the adenitis of lymphatic and salivary glands, erysipelatous dermatitis of the face, sinusitis of the nose, pharyngitis tonsillitis caused otitis by direct extension of the inflammation to the ear. The blood vessels and lymphatics carried bacteria and toxic substances from diseased organs to the ear causing otitis. Otitis might occur through diseases of the auditory and of the facial nerves and through diseases of the tympanic plexus of nerves, autonomic and sympathetic nerves comprising the geniculate, Gasserian, ciliary, splenopalatine, otic, petrus, and submaxillary ganglia, and the ganglia of the root, together with the third, fourth, fifth, seventh, eighth, ninth, and tenth cranial nerves and the second and third cervical nerves. All general pathological states and diseases could produce inflammatory changes in the ear. The reverse was equally true and obvious. By direct extension through the neck, head, and throat, and by aspiration, otitis produced meningitis, brain abscess, venous thrombosis, pharyngeal abscess, cervical cellulitis, mediastinal cellulitis, lymphadenitis, erysipelatous pharyngitis, gastric and duodenal ulcer, appendicitis, and bronchopneumonia. Through the blood and lymph vessels otitis produced diseases by thrombosis and emboli to the brain and system generally. Otitis also produced pneumonia, pleurisy, sinusitis, metastatic abscesses, nephritis, bacteriemia, and toxemia, and many other diseases and conditions. Otitis caused nerve reflex disturbances, such as cough, epilepsy, neurasthenia, myasthenia, defective equilibration, psychoses, and psychasthenias. Otitis affected the general system through toxic products and metastases, causing inflammations. It also affected the system through nervous exhaustion, which in turn produced abnormal secretions of the ductless glands, thyroid, pancreas, pituitary, suprarenal, and others. Dr. Bryant recommended the following as good advice: "Keep your eye on the ear in diseases of other organs and your eye on other organs in diseases of the ear." The specialist on the ear should be keen to discover any defects in other organs and should have these defects rectified for the benefit of the ear, while specialists in other lines should be prompt to discover and mitigate any damage to the ear.

Dr. William M. Polk called attention to the concomitant association of otitis with influenza; a few years ago this was looked upon as of so small importance as not to command any attention whatsoever, even from instructors in otology.

Dr. Cohn in reply, said that rheumatism was one of the diseases that should have been mentioned as a concomitant association with otitis; this was a form of protopathic type and in association with general infections. In answer to Dr. Bryant he said he only intended to call attention not to *how* otitis arose but the *association* of otitis with other diseases. He only referred to the forms which were concomitant or associated, and not the genuine forms of otitis. This was a subject that had interested many otologists in an experimental way. For a long time it was believed that the pneumococcus was found in many forms. They tried to determine whether otitis was of hematogenous origin, whether due to a general infection, etc. In his paper Dr. Cohn really tried to confine himself to the concomitant association of otitis with other diseases, and not to the various forms of otitis as occurred in various diseases.

SECTION ON PEDIATRICS.

Stated Meeting, Held April 10, 1913.

Dr. Henry Dwight Chapin in the Chair.

Hydrocephalus Treated by Cisterna-Sinus Drainage.—Dr. Irving S. Haynes reported the case of a child thirteen months of age, who was operated upon February 8 for hydrocephalus. The condition was typical. The cisterna-sinus drainage was employed. The technique of this operation was described before the Surgical Society in January, and was published in detail in the *Annals of Surgery* for April. The aim was to direct the cerebrospinal fluid from the arachnoid spaces into the sinus, thus imitating the normal course of the fluid. The operation consisted in exposing the base of the occipital bone, and uncovering the confluence of the sinuses and the cisterna magna. The fit was good, there being no leakage of blood and no fluid. Dr. Haynes presented the patient and called attention to the new bone formed at the edges of the gutter in the occipital bone. *X*-ray photos showed the cannula. The post-operative changes were interesting. The temperature steadily rose to 106°. The pulse was uncountable; the respirations were 42. Colonic irrigations were employed and the temperature gradually came down to 100.4° on February 10, and from then on there was an uneventful convalescence. The circumference of the head had diminished 1⅛ inches. The change in the patient's general condition was quite satisfactory. With regard to the general subject of drainage, the cerebrospinal fluid had been drained into almost every conceivable locality, under the skin, the fascia, the muscles, into the subperitoneal tissues, the peritoneum, the chest, and from one part of the cerebrospinal space to another, but without permanent success. This cisterna-sinus operation was an attempt to conduct the fluid into the blood stream where it went normally. It remained to be seen whether the flow could be maintained. Dr. Haynes believed that if the drainage was continuous until the child reached the age of three years Nature would take up the work by the Pacchionian bodies and perfect the cure.

Dr. Marshall Carleton Pease, Jr., said that since the operation there had been a distinct lessening in the spasticity. He looked upon the results obtained by Dr. Haynes as quite remarkable.

Dr. Charles Herrman said that he had seen the patient presented by Dr. Haynes at the Vanderbilt Clinic before the child was taken to the Post-Graduate Hospital and that in addition to the change in the size of the head there had been some improvement, although the improvement was not very great. The child had had hydrocephalus for many months. The condition had come to a standstill. After lasting for so many months one could not expect to obtain much benefit from any surgical procedures. One could remove a certain amount of fluid but the damage to the brain was such that one could not to any great extent improve the child's condition. The child's mentality was practically the same as before the operation. There was no question but that the size of the child's head had been diminished, but he doubted whether there would be much improvement in other respects. In a certain number of cases of hydrocephalus lumbar puncture would do some good. In the patient presented the conditions were not favorable for any marked improvement because of changes which had already taken place in the nervous system.

Dr. Irving S. Haynes, in closing the discussion, said that all recognized the fact that a proposition of this kind was experimental. Surgery alone offered a chance for patients afflicted with hydrocephalus, but it had failed in the past. Perhaps in the case presented the patient would have gotten well without surgical interference, but there was no reason for such an expectation. All that he claimed for his work was the following: First, there had been a distinct diminution in the size of the head. Secondly, there had been a marked diminution in the intracranial pressure. Thirdly, the child's entire attitude had changed. Fourthly, his spasticity was less. It was interesting to note that when he was constipated, his spasticity increased. Hearing seemed to be normal, for the child turned his head when spoken to. The child's intelligence or mentality had apparently been bettered; he remained comparatively quiet and did not whine and cry, as before. With regard to lumbar puncture, the results in these cases were negative except in the nine cases reported by Bókay.

Simple Syringe Transfusion with Special Cannulas. A New Method Applicable to Infants and Adults. Preliminary Report.—Dr. EDWARD LINDEMAN presented two sets of cannulas, two tourniquets, and twelve syringes. Two sets of cannulas were employed, one for the donor and one for the recipient. There were three cannulas to each set, and each telescoped within the other. After describing the operation in detail he offered the following rules and comments: 1. Bright polished surfaces of syringes and cannulas were requisite. 2. A syringe used once should not again be employed until thoroughly cleaned with sterile water. 3. Air must be avoided; this, however, offered no difficulty. 4. The tourniquet of the patient must be removed after the vein was entered with the cannula. 5. The tourniquet remained on the donor throughout the operation; a momentary release of the tourniquet might be advisable once or twice during the course. 6. Dexterity and speed were requisites for success. 7. Syringes could be evacuated more rapidly than they could be filled without any harmful effects; this difference in time allowed for the attachment of syringe with warm saline solution every now and then, thus preventing clotting. Both arms of the donor might be used simultaneously. The same vein could be used repeatedly for subsequent transfusions, since no thrombosis or permanent injury to the vessel occurred.

Radiographic Studies of the Chest in Tuberculous Meningitis.—Dr. I. O. WOODRUFF presented this communication which was based on the observation of fifteen cases of tuberculous meningitis in the children's wards of Bellevue Hospital. He said that the idea of making a routine examination of chests suggestive of tuberculous meningitis occurred to him while studying the plates taken in a number of cases of suspected early pulmonary tuberculosis. It seemed probable that tuberculous meningitis might give a series of cases ideal for this purpose as a fair proportion would likely go to the necropsy table. A study of the autopsy records showed that there existed in the chest all stages of tuberculous infection from, rarely, the mere involvement of the lymph nodes to a general miliary infiltration of both lungs. It could be ascertained whether the *x*-ray could be relied upon to diagnose early tuberculous infection of the bronchial glands and early infiltration of the lungs, and also to what extent in those cases showing pulmonary involvement the interpretation of the radiographic shadows corresponded with the pathological lesions present. Since autopsy records showed a pulmonary involvement beyond incipiency in 88 per cent. of the cases, it seemed that a routine radiographic examination of the chest, in hospital work at least, might prove to be of real value in diagnosis, especially in those cases in which the absence of a skin reaction and the inability to demonstrate the tubercle bacilli in the spinal fluid left the diagnosis open to question. A study of 285 cases of tuberculous meningitis covering a period of eight years yielded only twenty-six autopsies, 88 per cent. of which showed considerable pulmonary tuberculosis. The von Pirquet test and examination of the spinal fluid were both negative in the same child in five, or 33 per cent., of the fifteen cases which formed the basis of this report. The report from the radiographic findings showed no tuberculosis in one case; tuberculous glands and some involvement of the right lower lobe in two cases; more or less extensive involvement of one or both lungs in twelve cases, or 80 per cent., a figure approaching rather closely to the necropsy findings just cited. In four of these twelve cases the von Pirquet and spinal fluid tests were negative. There were six post-mortem records, two of which were of the cases showing slight pulmonary and bronchial gland involvement; the other four were of cases in which radiographic reports of more or less extensive pulmonary involvement were rendered. In the first group comprising two cases the radiographic report of the first case showed an area of infiltration of the right root involving also the right lower lobe; there were also shadows suggesting enlarged glands. At post mortem slight congestion was found at the bases of the lungs which were crepitant throughout. The bronchi contained a slight amount of mucopurulent material but no tuberculosis. The glands were not enlarged and not tuberculous. In this case the lower cervical glands were enlarged and caseous. In the second case the radiographic report showed very distinct markings, probably a tuberculous bronchopneumonia in the right lower lobe. At post mortem the lungs and lymph nodes were negative and showed no tuberculosis. In the second group the radiographs showed marked lesions. These cases all showed extensive pulmonary involvement post mortem The plates were very instructive and interesting. The study of all the cases suggested that the interpretation of the radiographic shadows in the chest in children and infants, when there was considerable tuberculous involvement of the lungs, could be relied upon to diagnose the nature of the pathological process at least. As there was usually considerable pulmonary involvement in tuberculous meningitis, this measure might be of distinct aid in the diagnosis of this disease, especially in those cases in which the disease was not absolutely certain owing to the failure to find the tubercle bacilli in the spinal fluid and where the corroborative evidence of the von Pirquet test was lacking. It seems likely that the *x*-ray could not be a deciding factor regarding the presence of an early tuberculous involvement of the chest where on clinical grounds there was uncertainty as to the existence of tuberculosis, nor could the *x*-ray be relied upon even in more advanced cases to furnish accurate evidence of the exact pathological lesion present. These conclusions were merely suggestive as the paper was but a preliminary report and they were of little value until supported by much more extensive observation.

The Prognosis of Tuberculosis in Infancy and an Account of a Ward Epidemic.—Dr. ALFRED F. HESS read this paper and made the following summary: Tubercle bacilli were not necessarily fatal to young infants, as they had some resistance to these organisms even when they were less than six months of age. As the result of observing a large group of infants, all of whom were less than two years of age, and some less than six months, the speaker concluded that latent tuberculosis might exist in earliest infancy, and that the prognosis was not always fatal. He had been able to follow these infants four to five years and found them in most cases well. However, clinically, tuberculosis in infants was fatal when involving the internal organs. Dr. Hess also reported on the infection of a ward of ten infants who were placed in contact with a tuberculous nurse for six weeks. Seven of these infants gave negative tests before the nurse took charge, and a positive von Pirquet reaction soon after she was removed from the ward. The infants did not leave the precincts of the asylum, and were not subjected to tuberculous infection in any other way.

Heliotherapy as Seen in Rollier's Clinic.—Dr. I. S. HIRSCH read this paper. He said that Leysin, situated in the southwestern part of Switzerland at an elevation of 4,000 feet, had the exceptional climatic conditions of intense sunlight, dry atmosphere, freedom from dust and insects, but little wind, moderate warmth in summer, and not too intense cold in winter, thus making possible uninterrupted life in the open air. Here Dr. Rollier, in 1903, inaugurated the first clinic for the exclusive treatment of surgical tuberculosis by sunlight. He was so successful that three clinics were built, accommodating 300 patients. The charges ranged from 7 to 10 francs a day. The buildings faced south and were protected from the winds of the north and east by the hill upon which they were built. The hospitals were constructed with spacious balconies so that all the beds might be wheeled out through the wide windows. All the patients' rooms faced south. By means of large folding doors the wards could be completely exposed not only to the south, but to the east and west. On sunless days and at night the airing was continued in this way. The treatment consisted first of the general exposure of the entire naked body and, second, of the localized exposure of the particular site of the disease to the sunlight without any intervening lenses or glass. When the days were cloudy a simple exposure of light and air was carried out, but the patients were partly clothed. Individuality was the watchword of the treatment based on the general principles stated. When the patient had accommodated himself to the new environment exposure was commenced, beginning with the feet and gradually extending upward until the chest was reached. These parts were exposed a few minutes every other day, then several times a day. It was only when the entire body was pigmented that a general exposure was given. For the success of the treatment it was absolutely essential that no dermatitis should occur. The eyes were protected from the direct light of the sun. The length of the period of exposure was gradually increased from two to four hours once or twice a day, then to four or five hours once or twice daily. Even when the maximum exposure was given there were two hours during the day when the patient was removed from the sunlight. Under this exposure the skin turned to a very dark brown, and an early advent of this pigmentation was considered a sign prognostic of good results. Blondes did not respond nor did they bear the sunshine as well as brunettes and they required longer treatment. The exposure to the sun caused

a hypertrophy of the skin itself, increasing its vitality and resistance, and protected the organism against extremes of temperature. Such conditions as acne and furunculosis were never seen in patients thus exposed. In winter, when there was at least 1 meter of snow on the ground, and sometimes two, these children lay naked on the balconies and those well enough to walk wandered about naked in the sunlit snow. The radiation from the snow was so intense that the temperature in the sunlight was 50° to 60° C., while at the same moment it might be 0° in the shade. After general pigmentation had been obtained the rays were applied locally to the site of the disease. At first only about five minutes per day, then two or three times a day, then from ten to fifteen minutes, and, finally for a period of two to six hours. The joint was usually immobilized by means of counterweight extension. When immobilization was effected by means of a plaster jacket, an opening was cut in the jacket in front and back to permit the exposure of the affected part to the sun. The first local effect of the sun's rays was an analgesic one, which was produced with remarkable rapidity and quickly permitted of the removal of the fixation apparatus. In the treatment of caries of the spine, the patient received half the sunlight treatment on his back over the kyphosis and half on the abdomen for the treatment of the abscess. When suppuration with sinus formation was present, sinuses were not treated antiseptically or surgically, but exposed directly to the sunlight. Sequestra were extruded without any surgical assistance and the fungus granulations were absorbed. One was impressed at Leysin by the excellent health of all who were exposed to the sunlight and by the rapidity with which the local and general condition of the patients improved. The demonstration of the results, as controlled by photograph and radiograph, was convincing even to the most skeptical. All forms of peripheral tuberculosis were treated in this way, and also peritonitis, cystitis, adenitis, and all forms of intestinal tuberculosis. Rollier applied this treatment to the sternum and ribs in cases which were practically inoperable from a surgical standpoint, but which might be cured by this method after a year's treatment. The most wonderful result of all was the reformation of a joint after almost complete destruction and ankylosis. Rollier's results spoke for themselves; about 00 per cent. of the cases were cured. In one and one-half years, out of 60 cases of tuberculous joints, 54 were healed, five improved, and one died. Of 60 cases of tuberculosis of the bone, 54 were healed, five improved, and one died. Of 45 cases of tuberculous peritonitis, 32 were healed, five improved and one remained stationary, while four died. Of 88 cases of tuberculous lymph nodes, 81 were cured, six improved, and one died. The effects were undoubtedly due to the application of the sun's rays and all other factors were but adjuvants. Under the general effects of the sun's rays might be considered the vasomotor exciting effect on the skin reacting on the internal circulation and resulting in increased metabolism. The pigmentation and hypertrophy affected the condition of the red blood corpuscles, raised the hemoglobin index, and increased the number of cells themselves. The local effects were the well known bactericidal effects of the sunlight on the tubercle bacilli, pus cocci, etc., and the infra-red and ultra-violet rays had undoubtedly chemical and heat effects. It was to the ultra-violet rays that Rollier attributed the great part of the results achieved. He allowing nothing to intervene between the exposed surface and the sunlight on the physical principle that the thinnest sheet of glass would completely absorb the violet rays. On stormy days the wounds were treated by either *x*-rays or Cooper-Hewitt light, both containing ultra-violet rays.

Tuberculosis Acquired Through Circumcision.—Dr. L. EMMETT HOLT presented this paper. He said that tuberculosis by direct wound inoculation, while not frequent, occurred often enough to demonstrate that it was a real danger. Willy Meyer, in 1887, collected a number of such instances and added the report of a case of his own in which tuberculosis was acquired through ritual circumcision. Since that time only two cases had been reported in this country to his knowledge, one by Ware, and one by Sara Welt-Kakels. He was of the opinion that many cases occurred which never found their way into the literature. The case to be reported was of more than ordinary interest because of the virulence of the infection and the early death of the patient, in fact, death occurred at an earlier age than in any instance on record so far as the writer knew. The patient, a baby three months of age, was admitted to the Babies' Hospital on February 24, 1913, with an extensive ulceration of the penis. The parents were healthy, as were the other living children. Four children had died of acute diseases. The baby was reported to have weighed eleven pounds at birth and had been breast fed up to the time of admission to the hospital. When eight days old ritual circumcision had been performed, the blood having been sucked in the usual manner. At the end of a week suppuration was observed and ulceration followed, which had gradually extended up to the time that the patient entered the hospital. Glandular swellings were noticed in the groin about two weeks after the operation; these swellings had increased in size, although they showed no tendency to suppuration. The digestion had been good and the nutrition well preserved until three weeks before admission, since which time there had been a steady loss in weight, refusal of food, slight fever, and cough. There was a discharge from one ear and from the nose. A few days previous to admission there had been a scanty maculovesicular eruption over the trunk and extremities. At the time of admission the child did not appear acutely ill. He weighed eleven and one-half pounds. Scattered over the body were fifteen or twenty lesions resembling those of varicella. These lesions were three to four millimeters in diameter, vesicular at the periphery, and crusted at the center. A very narrow zone of redness surrounded them. Many râles were present over both lungs but there were no signs of consolidation. The heart was normal, spleen and liver much enlarged, and the abdomen much distended. There was a chain of nodular swellings on both sides in the inguinal region. The penis showed complete destruction of the skin by ulceration quite up to the abdominal margin and to the base of the scrotum. The tuberculin test gave a strong positive reaction and tubercle bacilli were found in the discharge from the penis, in the sputum, and in the scrapings from the cutaneous lesions. The bacilli from the ulcers of the penis were carefully differentiated from the smegma bacilli. The child lived sixteen days after admission, during which time there was a constant temperature of 99° to 101° F., going sometimes as high as 102° to 103°. There were progressive weakness, increasing cough, and râles through the chest. There were no cerebral symptoms. Just before death the leucocytes and polymorphonuclears were greatly increased. The cerebrospinal fluid taken two days before death showed a faint globulin reaction and an excess of cells. The skin lesions dried up slightly, but no new ones appeared. The autopsy showed tubercles in practically every organ of the body, except the stomach and duodenum. Examination of the heart showed a small yellow tubercle upon the coronary artery, a tuberculous nodule in the wall of the right ventricle, and a smaller one in the right auricle near the entrance of the superior vena cava. This involved the pericardium, endocardium, and cardiac muscle, and was cheesy. The mesenteric lymph nodes were greatly enlarged and caseous; extending upward from these were a chain of large caseous retroperitoneal lymph nodes which followed the iliac arteries. One of the iliac arteries contained a cheesy lymph node in its adventitia. The tuberculous character of this lesion was confirmed by microscopical examination. Both middle ears contained pus. The man who performed the circumcision was examined and, though no physical signs of disease were found in his chest, he was pale and emaciated, and looked decidedly tuberculous. From his sputum two acid-fast bacilli were found which looked like tubercle bacilli. Thus the evidence of infection through circumcision seemed conclusive. The lesions found at autopsy pointed strongly to a spread of the infection through the lymphatic system beginning from the wound and afterward a general blood infection. The lesion in the iliac artery and the tuberculides of the skin were particularly worthy of note. It was Dr. Holt's belief, he stated, that the latter lesion was often overlooked. He had seen this lesion in two other cases during the present season. Dr. Holt said that he had collected reports of thirty-nine other cases which, with this one, made forty cases of tuberculous infection through circumcision. Of these forty patients, sixteen were known to have died, seven were reported to have made partial recoveries or were scrofulous, in twelve the final results were not given, while only five were said to have recovered. The youngest fatal case was the one just reported. The usual cause of death had been general tuberculosis. In a number of the reports several children were said to have been infected by the same operator. As a rule the symptoms and progress of the disease were similar to the case reported. In a very considerable number of the cases it was reported that the glands broke down and abscesses formed, usually in from two to three

months from the time of the initial infection. The cases in which suppuration of the inguinal glands took place and which were operated upon were among those in which the results were best. The symptoms of widespread general infection rarely occurred earlier than the third or fourth month. That the infection spread through the lymphatic system seemed certain and early removal of the inguinal glands would therefore appear to be the most important measure to be employed in checking the spread of the disease. To be successful this, of course, must be done early. The first diagnosis made in a large proportion of the cases was syphilis; much time had consequently been lost in the administration of antisyphilitic treatment. The writer expressed the belief that syphilis was much less frequently acquired in this way than tuberculosis and that the latter disease should be first suspected. While the number of cases acquired through circumcision was considerable there must be a much larger number which never found their way into the literature. These facts led the writer to emphasize the statement of the late Professor Maas, that "it is the duty of the physician to raise his protest against ritualistic circumcision in every case."

Dr. William P. Northrup reported the case of a child; one of a series of five. In all of these children there was what might be called a delicate constitution. The child he reported had a high temperature and a tentative diagnosis of pneumonia was made. Physical signs showed scattered râles—they were, in fact, quite universal, appearing in all parts of the lungs. There were many dry subcrepitant râles, but no sign of consolidation.

Dr. Sara Welt-Kakels reported the case of a boy six months of age. His parents were perfectly well. The child's history was good. There was no syphilis or tuberculosis in the family. On the ninth day after birth the child was ritually circumcised. From that time on, according to the mother, the child never appeared well and suffered from fever and gastric disturbances. When the child was four weeks old the inguinal glands became enlarged and some ointment was prescribed. At the Mt. Sinai Dispensary Dr. Welt-Kakels saw the child some seven or eight weeks later and she detected fluctuation and aspirated the gland contents, getting a serous fluid mixed with flocculent material. Tubercle bacilli were found in the pus. A few weeks later the glands were removed. The von Pirquet reaction was positive. The man who circumcised the child ritually was said to be suffering from a chronic cough and had since died; the little boy recovered.

Stated Meeting, Held May 13, 1913.

Dr. Henry Dwight Chapin, in the Chair.

Tracheal Obstruction Due to the Thymus Gland.—D. Henry Lowndes Lynah reported this case. He said that the patient was a child, 3½ years of age, who was admitted to Willard Parker Hospital on August 16, 1912, suffering with laryngeal diphtheria for which he had been intubated by the ambulance surgeon before admission. The pharynx was congested and there was a moderate amount of exudate over the tonsils and uvula. Cultures from the same showed the presence of diphtheria. The hear action was accelerated but the muscular tone was good. There was a peculiar tactile fremitus over the anterior aspect of the chest and an area of dulness in the interscapular region posteriorly and extending downward for about two inches. There were also scattered moist rales, and many transmitted sounds through the chest, as was the rule in intubated patients. The abdomen was prominent. The temperature was 101° F., pulse 150, and respirations 32. A dose of 10,000 units of antitoxin was administered. Three days after admission the temperature went up to 103.4°, pulse to 160, and respirations 60. There was an area of consolidation over the right lower lobe posteriorly. The intubation tube was removed on August 22, but it was found necessary to reinsert it after thirty minutes owing to a spasm of the adductors. The tube was removed permanently on September 10 though the physical signs in the chest remained unchanged. There was slight evening rise in the temperature at this time but the von Pirquet reaction was negative. Five days after the extubation there was slight stridor and the lungs showed areas of bronchial breathing over both lower lobes posteriorly, with many rude rhonchi over the anterior lateral aspect of the right lung. The dullness shaded off to flatness over this area and an exploratory puncture was made but no fluid was obtained. The child was discharged at the request of his parents but under protest on September 21, but was readmitted on November 2, suffering with a violent spasm. He was reintubated and given an injection of antitoxin. There was no anaphylactic shock. The tube remained for a week when it was removed and the patient was discharged at the end of three weeks. In January he was again admitted to the hospital, and Dr. Lynah said that after hearing his history he concluded that the recurrence of the dyspnea was due to subglottic hypertrophic laryngitis. In making the examination of the larynx, the applicator passed through the larynx but met with an obstruction in the trachea, the child becoming cyanotic. After the applicator was removed the patient coughed up a quantity of mucopus which showed no tubercle bacilli but staphylococci in abundance. The chest signs were the same as those previously recorded, and it seemed probable that there was a bronchiectatic cavity at this site. The child had been asthmatic since birth and at times became very cyanotic and would break out in a cold clammy sweat. Thymic asthma was now suspected. He felt convinced that he was dealing with a case of enlarged thymus gland with pressure symptoms. This diagnosis was confirmed by the x-ray plates. The mother refused operative interference or even reintubation. Thus far all that had been done was to give urotropin internally which seemed at first to improve the mixed infection in the bronchi, and later mixed staphylococcus vaccine was given. He proposed doing a Veau operation if the mother should at any time give her consent. So far there had been 50 cases reported with a mortality of 33 1/3 per cent., and many of these died several days after operation. The interesting points in this case were that the dyspnea was relieved by intubation, but returned shortly after the removal of the tube, and that the patient being of the type associated with status lymphaticus could receive two injections of antitoxic sera without any anaphylaxis and with only a slight erythema following the administration of the first dose. It was a question whether the case was one of laryngeal diphtheria or of tonsillar diphtheria with thymus involvement.

A Case of Bilateral Empyema Thoracis Treated by Successive Rib Resections.—Dr. Abraham Zingher reported this case, which he stated occurred in a child 6½ years of age, who gave a negative family and past history. He was taken suddenly ill on November 8, 1912, with bronchopneumonia. The disease ran a severe course with high temperature, marked prostration and rapid emaciation. He saw the patient in consultation on November 29, when the general condition was poor and the temperature was running a septic course, but no signs of fluid were present in the chest. Both lungs showed the presence of numerous crepitant and subsrepitant rales, with an associated patch of impaired reasonance. He saw the patient again on December 13, when he found some doubtful signs of fluid in the left chest and the aspirating needle showed the presence of pus. A part of the eighth rib was resected the same night and tubes were inserted for drainage. Some improvement followed during the next two weeks, but on January 7, 1913, flatness was detected in the right chest and operation showed the presence of pus on this side also. On January 8, 1913, intercostal incision was performed on the right side and tubes inserted for drainage, but as the discharge, at first profuse, soon became scanty and imperfect, a secondary resection was done on February 1. After this the patient made an uneventful recovery and was discharged from observation on April 1st. A light ether anesthesia was employed in all the operations. On opening the right chest the patient went into shock but was quickly revived by active stimulation. The pneumococcus was found in the pus on both sides. The general course of these cases was like this one and the majority of those found in the literature, that was, that of a bilateral bronchopneumonia, complicated by a one-sided empyema. In cases of double empyema the interval operation was always performed when possible. When pus was found on both sides simultaneously the question of opening both sides of the chest at the same time came up; the danger of course was that of a double pneumothorax. According to Hallin, who, in 1905, collected 114 cases in the literature, this danger was exaggerated. He enumerated several cases where both sides had been operated upon simultaneously with good results. If one decided to wait, most authorities were agreed that it was better to operate upon the left side first so as to relieve the pressure on the heart and to avoid the danger of a complicating pericarditis. The pus from the right side could be aspirated and then after several days the chest could be opened. Shock occurred occasionally, either at first or at the time of the second operation; when it occurred it should be treated by active stimulation.

Vulvovaginitis in Young Children.—Dr. Nathaniel

Barnett presented this paper. He declared that the frequency of this affection among children and the unsatisfactory treatment given them in most dispensaries had led the authorities of Mount Sinai Hospital to establish a special clinic for the treatment of this disease. He had had charged of this clinic and this paper was the result of his observations during the past year. Vulvovaginitis was exceedingly prevalent in hospitals and in schools where children used a common toilet. The homes of the poor were also favorable to the spread of the disease. Dr. Barnett said that he had found very little in the literature to help him in his work, and that the material which he had studied consisted of fifty cases. In the management of this clinic two nurses were always present, one to help him in his work and one to attend to the social welfare work. The methods of examination suggested by Dr. Koplik in 1893 were, in the main, adopted. The Skene urethral speculum was utilized to inspect the vagina and cervix together with the aid of a head mirror. Spreads of the secretion were taken before the various therapeutic procedures were instituted. Attendance at the clinic was three times weekly, and nurses visited the homes and urged delinquent ones to attend regularly. In spite of these efforts only 26 of the patients continued treatment.

As to the etiology of the affection it was found that most of the patients had contracted the disease in hospitals or other institutions or from sleeping with mothers or sisters who had vaginal discharges. In the larger number of cases, however, the origin could not be discovered. The disease was of varying duration, some of the cases giving a history of recent origin, while in others it had lasted for years. The chronicity and resistance to treatment of the affection was characteristic. As to the seat of the disease, in most cases a small amount of dried pus was found on the labia and pus was seen coming from the vagina, but the external appearance of the hymen might be normal in a pronounced gonorrheal process. The vagina was dull pink with pus in the folds of the rugæ throughout its entire length and occasionally hemorrhagic spots were seen in the walls of the canal. In the cervix they found marked changes; it was in all cases deeply congested and pus was seen exuding from the cervical canal. The posterior fornix contained a certain amount of pus which bathed the cervix continually. The present series of cases presented the following complications: arthritis, twice; chronic general peritonitis, once; pelvic peritonitis, twice; and painful heel once. The *x*-ray picture in this case showed a periosteal exostosis. In addition to the method of treatment employed in the past as irrigations, instillations, local applications, vaccines and illumination of the vagina with a speculum and treatment of the parts locally, the author had applied the electric endoscope, which in his opinion was a distinct advance in the management and treatment of these cases. For the irrigations they had used potassium permanganate 1-1,000, or bichloride of mercury 1-4,000, or Lugol's solution of iodine 1-500. The alcoholic solution of pure iodine could not be used without great pain and discomfort. For instillations the solutions used were nitrate of silver one-fourth per cent. and argyrol 10 per cent. The applications were introduced with a cotton applicator and the vaginal wall swabbed. Fourteen cases were treated with vaccines; injections of from 100,000,000 to 500,000,000 dead bacteria were given at intervals of from three to seven days. All of the above mentioned methods of treatment had received a painstaking trial, and he had come to employ the following method of treatment: The mother was instructed in preparing and giving the permanganate douche and this was given at home daily. The patient was put on urotropin daily. In the clinic the patient was treated with the electric endoscope. In giving this treatment the Kelly endoscope was employed, being inserted as far as possible. The obturator of the endoscope was withdrawn, the light inserted and with no other manipulation than withdrawing the tube one-quarter to one-half an inch, the cervix presented at the distal end of the tube. Any secretion was then removed with the applicator, and iodine (Lugol's solution) was applied directly to the cervix and the vaginal walls as the endoscope was slowly withdrawn. These endoscopic treatments were carried out three times a week. With the use of any of these methods of treatment the discharge soon stopped, but this of itself did not constitute a cure, for smears remained positive for months after all visible signs of the discharge ceased. Two negative smears at intervals of two weeks might be followed by positive ones. The smears taken from the posterior fornix might be positive while at the same time those taken from the hymen might be negative. None of his cases treated with vaccines showed any improvement so far as the discharge was concerned. Those complicated by arthritis and treated by vaccines improved rapidly and a complete cure followed the use of the vaccines. The case with the painful heel was improved by the vaccine treatment but there was a recurrence of severe pain at intervals. The case were considered cured if smears taken weekly were negative for three weeks in succession. At the end of six months only seven cases could have been said to have been cured by irrigations alone. Seven of these cases in which irrigations had failed to effect a cure were treated with the endoscope, and five were cured within a month. Five additional cases that had failed to improve under the irrigations were now being treated with the endoscope and were improving rapidly. The first important factor to bear in mind was the infection of the cervix and the difficulty of reaching this nidus of infection by the ordinary methods of treatment. Irrigation of the vagina was neither practical nor of great value as the affected parts were not reached directly and the treatment had to be continued too long. Cures could be effected by the treatment of the cervix as he had indicated in a short period of time and strong solutions could be applied to the cervix and vaginal walls directly without causing pain. Prophylactic measures, such as sleeping alone, separate clothing, the wearing of a vulva pad and keeping the hands away from the genitals should be given due attention. In schools separate toilets should be provided for these children and this could only be carried out by invoking the aid of the Board of Health. Teachers and social workers should be taught that this situation was always present among children and that the method of acquiring the gonorrheal discharge was in most instances innocent.

Complement Fixation in Gonococcal Infections.—Dr. Archibald McNeil read this paper. He described the technique of the complement fixation tests for gonorrhea which was identical with that of the Wassermann test for syphilis, with the exception that the antigens prepared from pure culture of gonococci were used. In cases of anterior gonorrheal urethritis in the male and acute vulvovaginitis, a positive reaction was practically never obtained. Shortly after the posterior urethra in the male and the cervix and the glands of Bartholdi were involved, the serum of the patient reacted positively. After having tested between three and four thousand sera taken from persons suffering from all varieties of gonorrheal infection, the results seemed to justify the assumption that a positive reaction denoted the presence of recent activity in the body of a focus of living gonococci. A positive reaction persisted for from six to eight weeks after a cure had been effected and it had also been found that antibodies disappeared from the blood of rabbits immunized to the gonococci in about the same period. While one negative result would not be accepted as conclusive evidence of cure, when persistently negative results had been obtained extending over a considerable period of time, it seemed safe to assume that a cure had been effected. A detailed statement of results of tests in eight cases of vulvovaginitis in children showed that infantile vulvovaginitis might be more than simply a local infection and that the infection might be active after all local manifestations had disappeared. In acute cases of vaginitis where the blood was negative, and there was any doubt with regard to the identification of the gonococcus as the causative organism antigens might be prepared from pure cultures of the suspected organism from the case and tested against a known antigonococci serum. This test was very specific. With the present methods there was no cross fixation even with gonococcus antigen and an antimeningococci serum, or with a meningococcus antigen and an antigonococci serum.

Dr. Roland G. Freeman believed that the disease, vulvovaginitis, needed more attention than was given it at present because of the many difficulties that were connected with it. It was well known that the children in the tenements with vulvovaginitis had great difficulty in getting into hospitals because it was so well known that this was a disease that spread very rapidly and was very difficult to get rid of. Even at the Mount Sinai Hospital these cases ran along sometimes six months before being cured. With regard to the local treatment, one remedy was changed to another; today, however, with the use of the endoscope, they obtained better results by the treatment of these cases with stronger agents than formerly. The vaccine treatment seemed to be plausible and many men in institutions seemed to believe that its use resulted in much good.

Dr. Charles G. Kerley said he was glad to learn that they were working in the right way in order that they might investigate the subject from every standpoint. The last speaker had started out without any preconceived idea, and therefore no preconceived idea had been worked out his way. He had had the opportunity of offering much upon this subject, the management and the problems con-

nected with it, and he apparently was going at it in an open-handed manner. The subject under discussion was certainly a very troublesome one to all and he was very much interested in hearing the results of the careful observations made by Dr. Murphy. Dr. Kerley referred to some thirty-six cases that reached one of the institutions he was connected with; they all had a vaginal discharge and Dr. Hamilton was called upon to suggest a way to be employed for successful treatment. Fifty million of the dead bacilli were started with and this was increased, the injections being given at five day intervals; this was of the stock vaccine. Most of these patients were under three months of age. Sixteen patients received from 350,000,000 to 1,000,000,000; three from 1,000,000,000 to 10,000,000,000; three from 3,000,000,000 to 4,000,000,000; in six, 6,000,000,000 of the dead bacilli were given. From his results it was seen that the vaccine treatment did not offer much; the discharges continued but they could be kept partly clean by douching methods. They made as good a recovery as though the vaccines had not been given at all. In other words, the use of the vaccines did good for a short time only. Dr. Kerley had treated hundreds of these cases with disinfectants, irrigations, and everything that might keep the vagina clean, and he now was using a douch, three times a day, of not less than a quart of water; after drying the parts thoroughly he applied a powder of boric acid, starch, and a preparation of zinc. These patients seemed to do as well as those that were irrigated with various solutions. Many of these patients, after being treated in various ways for months, seemed often to be cured spontaneously. He believed that the disease was a self-limited one. It seemed to occur during the runabout period of the child's life, a period which made in fact the vagina less habitable for the gonococci. Many children were found to be at this period immune.

Dr. Henry Koplik said that he had read of the work they were doing in the Boston City Hospital and thought they were working in the right direction. Children with gonorrheal vulvovaginitis infected other children. The disease was a mild form of pest and even children in better circumstances became infected by the use of towels or manipulation as the case might be. There was no doubt but that these cases of vulvovaginitis were self-limited, but at the same time it should be remembered that they infected others. At Mount Sinai Hospital there were four cases of fatal gonorrheal peritonitis, the infection occurring through the vagina. One never knew when the disease would flare up and become dangerous to life. Children afflicted with this disease should be kept apart from other children. The subject did not receive the attention that it should receive, but he believed that eventually the proper authorities would take it up. The real question was to find out how these children became infected. In the wards of hospitals where every conceivable precaution was taken one or two cases of vulvovaginitis would crop out. It was not right or proper for institutions to keep patients away because of this disease. At Mount Sinai Hospital they received these children, but took certain precauations. They also discharged children that they knew had the disease and after careful observation he had concluded that these children rarely infected others. With regard to the vaccine therapy, he did not believe that these children could receive so many million of the dead bacilli and expect a cure. They were in a position where the treatment of this disease was far from efficacious. They were in no position ot sit down and treat cases in the wards of the hospitals unless they were permitted to as Dr. Barnett had done. At the Good Samaritan Dispensary they could not approach these children without a certain amount of timerity. They had used the endoscope with good results. He had observed some of these cases from birth until they were married and they were not sterile and they did have children. There was no doubt but that this disease sometimes led to serious consequences and was a pest in the public schools. There was no doubt but that many of these cases resisted practically all methods of treatment, and these seemed to be cases of mixed infection. The Board of Health should take cognizance of this disease especially when it occurred in public schools.

Dr. Henry Dwight Chapin said that there was some difference between the action of the gonococci as seen in infants and young children and that seen in adults. They rarely saw an infection of the eyes or tubes in children, and he recalled but one instance in which the ovarian tube had to be removed because of this disease. It might be possible that gonorrhea in the young was usually produced by a different strain of gonococcus.

Dr. Martha Wollstein said that gonorrheal vulvovaginitis was approached from the prophylactic standpoint at the Babies Hospital where they thought that they had almost solved the problem by means of the greatest possible vigilance; the slightest relaxation of this vigilance was invariably followed by disastrous results. Every girl baby who applied for admission had a smear taken from the vagina and this was at once examined in the laboratory. If pus cells or gonococci were found, the child was not admitted unless she was so ill that she needed immediate attention. In such a case she was isolated. During the past year sixty-three admissions were refused for this reason. Vaginal smears from all girl patients in the hospital were examined once a week. Some years ago they had an epidemic in spite of all their precautions and they had used both autogenous and stock vaccines but the results were not encouraging. Dr. Spaulding had called attention to the long periods of latency as well as to the numerous recurrences among prolonged cases of vulvovaginitis and cases were no doubt admitted to the hospital during this latent period. Again a child might be admitted to the hospital in the first stage of the disease and the smears would not show a positive reaction until a week or ten days later. Simple vaginitis occurred rarely as compared with gonorrheal vaginitis, but there were some cases which were undoubtedly due to streptococci or staphylococci. These cases cleared up readily and did not have the recurrences characteristic of the gonorrheal cases. The smears must be taken from within the vagina and must be free from stool contamination.

Dr. H. B. Wilcox, reporting the experience at the Children's Service at Bellevue, said that though there was a ward devoted to the treatment of vaginitis there, the main therapeutic effort at that institution was therapeutic. All the methods of treatment mentioned in the discussion had been tried more or less thoroughly at Bellevue. The disease had been controlled but it had not been cured. No success had followed the use of commercial vaccines. Although difficult to obtain the material, it was thought that autogenous vaccines offered the best means of permanently eradicating the trouble. No permanent success had resulted from lactic acid gauze packing, argyrolor iodine suppositories. Prompt relief from the profuse discharge and the discomfort attending on it was obtained by douching with potassium permanganate, and daily argyrol suppositories. This was the present routine treatment at Bellevue. On admission smears were taken and must show neither cellular elements nor bacteria during the three days detention in the admission ward before the children are sent upstairs to the ward. The method of taking these smears was most important. Often with a negative smear from the introitus gonococci were found in great numbers in the vault of the vagina or the cervix. The cases that escaped detection on admission later became the sources of ward epidemics and were usually those which had had only a superficial examination. The use of a small speculum, enabling one to reach the vault of the cervical canal directly, should be insisted upon, and negative cultures taken in any other way were considered as non-conclusive. If such care was used in obtaining material for examination most cases of simple vaginitis could be demonstrated to be due to gonococcus infection. Seldom were any complications of the disease noted on this service.

Dr. Louis Fischer said that at the Willard Parker Hospital they handled hundreds of these cases of gonorrhoeal vulvovaginitis. Probably ten per cent. (10%) of those admitted with scarlet fever had the disease. These cases were very distressing to those who had to care for them whether treated outside or in the hospital. Dr. Huddleston had used stock vaccines but the results of this treatment were not at all gratifying. At the present time they were using local treatment, irrigations of magnesium, of alum, and of plain water. In a large series of cases that had bothered him for some time, he obtained good results by instituting a treatment in the form of arsenic and cod-liver oil. He found they were greatly benefited by the use of cod-liver oil, arsenic, iron and sometimes by a change of air.

Dr. B. Wallace Hamilton, who had treated 900 cases of valvovaginitis at the Vanderbilt Clinic, said that he had been very much interested in what had been said regarding the use of the vaccines and in Dr. Barnett's treatment of gonorrhaeal vulvovaginitis in young children. He was also interested in hearing the statement made that this was a self-limited disease; but this latter statement he was going to question. He had seen many cases that came to the clinic after the disease had run a long time, even two years or more that still were not cured. He was impressed with the fact that some cases would recover without any treatment whatsoever. Keeping the vagina clean and instructing the mother would help them in the care of these unfor-

tunates. In children having but a short duration of the disease excellent results were obtained from the use of vaccines and without any local treatment whatever. But if the case was of long duration the results of the vaccines was not so good. However, what had been accomplished by the use of the vaccines in gonorrheal vulvovaginitis offered them great hopes. There were many cases that would not do well under vaccine treatment, nor under any treatment whatever. He was still very enthusiastic over the use of vaccines.

Dr. George Dow Scott said that the average physician didnot give vaccine treatment the place that it deserved, many thinking that the vaccines were of no use at all. In the treatment of certain arthritides the use of the vaccines often gave excellent results. An important point in the treatment of these cases was the following (and he did not think he should be subjected to ridicule for bringing it up): After washing out the vagina with water it should be flushed with pineapple juice, which was a splendid sterilizer of the vagina. This in his hands had given excellent results.

Dr. Nathaniel Barnett, in closing the discussion, called attention to the fact that by endoscopic examination one could almost make the diagnosis without smears. In gonorrheal cases the cervix had an entirely different appearance than that in the normal child.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held at the New York Academy of Medicine, April 1, 1913.

The President, Dr. Smith Ely Jelliffe, in the Chair.

A Case of Syphilitic Osteitis and Periosteitis of the Skull.—Dr. M. S. Gregory and Dr. M. J. Karpas reported this case and showed the specimen. The patient was a German woman, married, 45 years old. She was temperate and gave no history of syphilis or of sinus or aural affection. The family history was negative. The patient enjoyed good health in infancy and childhood and was married when she was fifteen years and four months old. She had four children: two of these died, one at the age of three of cholera and the other at the age of seven months of jaundice. There was no history of miscarriages, and no direct nor indirect history of syphilis could be determined. The Wassermann test in the husband was negative. The patient ceased to menstruate at the age of 44, and had been sterile for the past twenty-seven years. It was stated that after the birth of each child she would become very obese. There was no history of trauma. The patient enjoyed excellent health until seven years ago, when she was operated on for gallstones, and three and a half years later she had an attack of malaria. In July, 1909, she complained of pain and swelling in the left knee and right thigh. She began to have difficulty in walking and was put to bed. Occasionally small growths would appear on the scalp, which would disappear without treatment. For more than ten years she had suffered from terrific headaches, which persisted all the time. In March, 1911, she lost her hearing in the left ear, and about the same time the left side of the face became paralyzed. No definite date could be fixed for the paralysis of the left external rectus. During this time the patient had received active antiluetic treatment, including mercury, potassium iodide and salvarsan. On March 31, 1912, she had a convulsion which was limited to the face and upper extremities, and it was then noticed that the left eyeball became bulging and that the sclera was congested, but the cornea was unaffected. On the following day she had a similar convulsion, after which she became drowsy and fell asleep, and when she awoke she was delirious, spoke in a rambling manner, said that she saw cats, etc., and her general behavior was irrational. The patient was admitted to the Psychopathic Department of Bellevue Hospital on April 1, 1912, in a delirious and excited state, which subsided in a few days. During her stay in the hospital repeated neurologic and somatic examinations were made, of which the following is a brief summary: The patient was poorly nourished and cachectic, with a flabby musculature and dry skin. She was somewhat anemic and her general physical condition was very poor. She was a bedridden invalid, requiring constant care and attention. The heart's action was weak and irregular; there was some evidence of chronic nephritis and of a tubercular process at the left apex. The arteries were not thickened.

Neurological status: Smell was apparently intact; exophthalmus, especially of the left eye; purulent keratitis of the left cornea; the left pupil was covered by a purulent film, and for that reason its motivity could not be determined. The right pupil reacted to light and accommodation, and the sympathetic reflex was intact. There was no evidence of paralysis of the ocular muscles excepting the left external rectus. The optic discs were normal. There was a posterior stapheloma. The left corneal and conjunctival reflexes were abolished, but the touch sense was not affected. The left side of the face was paralyzed; the mouth was drawn to the right, the nasolabial fold was obliterated and the tongue deviated to the right. Hearing on the right side was good; that on the left was poor. The other cranial nerves showed no pathological condition. There were no sensory disturbances nor evidences of pyramidal irritation. The reflexes of the upper and lower extremities were active; the abdominal reflexes were absent. The patient was unable to assume a sitting or a standing posture, and she could not walk. There was some difficulty with coordination on the left side. The spinal centers were not under control. The Wassermann test in the blood was negative. The cerebrospinal fluid showed no increase of globulin nor complement-deviation; there were only ten lymphocytes per cm. When the patient was admitted to the hospital she was confused, restless, and complained of terrific pains in the head and left eye, which at times were so intense that she cried loudly and showed considerable agitation. She had several convulsions, which were usually general; some were severe; others mild. She spoke in a rambling manner, claiming that she saw animals, etc. Her speech was often unintelligible and her answers irrelevant. She was depressed and agitated, but after a few days she became quiet and composed and was able to give a fairly good account of herself. She was clearly oriented, maintained that she was sick, complained of terrific headaches, and showed a very good insight into her physical disorder. Her general mental condition showed but little variation; only when her headaches were very marked she would become restless and agitated, and on several occasions she was somewhat delirious and hysterical. Shortly before her death, which occurred on May 16, 1912, she became very delirious, spoke unintelligibly, had hallucinations, and was irrelevant in her replies.

Dr. Morton E. Hall, pathologist to Bellevue Hospital, gave a detailed report of the pathological-anatomical findings in the case reported by Drs. Gregory and Karpas. The autopsy in this case was performed by Dr. Charles Norris, and the anatomical diagnosis was as follows: Chronic periosteitis and osteitis of the frontal, parietal, and occipital bones and the petrous portion of the left temporal bone (spyhilitic). Chronic pachymeningitis of the left middle fossa. Chronic mastoiditis and otitis media (syphilitic). Lobar pneumonia. Chronic cellulitis of the tissues of the scalp (syphilitic). Chronic interstitial hepatitis (syphilitic). Anemia. The anatomical diagnosis was confirmed by the pathological findings. In this and in a second similar case that had come under Dr. Hall's observation it was interesting to note the worm-eaten type of osteitis, and both cases showed marked suppurative changes, with elevation of the periosteum. There were no evidences of cerebral infiltration and the spirocheta was not definitely demonstrated in either case.

An Anomalous Case of Acromegaly.—Dr. M. Neustaedter presented this case for Dr. Edward D. Fisher. The patient was a Russian, 30 years old, a peddler, whose family history was unimportant with the exception that he had one brother who was suffering from multiple sclerosis. The patient was married but his wife had never been pregnant. Up to a year ago he was slightly alcoholic. Eight years ago he had gonorrhea; denied lues. Four years ago he began to have trouble with his eyesight, which constantly grew weaker. Three months ago he began to suffer from headache, which was constant up to a week ago. He had never vomited nor suffered from nausea. About ten weeks ago his speech became affected, and at the present time he also complained of "drawing" pains in his limbs, especially in the left leg. He became depressed and began to lose his memory, especially as to recent events. He was always sleepy and rather irritable. His gait, which was formerly slightly ataxic, was now fairly good. He was constantly gaining in weight in spite of his poor appetite and had gained fifteen pounds in three months. Physically he was well nourished. There seemed to be a beginning deposit of adipose tissue around the hips. His hair, as compared with a photograph taken three years ago, was becoming rather sparse and coarse, and this was also true of the hair in the genital and axillary regions. The skin was thick and moist. The lower jaw was becoming enlarged, as shown by the *x*-ray of Dr. L. T. LeWald, and the bones of the fingers were becoming

thickened. The sella turcica was slightly enlarged and about 5 mm. in diameter. His speech was rough and deeper than formerly; it was protracted and at times even rambling. His movements were rather clumsy, lacking energy, and he complained of sleepiness. His hearing was not affected. There was a marked impairment in his sense of taste on the left side of the posterior two-thirds of the tongue. Smell was much impaired on the right side. There was evident exophthalmus; the pupils were dilated, irregular in shape and unequal, the right being the larger. They failed to respond to light or accommodation. There was a left staphyloma and a double choroiditis. The patient also presented a binasal hemianopsia, a myopia of seven diopters, a haziness of the vitreous and detached retina on the temporal side of both eyes. There was a fine intention tremor of the hands and tongue. The superficial reflexes were present and lively; the knee jerks were exaggerated; there was no Babinski nor clonus. The motor power of the flexors of the left arm and leg was somewhat diminished. The Wassermann reaction was very strongly positive.

Dr. Edward D. Fisher said that while this was not a well-defined case of acromegaly, the *x*-ray findings pointed rather strongly to that diagnosis. The enlargement of the sella turcica, as shown by the *x*-ray, was rather peculiar, and differed from what we would expect to get in a tumor of the pituitary body. It showed, however, as the eye findings would indicate, the presence of a growth in that region, which spread beyond the sella turcica and probably involved the chiasm. The general characteristics of the case pointed to a tumor of the pituitary body. The man had improved somewhat under large doses of potassium iodide. In its present stage, the case was a questionable one of acromegaly. If the symptoms, particularly the loss of sight and the mental condition, became more pronounced, the advisability of an operation might be seriously considered.

Dr. William M. Leszynsky said it was rather unusual to have a binasal hemianopsia with a lesion of the pituitary body; a bitemporal hemianopsia was the usual condition found. To produce the former a lesion involving the external fasciculus of each optic tract was necessary.

Juvenile Paresis.—Dr. Smith Ely Jelliffe presented a girl 15 years old, whose birth was apparently normal and who developed normally as far as walking and talking were concerned. Her parents stated she had always been backward in reading. About four years ago she began to have pains and stiffness in her legs, and attacks which were called "fits," during which she would become rigid but did not lose consciousness. About this time there was an apparent retrogression in her mental development, and since then she had slowly deteriorated. Neurologically, she showed the Argyll-Robertson pupil, a tremor of the tongue and face, an infantile mode of speech, with a degree of hesitation that almost amounted to stuttering, and a loss of knee jerks. These symptoms, briefly stated, had led Dr. Jelliffe to regard the case as one of paresis of the juvenile type. The girl's father died at the age of 42 after a maniacal attack, and was a paretic. The mother has Argyll-Robertson pupils. The patient had Hutchinson's teeth. A further exposition was promised.

Dr. B. Sachs said he had a distinct impression that juvenile paresis was an extreme rarity. In the case shown by Dr. Jelliffe there was possibly a congenital syphilitic condition, and consequent mental deterioration. The findings, as given by Dr. Jelliffe, were not sufficiently definite to base the diagnosis of juvenile paresis upon them. The child's speech did not strike him as paretic in character, and the speaker said he would be inclined, in a case of this kind, first of all to try the effect of energetic anti-syphilitic treatment and see whether her condition would not be improved thereby.

Virchow-Robin Lymph Spaces in Paresis.—Dr. Jelliffe showed some illustrations of the findings that Achucarro and Snessarew had reported relative to the development of new connective tissue about the perivascular and Virchow-Robin lymph spaces in paresis. They indicated that the lymph spaces became completely organized, so that in the brain of the paretic a very grave alteration in the lymphatic circulation must result. Just at what stage of the disease this infiltration takes place; just how extensive it was, and just when it reached its maximum have not yet been definitely determined. These connective tissue changes in the brain, Dr. Jelliffe said, probably had an important bearing upon the difficulty encountered in the successful treatment of paresis. We were aware of the difficulty with which antisyphilitic remedies penetrated or circulated within the brain tissue, which would indicate that grave metabolic disturbances were brought about by the inability of the lymphatic circulation to carry on its function. At the last meeting of the Society, Dr. Moore demonstrated the presence of the *Treponema pallidum* in the brain and showed that this organism lay at a considerable distance from the blood vessels and the lymphatic channels. The problem of therapy, therefore, is not only that of the inaccessible spirochete, but also of the blocked lymph space. This latter fact is possibly largely responsible for the diffuse and uniform parenchymatous degeneration which is so manifest in paresis, in contrast with the vascular localized disturbances of the other types of cerebrospinal syphilis.

The Direct Treatment of Syphilis of the Central Nervous System.—Drs. Homer Swift and A. Ellis presented this paper. Syphilis of the central nervous system was one of the most important manifestations of a chronic infectious disease. The discovery of the *Treponema pallidum* in general paralysis by Noguchi and Moore had enabled us properly to classify this condition, so that parasyphilis today must be regarded as active syphilis of the central nervous system. If, in any disease, we had an etiological agent present and still active, and if we had specific therapeutic agents to use against the microorganism, it seemed rational to apply the drugs until all evidence of activity of the virus was removed. Syphilis of the central nervous system was one of the most resistant forms of the disease to treatment. The symptoms were often mechanical and improved or disappeared when treatment was applied, but the entire eradication of the disease was most difficult. These difficulties were increased by the anatomical peculiarities of the central nervous system. The perineuronal lymph spaces and the perivascular lymphatics were the sites of the most intense round-cell infiltration. These spaces were directly connected with the subarachnoid space. Drugs and antibodies were but little eliminated into the cerebrospinal fluid, so that treatment intravenously only reached the disease on the side of the blood stream. Attempts to introduce salvarsan by means of lumbar puncture had resulted in intense irritation of the meninges in monkeys. Serum was practically the only substance known which it was safe to introduce repeatedly into the subarachnoid space. It had been shown that the serum of patients who had been treated with salvarsan had definite effect upon the spirochetal diseases: (*a*) clinically on congenital and secondary syphilis, (*b*) by inhibiting the growth of *Treponema pallidum* in cultures, (*c*) by inhibiting the growth of the spirochete of relapsing fever in mice, and (*d*) clinically in central nervous syphilis by introducing serum directly into the subarachnoid space. The technique employed was to treat the patient intravenously with salvarsan or neosalvarsan, one hour later withdraw 40 to 50 c.c. of blood into a sterile centrifuge tube, centrifugalize the blood, and separate the serum from the clot. Twelve c.c. of the serum was diluted with 18 c.c. of normal serum and heated to 36° C. for one-half hour. A lumbar puncture was made and spinal fluid withdrawn until the pressure was reduced to 30 mm. of cerebrospinal fluid. The 40 per cent. serum was then injected by gravity through the lumbar puncture needle.

Professor K. Heilbronner of the University of Utrecht, who was invited by the President to open the discussion on the paper of Drs. Swift and Ellis, said he could only thank the Society for the privilege of being present, and of having had the opportunity of listening to this very interesting presentation of the subject of treating cerebrospinal syphilis by a new and direct method.

Dr. John A. Fordyce (by invitation) said that while he felt a certain amount of hesitation in discussing the treatment of syphilis of the nervous system before neurologists, yet his experience with these manifestations of the disease from the standpoint of a syphilographer might prove of some value. He wished to say at the outset that he had had no experience with the intraspinous method of treatment as described in the paper by Dr. Swift and Dr. Ellis, but he had had during the past two and one-half years considerable experience with salvarsan given intravenously in syphilis of the cerebrospinal system. Although many of the nervous manifestations of syphilis occurred several years after infection, in the great majority of cases, if not in all, involvement of the cerebrospinal system took place during the secondary stage of the disease. It was at this time that there was a generalized dissemination of the spirochetes. Dreyfus had demonstrated that during this stage more than 50 per cent. of cases of syphilis showed some evidence of involvement of the cerebrospinal fluid, frequently without giving rise to symptoms. It was reasonable to assume, therefore, that the infecting agent might remain latent in the cerebrospinal fluid for years, but under the influence of various contributing factors, it could cause during this stage, or later, meningitis, paresis, or the complicated clinical picture of cerebrospinal syphilis.

From the histories of patients who came under his observation with tabes or other forms of cerebrospinal syphilis he was impressed with the frequency with which these patients stated that they had had months or years before ocular paralysis or other manifestations of meningitis. During the early experiments with salvarsan as a therapeutic agent Dr. Fordyce said it was thought that one or two doses of the remedy would be sufficient to control the infection, and unfortunately this impression was still held by many practitioners and fostered the belief that salvarsan was not effective in the treatment of syphilitic conditions of the cerebrospinal system. As a matter of fact we now know that many of these cases were aggravated by one or two doses, while on the other hand many of their symptoms were relieved by the persistent use of the drug. It was a common experience with him to see an aggravation of the tabetic symptoms produced by one or two doses of the drug, but by persistence in its administration, the pains, crises, bladder symptoms, and general nutrition of the patients were often greatly benefited. The speaker said that this plan of treatment in these cases was to give injections of salvarsan at weekly intervals, combining them with mercury at intervals of three or four days. In one case he gave 21 injections of salvarsan, about 10 grams in all, with marked alleviation of the symptoms, in a patient who had come to him with the diagnosis of paresis. The Wassermann reaction in this case had not been influenced by the treatment, and his cerebrospinal fluid at the last examination contained 90 cells, with a positive Wassermann and globulin reaction. He was inclined to believe in this case that the intraspinous method of Dr. Swift might prove of distinct benefit. Dr. Fordyce said that he was becoming more and more convinced that salvarsan had no deleterious effect on the optic nerve. On the contrary, he had now had two cases under his observation where it had proved distinctly beneficial. In one of these cases the visual fields had enlarged, and whereas before the treatment the patient could not count fingers before one eye, she can now distinctly recognize features with the eye. In closing his remarks he again emphasized the importance of persistent treatment with salvarsan and mercury if we wish to permanently benefit these cases and influence the pathological changes in cerebrospinal fluid.

Dr. SACHS said he had listened with much interest to the paper of Drs. Swift and Ellis, and that he, with others, would hail with great satisfaction any method that would render the treatment of syphilitic diseases of the cerebrospinal system more successful than it had been heretofore. The theory upon which this method of treatment was based was surely a plausible one, and appeared to exert a direct effect on the syphilitic process in the central nervous system. Whether the change in the globulin content and cell count necessarily indicated an improvement in the patient's condition would have to be determined by a much longer experience with this method of treatment, and the results would be watched with great interest by clinicians. Dr. Sachs said that in the treatment of syphilis of the central nervous system with salvarsan, he had been struck by several points. One was that the persistence of the Wassermann reaction, both in the blood and spinal fluid, seemed to be out of relation to the intensity of the morbid process. While he was glad to have the assurance of Dr. Fordyce that we had given the salvarsan altogether too infrequently and in too small dosage, still a word of caution was in order, lest we should go from one extreme to the other. Women, apparently, did not tolerate as large a dose as men.

Dr. FISHER said that in the early days of salvarsan he was opposed to its use in general paresis and tabes; upon the strength of more recent reports, however, he had employed it in parasyphilitic conditions to a considerable extent, and in no instance could the results be regarded as marvelous. In certain cases, of course, we could not expect it to do more than to relieve the pains and possibly some of the ocular symptoms. He had found it more effective in those cases which we had clinically designated as cerebrospinal syphilis, in which the pathological changes differed from those of general paresis or tabes, although the differential diagnosis was often obscure.

Dr. D. M. KAPLAN said that in the tables shown by Dr. Swift one could observe that in the majority of the cases the cell content became normal much sooner than the positive Wassermann disappeared. In the majority of cases, the condition was improved in spite of the fact that the Wassermann remained positive. We had come to regard a positive Wassermann as an indication of a still existing syphilis, and until it became negative we could not look upon it as a cure or even an amelioration. It seemed to him, the speaker said, that the use of a large quantity of spinal fluid tended to make the positive Wassermann a persistent factor, regardless of the fact that the other serological tests became negative.

Dr. I. STRAUSS asked Dr. Swift whether the results of this treatment, as shown by the tests of the cerebrospinal fluid, had been compared with those in cases that had been treated only with salvarsan. Also, whether any improvement in the objective signs had been observed following this method of treatment, or whether they only improved subjectively. We knew that tabetics were very apt to be helped by any new method of treatment. Also, whether Dr. Swift had had an cases that showed toxicity due to the continuous use of the salvarsan, and if so, how long he would wait in such a case before repeating the dose.

Dr. SWIFT, in closing, in reply to Dr. Sachs, stated that the warnings of Ehrlich had been heeded, and the dose of salvarsan had been reduced in treating women. The dose for women was usually one-tenth of a gram less than that for men. In carrying out the direct treatment, Dr. Swift stated that the patients usually received five or six injections at intervals of two weeks. If intravenous treatment alone was given, weekly injections were used. In those cases where, as the result of treatment, the cerebrospinal fluid had been reduced to normal with a negative Wassermann reaction, there had been no further progression of the tabetic symptoms. From this we might expect that if these patients had been treated in a sufficiently early stage, there would have been hope of permanently arresting the disease at that time. In answer to Dr. Strauss the speaker said they had not seen much improvement in the objective symptoms in their cases, and he knew of no instance where the knee jerks returned once they were gone.

The Newer Histopathology of the Cortex in the Psychoses.—Dr. H. A. COTTON of Trenton, N. J., made some remarks on this subject, which he illustrated with the aid of colored lantern slides. He emphasized the fact that there was a general feeling that there had not been much encouragement in the study of the histopathology of the cortex in the psychoses. This he thought was a false impression. Much had been done in paresis, and the recent discoveries of Noguchi and Moore showed the necessity for persistence in the work in connection with other diseases, such as dementia præcox, to which his own pathological studies had been largely limited.

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DIAGNOSIS AND TREATMENT OF KNEE LESIONS IN THE ADULT.*

By V. P. GIBNEY, M.D., LL.D.

NEW YORK.

The president of the association, soon after his election, was good enough to invite me to attend this meeting, and to prepare a paper for your discussion. An intimacy extending beyond a period of forty years prompted me to accept this invitation, and I can assure you, gentlemen, that the honor of meeting the members of the Kentucky Medical Association is one that is deeply appreciated by one born and reared in old Kentucky. I recall a meeting in Danville many years ago where it was my distinction to be seated on the platform when that eloquent Kentuckian, the late Richard O. Cowling, presented to that giant in surgery, Samuel D. Gross, the door-knocker that had hung on the front door of the father of ovariotomy, Ephraim McDowell.

The profession of this State has always occupied an exalted position in the medical world, and it has always been a subject for self-congratulation that my medical education was begun in the Medical Department of the University of Louisville.

In selecting a topic which I thought would at least elicit a discussion, I have had in mind the one idea—something practical. The topic I have chosen is one dear to my heart, obtruding itself on all occasions, and when casting about for something which might interest my friends in Kentucky I had quite forgotten a vacation incident in the early part of the century. Indeed, I had already chosen my title and sent it to my friend and one time pupil, Dr. Arthur T. McCormack, and had written the introductory, while enjoying my vacation on the shores of Long Island Sound, when my secretary sent me a lot of reprints of papers on this very subject. I found one with this title: "Diagnosis and Management of Some of the More Common Lesions of the Adult Knee," extracted from the *Washington Medical Annals*, 1902.

In February of that year, while I was taking a rest at the New Willard in Washington, a delegation from the Medical Society of the District of Columbia invited me to present a paper for discussion. In reading that old paper I find that I have become a little bolder in treatment and a little more confident in diagnosis.

The temptation was very strong to treat you as many of the circuit riders in my early Kentucky days treated their congregations, viz., fish out an old sermon and "let it go at that," on the ground that the faithful followers of the Meek and Lowly never tired of the old, old story.

You may rest assured, brethren, that I am giving you a "brand new sermon."

The knee-joint is as important a joint as any one in the human mechanism, and demands recognition in every period of life. If a babe in arms is poorly fed and scorbutus results, subperiosteal hemorrhages frequently involve the periosteum bordering on the knee, and alarming symptoms and signs call for prompt measures of relief, lest the functions of the joint be hopelessly impaired. When the little one begins to walk and the second summer is passed, the bacilli of tuberculosis of the bovine type in their migratory wanderings prefer to colonize often in the distal femoral epiphysis, or, the proximal tibial epiphysis, when these cancellous structures become hyperemic because of trivial traumata and a tuberculous knee, formerly known as a scrofulous knee, or, a tumor albus, develops, most insidiously, making alarming headway, while the family physician is casting about for a diagnosis.

During the period of adolescence in this commendable athletic age, traumata on the tennis court, the diamond, the football field, or in the mountain passes bring about the various forms of internal derangement of the knee, and errors in diagnosis contribute not infrequently to a crippling condition extending well into adult life.

Later still, when adolescence has passed and when a vocation has been chosen, long hours at a desk in ill-ventilated quarters, with irregularity of meals, efforts at keeping up social requirements induce changes in the alveolar processes and impairment of the digestion and static disturbances in the pedal extremities, we come face to face with the many forms of infections and the knee often is obliged to bear the brunt of the invasion of the pathological cocci with which the research laboratory has made us so well acquainted.

Lesions of the knee in adult life have always interested me quite as much as have those in childhood. Hospitals have been founded in all parts of the world for the crippled child, while few have opened wards for the adult cripple. The reason therefore is simple enough. The helplessness of childhood appeals to the public, and the maternal instinct predominates.

No argument is needed to convince this association of the importance of an early recognition of exact lesions which bid fair to cripple the wage-earner or his equally important helpmeet in the struggle for existence.

*Presented at the meeting of the Kentucky State Medical Association, Bowling Green, September 2, 1913

The diagnosis presupposes an intimate knowledge of the anatomy of the joint, deep as well as superficial. One needs to recall the outline of the lower end of the femur and the spines in the center of the upper end of the tibia. These articular surfaces are admirably adapted one to the other for the ginglymoid action. The location and function of the semilunar cartilages and their relationship to the ligamentum alaræ need to be remembered, as injury to these, either by trauma or infection, induces a good deal of Internal Derangement. It is essential that one should bear in mind the spines of the tibia and their relationship to the crucial ligaments, for I am convinced that a diagnosis is not often made of a fracture of one or both of these spines which we see standing out so prominently in all of our *x*-ray plates. One should study the normal size and outline of these processes and become thoroughly familiar with their function, so that any blurring in the plate or any markings suggestive of a partial or complete fracture can be easily recognized. It should be remembered, too, that the attachments of the crucial ligaments close to the bases of the spines could easily be detached by avulsion or fracture. Given then an ability to recognize these anatomical disturbances, a closer investigation as to the nature of the trauma and the functions of the joint soon following the trauma is demanded, and a diagnosis ought to be made with reasonable accuracy.

While my own histories record comparatively few lesions of the crucial ligaments or tibial spines, I am reminded now, in the preparation of this paper, of my failure to diagnosticate many cases which have puzzled me in times past and have been relegated to that class of Internal Derangements, by a most interesting paper sent me by my good friend, Mr. Robert Jones, the title of which is: "On Rupture of the Crucial Ligaments of the Knee, and on Fractures of the Spine of the Tibia," by Robert Jones of Liverpool and S. Alwyn Smith of Winnipeg, and published in the *British Journal of Surgery*, Vol. I, No. 1, 1913. Did time permit I would like to quote extensively from this valuable contribution, but I must content myself with advising all interested in this subject to study the plates, the cases, and the text of the paper.

Among my records I have the following:

Case I. (*No.* 4437) of rupture of the crucial ligaments I made out in 1898. The patient was a distinguished Laryngologist, 52 years of age, who injured the ligaments by fancy riding in the ring a few months before he came under my observation. There was a laxity of the joint, preventing a subluxation laterally in full extension as well as in partial flexion. By limiting these movements in the lateral direction with an apparatus, relief was obtained.

In studying the cases in the paper to which allusion is made, one cannot help arriving at the same conclusion the authors do, viz., "In a case of recent rupture of one or both crucials, fixation of the knee for a period of from three to six months offers the best chance of recovery, and that immediate operation should not be resorted to."

And that "The rupture of any of the ligaments of the knee should be treated by absolute rest until healing is complete. This, of course, applies with the greatest force to rupture of the crucial ligament."

If the practitioner fails to recall the instruction received in the anatomical rooms, his trusty "Anatomy" is at hand and there is no excuse for a failure to get a knowledge of fundamental points in arriving at a diagnosis.

The history of the case is the next important factor. The exact date when lameness or disability was first observed requires a little cross examination to bring out a probable trauma as the exciting cause. My own routine method in conducting this cross examination enables me to locate pretty accurately (1) the initial lameness; (2) whether pain is present when the patient is standing or walking only; (3) just where the pain is felt; and (4) whether the pain or distress persists after use and into the night.

These points being fully established, a search for other factors in the etiology follows quite naturally; such as excessive weight bearing and the strain on the muscles of the leg that would be induced by a falling arch or a poorly balanced shoe.

Should no information be obtained by the above investigation, a source of infection should be diligently sought, and with the many instruments of precision at hand one can soon determine a clue well worth folowing.

Without trespassing on your time with a didactic essay, I am sure I can convey the lessons I have to impart by illustrating points in diagnosis in treatment and in prognosis by a selection of clinical records taken from my history sheets, and very little reference will be made to bibliography.

In illustration of lesions periarticular, let me cite the case of a strain complicated by weak foot in the person of a personal friend, a distinguished author of a work on Surgery.

Case II. (*No.* 11,039). Male, aged 60, consulted me November 11, 1911, for a lameness involving the left knee, and the history elicited was that he had always been temperate in eating and drinking, and had, prior to the summer of 1911, never had any signs or symptoms of gout or rheumatism. A medical friend, an internist of high repute, had for several weeks been treating him for a gouty knee, depriving him of his after-dinner cigar, of articles of diet of which he was especially fond, and of all alcoholic drinks. I knew that he lived many months in the year on a farm in the northern part of Connecticut—the Perkshire Hills. I soon learned that he had been superintending the digging of a pond, and had been wearing rubber boots, sinking often deep into the mud, requiring quite a pull to extricate the foot. He recalled a pain in his knee after one or two of these efforts. Toward the close of the summer he found his knee tender about the head of the tibia and was himself convinced that these frequent traumata were responsible for his lameness. An examination failed to discover any actual joint lesion. The tenderness and pain were confined to the internal lateral ligament and about the origin of the tibialis anticus. There was some thickening and tenderness at the metatarso-phalangical joint—great toe. While the had a good arch (when the foot was at rest), this gave way on standing and walking. The diagnosis was made in accordance with the findings; the knee was strapped with rubber adhesive plaster, and a shoe built to fit the under surface of the foot in repose.

November 15, practically cured and happy over a return to his former mode of living. December 11, discharged cured. In the winter of 1912 and of 1913 I saw him in Augusta, Ga., and there had been no return of symptoms.

Case III. (*No.* 11,079). A gentleman, aged 26, came under my care December 10, 1911, and a diagnosis of acute synovitis with traumatic periarthritis was easily made after obtaining the following history and findings:

On stepping from a subway train to the platform, December 6, he fell into an open space, striking the lower part of the shin and knee, left side. The former was "barked" and the latter bruised a little, but not enough to prevent him walking up the steps and to his hotel and dancing all that evening, the discomfort being trifling. Next day he consulted his doctor, who dressed the shin and strapped the knee. Swelling naturally followed, and pain increased. On the fourth day I found the strapping had given no relief; he was lame; the contour of knee was far from normal; there was a moderate amount of fluid in joint; the range of motion was very nearly normal, and

the points of tenderness were at the insertion of the quadriceps tendon into the patella and over the tubercle of the tibia. These parts, it seemed to me, had been strained in his efforts at pulling his foot out of the space between the car and platform. As he was soon to sail for a position in the Embassy at Rome, I decided to rest the joint at once; so applied a plaster of Paris bandage over a skin-fitting stockinette, with knee in slight flexion, permitting him to use the limb moderately in walking.

Next day I cut a window from the upper border of the patella to the tibial tubercle, as I had not taken the precaution to pad these sensitive points, when running on the plaster of Paris.

December 18, seven days after his first visit, he was so much improved that I removed the plaster of Paris, making it into a splint for night use. The knee was strapped with adhesive plaster, and on the 26th he was discharged cured and all treatment discontinued. He sailed next day on his foreign mission.

April 25, 1912. His mother tells me that he has had no recurrence of any symptoms and is attending all the social functions connected with the Embassy. Report has recently—(this summer)—come to me that there has been no relapse.

These two cases just reported in detail presented no difficult points in diagnosis, according to my way of thinking, and the indications, for treatment were perfectly clear, the results justifying the method adopted.

Let me call you attention to an injury done the subpatellar bursa (many coming under my observation) and, when recognized early—say within a few days—the lesion responds promptly to treatment.

Case IV. (*No* 11,044). A boy, 12 years of age, was seen at his home, November 14, 1911. While playing tennis, September 14, he fell on the right knee and was obliged to discontinue playing. The rest gave so much relief that he played next day and the following; but, swelling and pain resulting, a doctor was called; the knee was strapped, and at the end of a week he was so far recovered that he resumed his tennis without the doctor's consent. The exercise served but to add additional trauma, and he was obliged to take to bed. I found a moderate enlargement of the popliteal bursa with decided enlargement under the ligamentum patella and thickening with tenderness around tibial tubercle. There was no fluid in the joint and the range of motion was very good, if carefully made. My diagnosis was traumatic periostitis and subpatellary bursitis.

A strapping with adhesive plaster, *secundum artum* soon afforded relief, and by the 24th he was so far advanced toward a cure that he was allowed to go to school. There has been no relapse.

One sees quite frequently cases of traumatic synovitis where simple measures afford temporary relief; but these measures are not continued long enough to effect a cure, and recurring traumata induce a chronic arthritis requiring more persistent protection. Take as illustration the following:

Case V. (*No.* 4,537). A gentleman from Texas, aged 25, came under my observation, April 29, 1898, with this history: A year ago sprained the right knee alighting from a buggy and was laid up for at least a month. Plaster of Paris was employed at the outset, and on its removal, a month later, nothing was done to restore the tone of the muscles protecting the joint. He was simply put on crutches, and continued their use up to the date of his appearance at my office, although a leather splint had been worn night and day, keeping the movements out of commission. Even thus protected he injured the joint twice during the year. He complained on attempts at using the limb. There was very little change in contour and the comparative measurements showed no difference in the thighs, but one inch increase directly over the knee and three-quarters of an inch atrophy of the calf. Patella was freely movable, but flexion could not be made beyond a right angle without pain, while extension to the normal limit was easily accomplished. I could detect no lesion of the semilunar cartilages.

The indications seemed clear enough, and I soon had him fitted up with a brace known as the Campbell brace, which protected him from lateral strain, distributed the strain in walking throughout the entire limb, and allowed a range of motion equal to his own. This brace was attached to the shank of the shoe, and care was taken to avoid any pressure on thigh or calf muscles. The important feature, however, in the management of the case was daily massage with active and resistive movements. The improvement was quite apparent from the start, and by the 21st of May—less than a month—the crutches had been abandoned, the pain was no longer present, and the range of motion had increased nearly to the normal. A week later he was so well advanced toward recovery that I allowed him to return to Texas with instructions to continue the brace until all traces of the injury had disappeared.

Quite recently, August 14, 1913, fifteen years later, he called at my office socially, but really to express his gratitude, and to tell me that the cure was established within a few months after his return home in May, 1898, and the knee had remained well for fifteen years. Then he bruised it one day last spring, but within a week all was well again, and there had been no further discomfort or disability.

In illustration of this same point, let me cite another case requiring more vigorous treatment.

Case VI. (*No.* 11,036.) A gentleman, 40 years of age, from New Orleans, consulted me, November 9, 1911, and my diagnosis was subacute synovitis, traumatic. He came soon after the injury, two weeks previously, playing golf. The presumption was he played in poor form different from that of our presiding officer. The wrench was pretty severe, but next day he played again and twenty-four hours thereafter had a well-marked hydrops-articuli, which persisted up to the date of his visit to my office. The measurements were: right knee, 13¾, 13¾, 12¾; left knee (affected one), 16, 16, 14½. Flexion to 90° was resisted and painful, while extension was normal.

The Paquelin cautery, light touches, followed at once by crisscross strapping of rubber adhesive plaster, leaving free the popliteal space, was the treatment adopted, and he was encouraged to use the limb in moderation. The fluid was perceptibly less within a week; but at the end of another week, while the fluid was still present, he complained of pain on use and was not much encouraged. The aspirator was used, quite emptying the joint cavity, and a skin-fitting plaster of Paris was applied. The fluid was sent to the laboratory and the report was that a serous exudate with a few blood corpuscles was all that the specimen revealed; no pus, no bacteria, and no tubercle bacilli. At the end of a week I substituted for the plaster of Paris a Campbell brace, and with the joint thus partially protected he returned to New Orleans, where Dr. Hatch continued the treatment begun in New York.

On November 28, 1912, a year later, I had an opportunity of examining the patient, and made the following note: "Quite well for at least three months; wore brace two months, and then, for the rest of the spring, the knee was strapped; in summer playing golf without pain. Knee same size as its fellow; joint functions good and painless."

Lest the records already presented give the impression that a diagnosis of an acute or a chronic synovitis is always easy, I beg to present an illustration of how one with a very large experience can easily make an incorrect diagnosis.

Case VII. (*No.* 5,133). A young lady, about 18 years of age, was referred to me by the late Dr. Francis Markoe, October 23, 1899, and I made out a "Subacute Chronic Arthritis Left Knee with Very Little Impairment of Function"; because the history obtained was: that five years ago, while bathing, was conscious of a strain from a bruise of the knee, was lame for a day or two, but a rubbing brought about prompt relief and for three months no sign or symptom was noted. Without any more injury she began to favor the limb in use, and this disability has continued without interruption to the date of my first observation. Once or twice during the five years she has complained of pain in one or the other elbow, and the case was regarded as "rheumatism," although the measures usually adopted for such cases, such as douches, medication, and a full course at Richfield Springs failed to afford relief.

The day she walked into my office there was a distinct lameness, but the range of motion was unimpaired. On flexing and extremely I could feel a rice-body-like crepitation; but there was nothing of the kind present in the other knee. The comparative measurements were practically identical. The quadriceps femoris was weaker on the left side. Because of the long standing of the lameness, I provided her with an apparatus to diminish the strain in

walking and proceeded to strengthen the quadriceps.

By the latter part of November, while she walked with more ease, she was distinctly more fatigued after moderate walking. Potassium iodide was prescribed; but this could not be pushed beyond ten grain doses without physiological effects. Massage was continued without interruption. A distinguished internist, the late Dr. Kinnicutt, helped me out in the antirheumatic medication. She attended regularly, and yet at the end of eighteen months one could note very little progress; in fact, we were disappointed, and, as she suffered very little pain or discomfort and was able to keep up with her social duties, we practically relied on time as about the best factor in therapeutics.

In the later part of 1900 she married, and in January, 1901, moved to Boston; where a consultation was held with Dr. Goldthwaite, who, after a very careful examination, wrote me that, on finding a marked spasticity in her flexor muscles, especially the gastrocnemius, he made out a "lateral sclerosis," and no real knee lesion whatever. He had his diagnosis confirmed by Dr. Walton of Boston.

In April I had an opportunity of going over the case again and noted the signs Dr. Goldthwaite had observed. The treatment advised by him was approved, viz.: a pair of plates in the shoes to give a better balance.

In due time she became a mother, and nothing active in the way of treatment was done until after confinement.

In February, 1903, I had another opportunity of examining the patient, finding the same crepitation in both knees, the same fatigue after walking. Curiously enough, however, she told me that while in the mountains the summer preceding she walked five miles without any fatigue. I had Dr. C. L. Dana see the case with me, and he made out a myopathy or dystrophy, after finding exaggerated reflexes both sides, a Babinski reflex with no reaction of degeneration. His prognosis was that it could be arrested by mild massage and avoidance of strain or fatigue.

This case, therefore, started with an apparent knee lesion induced by trauma, and proved most instructive, because of my good fortune at being able to follow it through all of the phases of this interesting neurosis.

Among the odd things happening to a knee as a result of trauma, one finds occasionally a tenosynovitis of the hamstrings and not infrequently a rupture of the tendon of the quadriceps, and I beg to report briefly one of each.

Case VIII. (*No.* 11,244). A gentleman, aet. 32, was referred to me by Dr. DeWolf of Providence, R. I., April 13, 1912, with a history of an injury to the left knee from a fall with joint in sharp flexion, and the doctor found just after the accident extreme tenderness over the external hamstring near its insertion, the joint apparently not involved. Under bandaging he got no relief and five or six weeks later underwent a course of baking in superheated air. A month afterward distinct crepitation with swelling over the hamstrings and limitation of full movements. An orthopedic surgeon in Boston confirmed Dr. DeWolf's diagnosis and advised a week's rest followed by douches, massage and electricity. After six or seven weeks' treatment and pain on use persisting, the surgeon advised an arthrotomy, under the impression that a lipoma arborescence had developed. All of this antedated his visit to me in April, when I found swelling in popliteal space on extension to 170°, lameness and fatigue easily induced. There was a moderate degree of atrophy of thigh, knee, and calf. I was unable to detect anything within the joint by palpation. My advice was massage with full extension, as all acute symptoms had disappeared. Three weeks under this treatment proved beneficial, and I found range of motion perfect, thighs and calves same size and cure about complete.

A letter from the gentleman, November 15, 1912, contained the following: "Your diagnosis was correct, the treatment you prescribed succesful; my knee is now entirely well."

As a rule swelling in popliteal space is suggestive of a hydrops-articuli because the popliteal bursa often communicates with the synovial sac, but when the sac can be found quite free of any effusion a bursitis of the popliteal may exist independently of any synovitis. The tenosynovitis in the case just reported easily explained the bursitis.

The following is hardly pertinent to the present discussion, but because of the slight flexion deformity and the lameness referable to the knee, to say nothing of the relief afforded by operation, prompts me to make a brief abstract.

Case IX. (*No.* 5,520). An elderly gentleman, aet. 70, in 1898 had a partial separation of the tendon of the quadriceps from the patela. Enough of the tendon was left to enable him to get about with a limp only. This was on the right side and he had to exercise great care to keep from falling. He took a tumble a few days before I saw him, September 20, 1900, completely separating the tendon of the quadriceps from the left patella, and his gait was awkward, indeed. The transverse depression just above the patella was so marked and the history was so clear that a diagnosis was easily made, and on my advice he entered my private hospital. Two days later, when under ether through a longitudinal incision, the torn fibers were exposed, revealing a laceration of the capsule. Part of this was removed, the rent sutured, and the ends of the tendons sutured to the patella with Kangaroo tendons. The joint was drained posteriorly and over the dressing plaster of Paris was applied. The dressing was removed on the sixth day, healing about complete, the case acting to a wish.

On November 28, two and a half months from date of operation, full active extension and flexion was made easily; he walked well; could get on and off a car without any trouble, and the cure was fully established.

The lesions of the knee calling for an arthrotomy are varied—loose bodies, torn semilunar cartilages, liponata-arborescens, or fatty fringes do not, as a rule, respond to anything short of operation. Because of the old dread of opening a joint, especially the knee joint, the older surgeons have advised against this procedure; but within the past decade there has been a decided change in sentiment, and current literature is full of successful cases, so that one hardly feels like reporting ones own successes unless the operations can run into the hundreds.

Take, for example, a discussion on injuries to the knee joint other than fractures and dislocations, at the recent meeting of the British Medical Association at Brighton, in July. Dr. A. M. Martin of Newcastle-on-Tyne presented a series of 509 operations on the semilunar cartilage. In this series he found the external semilunar was torn in only 38 cases. The common type of injury was a split from before back. He contended that the cartilage could not be torn from its attachments when the knee was extended and his cases seemed to improve.

Whitlock of Oxford was just as positive that lesions of the semilunar cartilages were always caused in partial flexion of the knee combined with external irritation. But his experience was by no means as great as that of Martin. In this discussion, which was reported in abstract (Medical Record for August 6, 1913, page 314) the concensus of opinion was that complete removal of the injured cartilage gave far better results than any attempt at suturing.

While my own experience has extended over a number of years, I have failed to collect my cases for statistical study, yet I am convinced that the opinion expressed by the English surgeons is the correct one.

My own method of handling these cases is about as follows: An attempt is made to reduce the cartilage, if it be subluxated, hold it in place with adhesive strips and reinforced with plaster of Paris for a few weeks; then apply a Campbell brace, limiting the range of motion commensurate with ordinary use of the limb, the brace preventing undue irritation or lateral displacement. In a certain number of cases this treatment is ample. Take as illustration the following:

Case X. (*No.* 2,047). A young man, 18 years of age, came under my care on the 7th of March, 1892, and I immediately diagnosticated the case an Internal Derangement

of the Knee with Occasional Subluxation of the Internal Semilunar Cartilage and Resulting Synovitis. Eight or nine months previously, while turning a somersault, he missed his footing as he came over, and the left knee was abducted rather sharply, feeling at the time something slip. He remembers this very distinctly, and puts his finger upon the place which is over the internal semilunar cartilage. He found at the time of the accident some difficulty in extending the limb, but did so very quickly, while something slipped into place. He paid no further attention to it, played tennis all the afternoon, but a half dozen times since this date, if he started quickly to run, or if he arose quickly from a sitting posture, would experience a sensation of something slipping. The pain caused thereby would last only an instant, something would slip into place, and he would be all right again. Two weeks before he came under my observation, while catching a ball, the slipping occurred again, and his recovery from this was not so prompt as before; in fact, he had not recovered up to the time of his visit to my office.

This injury was followed by a good deal of effusion of the joint—a sign of synovitis. The wound was put up in a water-glass bandage by the local physician, and a posterior splint was applied, but the cartilage was not reduced. He was able to extend the limb only to an angle of 150°; there was distinct swelling over the internal semilunar, but there seemed to be no complete subluxation. The limbs were practically the same in size. By the pressure of my thumb over the cartilage and a sharp passive flexion, followed by extension with some further manipulation, I seemed to get the cartilage into place. The treatment by strips of adhesive plaster with plaster of Paris bandage over all was resorted to immediately, and this was changed from time to time until July 11, when he was apparently well. There was no lameness, no disability. I saw him again in the fall and there was no relapse. He was attending to his athletics in college. On December 7, 1902, I had a report that he was entirely well.

What I have found as a sequence of a number of cases of this kind is a certain apprehension lest something may happen to the knee; but where a good course of massage can be secured the muscles regain their tone and nothing further happens. In the majority of cases, however, things do not go on so well, and I have found it necessary to remove the cartilage, making a pretty thorough arthrotomy. If the case has persisted for a long while, and if recurring attacks of synovitis have been the rule, I not infrequently find great thickening of the alar ligaments and fatty masses throughout the joint requiring removal. In at least half a dozen cases, in the present year, I have found fatty tumors in the joint. I could illustrate this point by the recital of complete reports from my records, but they would add nothing to the statements already made. In my own experience the all-important question with patients is the subsequent function of the limb. All have an impression that the full range of motion will not be restored, and I find it necessary to move from two to three or four times under anesthetic, following this up always with massage immediately. Often the patients object to any further anesthesia, but I am obliged to insist on more vigorous massage movements at the hands of the masseur, and patients, as a rule, prefer this to any further operative measures.

One of the most obstinate cases, I am sure, will be of enough interest to report in detail.

Case XI. (*No.* 8,158).—A lady, 51 years of age, came under treatment, April 11, 1906. My diagnosis was Chronic Arthritis of the Right Knee, Traumatic, with Lipomatous Formations and Enlarged Fringes. The history she gave me was the following:

In July, 1904, she fell on the sidewalk and apparently tore one of the semilunars. There seemed to have been a pretty sharp arthritis requiring plaster of Paris and rest in bed for a period of five months. All efforts at relief were unsatisfactory, and with this history I had no hesitation in advising an arthrotomy at once. To this she objected so strenuously that I proceeded to treat in the usual way, giving her a Campbell brace, but the operation was done within two or three months afterward and I found fatty masses about the size of one's thumb and thickening of the fringe, the cartilages remaining intact. The return of motion was tedious, on account of the pain induced; so I was obliged to move the knee half a dozen times in the next few months under anesthesia and employing massage immediately after each operation. She finally wearied of remaining in the hospital and I allowed her to return to her home in the northern part of the State, giving full instructions about active and passive movements. She learned to strap the knee very well, indeed, and continued this until all thickening had disappeared, and when I last saw her, in January, 1909, she walked without a limp, going up and down stairs naturally, with full extension and flexion to an acute angle. The limb is well developed. I have heard from time to time of the lady through mutual friends, and I am quite sure that there has been no relapse.

While preparing this paper I recall a few cases where it was necessary to do an arthrotomy two or three times, as I had failed to remove completely all offending material from the joint cavity. In my later series, however, I have had no such ill luck, because I have been most careful to explore the joint carefully and remove every tissue that might prove the least annoying.

One of the most obstinate of this type that I have had to deal with—one in which both knees were subjected to operation, not by myself, however—is the following:

Case XII. (*No.* 10,418).—A gentleman, 35 years of age, referred to me by a patient on whom I had done an arthrotomy with brilliant results, came under my treatment on the 11th of August, 1910, for a double chronic hydrops articuli. He gave this history: five years prior to this date, without provocation the right knee began to prove troublesome. He had no treatment other than an elastic knee cap; got some relief from using arch supporters; but in January, 1910, he seemed to have developed a lesion in both knees, and was operated upon by a prominent homeopathic surgeon in New York. In July—(a month before I saw him)—a second operation was done by the same surgeon.

I found fluid in the right knee, the fringes apparently a little enlarged; and in the left knee, while the contents in the synovial sac were not so thick, there was decided evidence of fluid in both knees. The popliteal bursæ on both sides were enlarged.

The treatment adopted was the cautery and aspiration of both knees. This was continued for several months with at least half a dozen tappings. He would get apparently better, and then relapse; and in 1892, early in January, I aspirated both knees and injected two and a half ounces of a 2 per cent. solution of carbolic acid, repeating this on the right knee a week later, and in three or four days the fluid had recurred, the result being unsatisfactory. On the 12th of January I drew off the left about an ounce of fluid and injected the same amount of formalin and glycerin, 2 per cent. solution. The pain was most excessive and required morphia for a day or two to give any rest. This was repeated in March, and while one knee seemed to improve, the other was not any better. When I saw him last, on the 25th of June, 1912, he was decidedly crippled, both knees were painful, and he held both in moderate flexion; he employed a cane, and was so much discouraged that he decided to give up further treatment. Recently, during the present summer, my masseuse saw him on the boardwalk at Atlantic City, and she reported that he was using crutches when not in the wheel chair.

The only comment I have to make upon a case of this kind is that the arthrotomies were not sufficiently thorough, and I reproach myself for not having repeated these operations instead of subjecting him to such long and ineffectual treatment.

Remarks on diagnosis would be incomplete without a reference to sarcoma in the neighborhood of the joint. Let me illustrate by the following:

Case XIII. (*No.* 8,289).—A gentleman, 35 years of age, consulted me June 26, 1906, and I made a diagnosis of Subacute Arthritis of the Left Knee, Probably Infectious. He told me that seven or eight months previously he had had an acute attack of rheumatism in the left arm and knee, but was not confined to bed. In February he went to Mount Clemens and took the baths a full course, returning somewhat relieved. Soon after his return, while

standing in a trolley car, the car suddenly stopped and jarred the knee, so that it felt wobbly; but he got off and walked to his doctor's office. Since that time the knee has been stiffish and sensitive. The knee could be extended to an angle of 175 with a little force, and flexed only to 90°. The measurements which I have recorded show that there was no marked difference in size; but I thought I could detect enlarged fringes beneath the ligamentum patella.

I subjected him to the usual treatment, employing a brace, and in addition to this a skin-fitting plaster of Paris because of the atrocious pain about the head of the tibia. As he got no relief, I secured an *x*-ray in August; and this and the negative showed a suspicious spot in the lower end of the femur. The pain at this time was so great that he required narcotics by day and by night. Two or three days later we thrust a scalpel into the same thickened tissue of the femur, and sent the specimen to the pathologist for report, which was a sarcoma. The physician who had referred the patient to me felt quite sure that the pathologist was wrong, especially as he had treated him for a chancre nine or ten years ago. So an anti-syphilitic treatment was adopted without any result at the end of a month.

On further study of the *x*-ray I was positive that this suspicious spot in the lower end of the femur was a sarcoma because of its markings; and in consultation with Drs. Coley and Erdmann, it was decided to do an exploratory operation with an amputation if the tumor were found. This was done on the 5th of September, and this broken-down mass was found in the lower end of the femur, the pathologist reporting later that it was a true giant cell sarcoma. The amputation had been made the upper third of the thigh. Dr. Coley undertook the antitoxin treatment with highly gratifying results.

My last report from the patient, on the 25th of July, 1911, was that he was very healthy and there had been no sign of recurrence.

In the *American Journal of Surgery*, May, 1913, Dr. Walter M. Brickner of New York has published a paper the title of which is the following: "The Differential Diagnosis of Syphilis, Tuberculosis, Tumors, and Osteomyelitis of the Long Bones." It is illustrated by *x*-ray prints, which correspond very closely with a large number of plates in my possession.

The text of Dr. Brickner's paper is quite as instructive as the prints, and did time permit I should be glad to quote extensively from this valuable contribution to bone literature. I am reminded, however, gentlemen, that my paper is already too long for an audience in midsummer, but I must be allowed to detain you a while longer with a reference at least to tuberculous knees in the adult, and I could illustrate this branch of the subject by a recital of cases did time permit. Suffice it to say, however, that at the present time a radical treatment, such as excision, is about the best for men and women who are obliged to earn a living. I have in mind a number of instances where excision has served a useful purpose, but the patients have belonged to the better class, have not been obliged to work, and can afford to live in parts of the country where the best air and hygienic measures prevail. It is quite true that cases that are diagnosticated as tuberculous are on what is known as circumstantial evidence. The knees themselves present very few signs, but because there is a history of pulmonary hemorrhage and signs pointing toward invasion of the lung, the tubercular test is regarded by many of my colleagues as a valuable aid in diagnosis; but I have refrained from employing this because I have feared a transfer of the lesion to other parts of the body. I could quote instances where the test has been made by myself and colleagues where other joints were subsequently involved, and inasmuch as the tests made by the average practitioner are not always reliable, I find myself unwilling to employ the same. There are instances where excision of a knee in a tubercular subject has seemed to arrest the disease, especially where the patient has had the benefit of climate and an outdoor life. Take as illustration the following, which, I am sure, would interest the members of this association, as the patient herself spent the early years of her life in Bardstown, Kentucky:

Case XIV. (*No.* 4,049).—On April 29, 1897, a young lady, 18 years of age, sought my advice for a deformity of the left knee dependent upon tuberculous ostitis. When ten years of age she had the first sign of disease in the knee. Symptoms were slow in developing, very obscure. Without going into detail the history is that which we find in the large majority. She was fairly well once the knee was held fixed in an angle of about 150°, a little puffiness on the outer side of the ligamentum patella. She had been through the usual treatment of braces plaster of Paris, etc., and had become thoroughly discouraged.

I did an excision on the 3d of May, 1897, placing the limb in slight hyperextension, as she was short in stature, and I thought that she would be able to walk better. The wounds healed without any suppuration, and on removing the plaster a brace was applied to ensure a better fixation and give her more confidence in the use of the limb.

The further history of the case may be summed up in this way: She became a wageearner, a year or two later serving as reporter on the *New York World;* had a hemorrhage of the lung, and was sent by this newspaper to Arizona, where she spent many months in the saddle, gaining rapidly in flesh and becoming quite active. As she was returning home in 1901, the early part of the year, she attended a dance in Denver, and danced so well that a distinguished surgeon, now deceased, was amazed at her ability to get about so well, and found no lameness whatever. Shortly after this she returned to the city, and I could find no lameness. She has continued well up to the present time. Early in June, 1904, she was married, and has given birth to a healthy child, and has never regretted the operation of excision.

In closing I beg to say that in 11 cases of old tuberculous knees, long since healed, in which I did an arthroplasty, after Dr. Murphy's method, I have been disappointed in the results. (In no single instance has there been enough motion to give the patient satisfactory use of the limb.) Dr. Baer of Johns Hopkins, as you all know, has had some excellent results in an operation which consists in the insertion of a chromicized pig's bladder between the ends of the bones. Many of my colleagues, as well as myself, have done this operation, but our results have not been equal to those reported by Dr. Baer. I do not wish to be understood as criticising these operations; on the contrary, I believe they are perfectly justifiable. These ankylosed joints will ultimately be restored to motion, and we shall all be indebted to the pioneer work of these enthusiastic surgeons.

16 Park Avenue.

THE ROLE OF PHYSICAL EXERCISE IN THE OPEN AIR IN THE PROPHYLAXIS OF TUBERCULOSIS.*

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Systematic physical exercise, as a means of prevention in, and the ultimate cure of, pulmonary tuberculosis has not received that degree of recognition at the hands of the medical profession that its merits warrant. Unquestionably, there has been a disposition on the part of physicians to overlook the signal importance of muscular exercise, since the general acceptance of the principle of rest in the treatment of all cases of this disease in which

*Read before the American Climatological Association at Washington, D. C., May 7, 1913.

fever is present. My object is not to attempt to underrate the great value of rest as a remedial agent in the active stages of pulmonary tuberculosis, but rather to emphasize the first-rate importance of promoting good muscular development as a means of minimizing the number of persons susceptible to this disease.

Efforts to prevent the occurrence of disease were developed to a high standard long before the discovery, through bacteriological research, of the pathogenic organisms of disease, especially by the Greeks and Romans. Later epochs, however, seem to have fallen into an opposite tendency. Among the recognized agencies to keep the body in health and to prevent its germicidal power from running low, an adequate amount of muscular activity is of the utmost importance—more than that, its general adoption would have a vital effect upon the far-reaching future of the American race.

As members of the medical profession, our interest in the national physique and the evenly balanced condition of mind and body of the American race, not only during school life, but also during later life, should be greater than that of any other class of society. The question may well be asked in all seriousness: Whether the medical profession has lived up to its reasonable responsibilities with regard to the tendencies to push the head at the expense of the muscles and sinews both at school and at the university, and to retire from one's business career a physical bankrupt at or before fifty years of age?

It is an indisputable fact that the American race, as a whole, is slowly undergoing muscular deterioration, of which one of the principal causes is insufficient physical exercise out of doors, or, in other words, our mode of living as a nation. Two additional considerations to be reckoned with in accounting for our lack of physical stamina are the ingestion of physically inferior races from abroad and the undoubted trend away from occupations requiring the use of the voluntary muscles. It is difficult to understand the lack of interest by the medical profession in the opportunity opened by this state of affairs to point out to educators the supreme importance of keeping the body strong and healthy as the prime requisite in racial supremacy.

It is an accepted principle that increased respiratory exchange, the result of muscular activity, improves the metabolic processes and general health of the body. It must be recollected, therefore, that the endurance or resistance of an individual is in direct relation to his muscle power or muscular development, which, it has been well said, means his "physical development."

Of special interest to this Association is the fact that climate also exercises an influence of some moment upon the standard of physical efficiency. For example, in general terms, the muscular development of people residing in cold or temperate climates is better than that of those residing in warm climates. True, the latter take less bodily exercise, "but this is offset by taking less food, augmented skin action, and, therefore, increased circulation." Moreover, the physical development of "people living in the interior is better than that of those living on the coast, and in the mountains better than in the interior. People in the interior are usually farmers whose occupation necessitates an outdoor life and the use of the muscles; the reason for the hardiness of the people in the mountains is, of course, apparent."* The struggle for prevention in tuberculosis and other infective diseases can be, in the present state of our knowledge, carried on both intelligently and effectively by directing efforts primarily to the specific cause, including the prevention of infection, and by the removal of favoring conditions and predisposing causes connected with the individual. In the case of pulmonary tuberculosis, the specific cause rarely becomes operative unless predisposition exists.

From the standpoint of both prevention and cure in pulmonary tuberculosis, our most effective means are those that enable the human organism to resist the infection. We cannot annul the tubercle bacillus by a direct attack, although there are known means to prevent exposure to infection, and these are to be advised and encouraged. Unless it be found practicable to permanently immunize human beings by the inoculation of non-virulent living tubercle bacilli, then efforts to raise the standard of physical efficiency to the point of establishing natural immunity may not be relaxed.

Movements to prevent tuberculosis must also include the isolation and institutional treatment everywhere of advanced tuberculosis cases. The departments of health officials should be educational forces in the community, instructing the people among other things in the principles and details of the prevention of tuberculosis. Educational work of this character should begin among the children of both sexes in our public schools.

In dealing with the problem of the prevention of disease, the individual is regarded as the unit of a mass, but in the case of tuberculosis we can deal with human beings as individuals, and by selecting persons markedly predisposed to this dread disease enable them to bring about a condition of immunity as the result of systematic physical exercise and other measures. Obviously, the prevention of tuberculosis involves something more than physical exercise persistently carried out, but its commanding position in accomplishing a state of physical development that successfully resists this dread disease is undoubted. The fact, as the Germans put it, that "every one is a little bit tuberculous," goes to show how easily the disease is preventable. Says Ritchie,† pertinently: "If the American people would use one-half the sum that tuberculosis is costing them each year, in fighting the disease, it is probable that tuberculosis would soon cease to exist."

There are certain well recognized local predisposing conditions, such as the paralytic thorax, anemia of the lung-texture, collapsed air cells, all of which can be overcome successfully by suitable exercises, and thus lung resistance increased. Says Ingals‡ in a paper read before this Association on the same subject as that of the present discussion: "One of the most common observations made by medical men is that the long, narrow, flat-chested individual is the one who is most liable to the development of tuberculosis; and we have all observed that in patients presenting this form of chest the chances for recovery are reduced to a minimum. This single observation is sufficient to suggest that systematic physical training, which would develop the respiratory muscles, expand the thoracic walls

*"Muscular Development, the Causes for the Lack of It, and the Value of Physical Exercise," *Journal American Medical Association*, March 9, 1912.

†"Primer of Sanitation," by John W. Ritchie, p. 175.

‡Transactions of the American Climatological Association, 1898, Vol. XIV.

and correspondingl increase the pulmonary capacity, would be of great service, not only in preventing tuberculosis but in curing its early stages."

The true significance of systematic physical exercise and deep breathing for their effects in increasing the vital power and resistance of the lung-texture has not been given due prominence by the profession. From the personal results obtained, I feel strongly that a growing tendency on the part of the medical profession to make trial of this suggestion would soon lead to its more general adoption.

The rationale of the physiological effects of muscular exercise and deep breathing is easily comprehensible, for thus are obtained exhibitions of greater distention of the air-cells, improved circulation of the blood through the lungs whereby the localized anemia is removed; in other words, there is brought about an improved metabolism and a greater resistance of the lung-texture. To show the beneficial effects of appropriate breathing, I quote again from Ingals' excellent article: "One of the first injunctions we should place upon the patient who has any reason to anticipate the development of pulmonary tuberculosis is that he should expand the lungs thoroughly several times every day.

We must also personally inspect his mode of breathing, to see that he knows how to carry out our instructions. In order to expand the lungs the patient should be directed to draw in the abdominal walls and take a long, deep breath, while the shoulders are carried gradually backward and the ribs and sternum elevated as far as possible; he should hold his breath for a few seconds and then blow it out slowly and forcibly through a small opening between the lips. In this way not only the air-cells which can be reached by direct inspiration are inflated, but also those at the apices and along the borders of the lungs, which otherwise might not be distended."

Equally important for its effects upon the respiratory system is general muscular exercise. It must be taken systematically and for the most part out in the open, as well as wisely prescribed and regulated, in order to be rendered effective. At the outset of this aspect of my subject, I wish to disclaim all responsibility for the encouragement which has been given to professional athletics in recent times. On the other hand, it seems to me that professional interest should, without difficulty, be aroused to a vigorous discussion of the possibilities of muscular development with a view to securing a high standard of physical efficiency. To this end the proper use of the muscles easily shares first honors with diet and fresh air, but the former factor has received less professional attention than the two latter.

It is probable that in the presence of the local conditions mentioned above, *e.g.* paralytic thorax, pulmonary anemia, an implantation of tubercle bacilli may have already taken place, so that an accurate diagnosis should be attempted in all suspects by modern methods, but even though incipient tuberculosis is recognized, carefully supervised physical exercise is to be advised and encouraged whenever the maximum daily temperature is not above 99.3° F. and the effects noted.

In explanation of the beneficial effects of muscular exercise a few familiar principles may be enumerated: (*a*) The process of disintegration of muscular tissue is hastened by physical activity, and hence renewal or repair is to a corresponding degree stimulated, provided that sufficient rest be allowed during the intervals. (*b*) It is a physiological law that the working power and resistance of the individual are within certain limits, at all events, in direct relation to the activity of the metabolic processes; and muscular activity particularly active outdoor exercise, is the principal factor in promoting these wholesome tissue changes. (*c*) It is to be recollected that not only the muscles themselves are benefited in carying on an "internal respiratory" function, in which the ultimate exchange of oxygen and carbon dioxide takes place in the muscles, but by their action they also stimulate the circulation, both general and pulmonary, thus aiding in the elimination of the products of combustion, superfluous heat, etc. (*d*) Muscular activity brings into more active play all of the viscera; the appetite and digestion are improved while the circulation of the blood, the brain and nervous system are invigorated. (*e*) Of special interest as bearing upon the subject under discussion is the fact that "increased muscular activity means increased respiratory efforts, since there is greater oxidation and, therefore, a greater loss of carbon dioxide and a consequently greater demand for oxygen. It is this increased respiratory exchange in muscular activity which increases the nutrition and general health of the body." (Friedman.)

If it be true that the human body can resist an implantation of the tubercle bacillus when in a state of good physical development or healthy nutrition, then obviously muscular exercise in the open air holds forth promise of great usefulness, since favoring conditions and predisposing causes of this disease may thus be overcome. I need not revert to the muscular exercise most suitable to bring about a healthy condition of the system. It should ever be recollected, however, that these will depend upon the occupation, period of life, and strength of the individual, at the start. For example, the work in which individuals are engaged being greatly varied, calling into action now one set of muscles and nerves and now another, it follows that the recreation exercises must be similarly varied in order to bring into play those portions of the body that usually remain inactive during the ordinary avocations of life.

The amount of general muscular exercise necessary to the accomplishment and maintenance of sound health required by a man of average height and weight in the prime of life is equivalent to a daily walk of six miles on a level path, while growing lads and women, who are rated as equal to lads of sixteen, require somewhat less. Obviously, this daily quantum of exercise is needed by those whose employment is principally sedentary. On the other hand, an active outdoor life may diminish the six miles' walk quite considerably. It follows from the foregoing facts that the details connected with the regulation of the muscular exercise will vary with the individual.

In conclusion, I believe that well regulated physical exercise is one of the strongest safeguards that we have for the maintenance of a national physique that is vital to the successful prevention of tuberculosis. Lastly, I am ready to join with those who try to limit the abuses incident to competitive sports and training.

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LIQUOR LEGISLATION AND INSANITY.*

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DURING the past year the statement has appeared repeatedly in print that prohibition is directly responsible for the decrease of insanity in Kansas. Certain publications have asserted, indeed, that Kansas is the *only* State in which insanity is actually decreasing. If either of these statements be true the fact is of great significance. For in the United States as a whole insanity seems to be steadily increasing.

It is a well-known fact that such thickly populated States as Massachusetts and New York have a higher percentage of insanity per capita than the group of rural States extending northward from Oklahoma to the Canadian line. But obviously this fact does not prove that Western legislation is superior.

We are not justified in assuming, for example, simply because the "wet" State New York has more insane persons per capita than Kansas, that prohibition is responsible for this difference. Yet this comparison has been used repeatedly as an argument in favor of prohibitive liquor legislation.

Any comparison to be convincing must be made between States closely similar in every particular. Kansas and Nebraska present such similarity in a more striking degree than almost any other two States in the Union. They are closely similar in size and shape and in the geographical distribution of the population, each State having a relatively thickly settled eastern half, while the western half is sparsely settled. They have practically the same percentage of native whites, negroes, foreign-born whites, ratio of males to females, percentage of illiterates, percentage of urban population, and percentage of increase in rural population. Neither State has any large city, and their gain in general population during the census period was practically the same, Kansas gaining 15 per cent., while Nebraska gained 11.

Obviously, then, they are strikingly similar in every important particular except in methods of controlling liquor traffic. Let us see what a comparison between their insane populations will show. According to the statistics issued recently by the Census Bureau the number of cases of insanity committed per 100,000 population in Kansas decreased from 62.2 in 1904 to 52.4 in 1910. Meanwhile in Nebraska there was a decrease from 62.1 (practically the same as Kansas) in 1904, to 34.5 per 100,000 in 1910. Moreover, there were fewer cases of insanity present in the Nebraska institutions than in those of Kansas at the close of the period, Nebraska having only 143.9, while Kansas had 165.6 for each 100,000 population.

It is evident, therefore, that Kansas is not the only State in which insanity is decreasing. It is not even the State in which there has been the *greatest* decrease, this last honor going to its neighbor, Nebraska. From all of which it is evident that Kansas's insanity record furnishes no basis for claiming superiority of the prohibitive form of liquor legislation.

However, in the case of such a complex problem as the relation of liquor legislation to insanity, we should hesitate to accept as conclusive evidence any single set of statistics lacking definite corroboration along other lines. Fortunately in this instance we have such evidence in the index given by the alcoholic psychoses.

It is understood, of course, that the excessive use of alcohol may affect the mentality without producing alcoholic insanity, and that indirectly it may be a factor in producing certain forms of insanity without the usual manifestations of alcoholism. But the forms of insanity included in the well-defined group known as the alcoholic psychoses are the direct result of the use of alcohol.

It is apparent, therefore, that the number of cases of alcoholic insanity committed to the institutions of similar communities, will give a fairly accurate index to the relative amount of alcohol consumed. If prohibition is really effective, as claimed, such States as Kansas and North Dakota should have no alcoholic insanity, or, at worst, should make a far better showing than the license States, Nebraska and South Dakota. What the records really show is as follows:

In the North Dakota hospital for the insane a little less than 4 per cent. of the patients admitted in 1910 had alcoholic insanity. In South Dakota the percentage of this form of insanity was just over one per cent. in 1912. In the Nebraska hospitals the average percentage of alcoholic psychoses admitted last year was a little over 4 per cent. Meanwhile the Kansas hospitals admitted 5 per cent. of this form of insanity during the same period.*

Thus Kansas heads the list in high percentage of alcoholic insanity, with South Dakota trailing so far behind as to make the prohibition State seem like a veritable den of tipplers by comparison.

But perhaps the most significant thing shown by a study of the records is the fact that Kansas had an actual *increase* in the alcoholic psychoses during the last three years—at the very time when prohibition was "being more rigidly enforced than ever before."

There is another index to the relative consumption of spirituous liquors which may very properly be considered. This is the percentage of cases of paresis to the total insane population. We know, of course, that syphilis, not alcohol, is probably the direct cause of the disease. But this does not alter the long-known fact that alcoholism and venereal diseases are usually concomitant conditions. Indeed, there are eminent psychiatrists who maintain that alcohol is at least indirectly productive of paresis, judging from the prevalence of paresis in communities addicted to alcoholic excesses.

We should expect, therefore, that in communities where there is a high rate of alcoholic insanity there will be a high percentage of paresis, and vice versa. It is not an absolute index in either case, of course, but an examination of the records of a large number of institutions show that this evidence is at least strongly confirmatory.

We should expect to find, for example, in the Manhattan State Hospital, which draws its patients from New York City and has a high percentage of

*Presenting some features of an investigation recently undertaken for the MEDICAL RECORD.

*This is the figure given by an officer of the Kansas State Hospital service after a careful study of the subject. The printed reports give this percentage as slightly lower, but the officer's estimate is probably correct. In several other instances I have been greatly aided by personal reports made by staff members, and these reports are particularly valuable, since in several institutions the printed classification of patients is wholly inadequate.

alcoholic psychoses, a far higher percentage of paresis than in the rural State of Iowa. And we do actually find that during the last five years there has been an average percentage of about .12 of paresis to .09 of alcoholic psychoses in the Manhattan hospital, as against .06 of paresis to about .05 of alcoholic insanity in Iowa during that period.

It is significant, therefore, to find that North Dakota in 1910 had about 2 per cent. cases of paresis to about 4 per cent. alcoholic psychoses; South Dakota, paresis about 2 per cent. to alcoholic psychoses one per cent. in 1912; Nebraska, paresis a little over 6 per cent. to alcoholic psychoses something over 4 per cent., and in the Topeka hospital, which I am assured by its officers is representative of the State, the paresis 8 per cent. to alcoholic psychoses 5 per cent.

Here again, then, Kansas leads her group of States in high percentage—completely overshadows them in paretic population. Moreover, just as in the case of alcoholic psychoses, the records show a steady increase of paresis in Kansas during the same period in which there has been a fairly uniform decline of this disease in each of the other States except Nebraska. Yet even in Nebraska the percentage of paresis to the total insane population is far less than in Kansas.

It is evident, therefore, on the basis of Government statistics showing the decrease of insanity in the different States, and the records of the various State hospitals as to the relative number of cases of alcoholic insanity and paresis, that there is no justification for the claim that Kansas' "prohibitive" form of legislation lessens the amount of insanity.

On the contrary the facts seem to substantiate the claims of the license advocates that in prohibition States the relative consumption of spirituous liquors is increased, and the amount of malt beverages diminished. For whiskey, not beer, is the cause of most alcoholic psychoses.

It has been suggested that the relatively small number of insane in this group of Western States "may be simply an evidence of how poorly these unfortunates are cared for." But such a suggestion is entirely unwarranted. The Western hospitals for the insane, individually and collectively, make as good a showing in every particular as any group of similar institutions in the East.

The work done in the State Hospital for the Insane at Topeka, for example, and the hospital itself, compares favorably with any of the New York institutions. The superintendent, Dr. T. C. Biddle, a veteran in psychiatry, is a man of progressive ideas and unusual executive ability. In addition, he has the rare faculty of "putting the right man in the right place," as illustrated by the work done by the members of his staff.

The hospital itself affords opportunity for the most advanced methods of studying and treating insanity. The new Psychopathic Hospital, completed last year, is one of the best in the country. It is the result of Dr. Biddle's long and careful personal studies of similar institutions, East and West, and represents a combination of all their good qualities. Its equipment is complete, and the methods of observing and recording cases are thorough and systematic.

The laws governing the commitment and care of the insane in Kansas, while unfortunate in some respects, are good as a whole and growing progressively better, thanks to the efforts of such men as Dr. Biddle and Mr. Harry C. Bowman of the Board of Control.

Mr. Bowman has recently prepared a bill providing for the examination and treatment of voluntary patients at the State hospitals that might well be copied by our Eastern States. The effect of this bill will be to bring the members of the hospital staffs in contact with cases of incipient insanity at the time when preventive measures may be effective, and before the disease has reached a stage necessitating commitment. This will be a noteworthy step in practical mental hygiene.

I mention these things as illustrating how keenly alive Kansas is to the importance of properly caring for the insane. And Kansas is no more so than Nebraska, or the Dakotas. So that the suggestion that the low insanity rate is due to ignorance or indifference may be discarded.

The real explanation seems to be that the people and their surrounding conditions are different from those in the East—a higher type of people on the average, with much better surroundings. Most of them are native Americans, and, as compared with the East, live in comfortable circumstances. Great wealth and distressing poverty are unusual conditions there, and the average general intelligence is much higher than in most Eastern States.

This last fact is shown conspicuously in the character of the inmates of Western insane hospitals, who present a striking contrast to the inmates of the New York or Massachusetts hospitals. The degraded, disgusting types that are the product of city slums are wanting; and the class of ignorant foreigners that congests our metropolitan hospitals is practically unknown.

So we are justified in believing that Kansas and her sister States should thank general conditions, rather than any special form of liquor legislation, for their relatively small insane populations.

12 Melrose Place.

DIET SOCIAL SERVICE IN DISPENSARY WORK.*

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The importance of diet instruction in the treatment of disease is well recognized, especially in private practice, where it has been fairly well carried out. This has not been so true, however, in the treatment of the ills of patients in dispensary practice, in whom the need for such help and instruction is even greater than in the case of patients in the better walks of life. The reasons for this are manifold, but the one of greatest weight has been the difficulty of giving this instruction in a practical way. Now, however, with the help of the Social Service, we have the ways and means of bringing this method of treatment to the patient in a way which will be not only intelligible, but most practical and useful.

About two years ago, impressed with the poor results we were obtaining in patients with the various forms of gastrointestinal disorders in the Medical Dispensary of the Hospital of the University of Pennsylvania, I tried the experiment of referring all of these patients to the Social Service for instruction and supervision along diet lines. My sis-

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ter, Miss Edna M. Klaer, at the time a teacher of dietetics in the public schools of Philadelphia, was persuaded to give volunteer services for a few hours each week to supervise this work. After a short period the work was interrupted, but had given such good results that in September, 1912, Miss Klaer was definitely engaged through the Social Service of the Outpatient Department of the hospital to give four hours a week to looking after the diet cases in the dispensary. The report given below is a summary of the results obtained for the period from September, 1912, to June, 1913.

While many of the patients are referred to as special diet cases, the diet prescribed in the majority of them was a simple mixed general diet. As soon as a diagnosis was determined the patient was referred to the dietitian with a note giving the diagnosis and the type of diet desired. Of course, proper medical and hygienic measures were being carried out at the same time. In many of the cases, however, treatment other than special detailed diet instruction had been in progress for weeks or months without giving satisfactory results. The majority of the patients represent the various types of digestive disturbances—gastric neuroses of various grades and types, especially that associated with hyperchlorhydria, gastroptosis, gastrectasis, a few cases of gastric ulcer, and one of chronic appendicitis, with pyloric stenosis awaiting operation. There were also a few patients representing the various types of metabolic disorders: arthritis, nephritis, and diabetes. Most interesting of all was our study of a number of families, where for one reason or another we were led to believe that dietetic errors were at the basis of the poor health of several members of the family.

In general the patients fall into two groups:

(a) Individual patients suffering with various digestive disturbances or diseases requiring special diets.

(b) Families requiring a readjustment of finances, food, and habits of eating, because of debts, malnutrition, and sickness.

When the patient is first referred to the dietitian an attempt is made to get some general idea of home conditions and surroundings, the kinds and amounts of food, methods of preparation, and regularity of meals. The meals of these patients usually consist of fried foods, meat, potatoes, and bread, often taken very irregularly and washed down with large quantities of tea or coffee.

After getting this general information, the patient is advised as to the best foods for his condition. In this special emphasis is laid on cereals properly prepared, bread or toast with butter, vegetables in various combinations, fruits cooked or raw, eggs, moderate amounts of meat, but so prepared as to improve its digestibility, and milk in the form of thickened soups or purées, sauces or dressings for vegetables, or in desserts. Special instruction also is given in regard to water drinking. In some cases recipes for cooking the food are given at the first visit; in others these are withheld until later.

These recipes consist of printed methods for cooking the common foods, such as cereals, vegetables, fruits, and cheap cuts of meat. Before the close of the first interview the patient is asked to keep a written memorandum of the foods eaten during the time intervening before the next visit to the hospital.

The first interview is usually at the hospital. The second, if possible, at the home to confirm the data obtained, and to judge from the condition of the home whether directions can be carried out.

In the cases of working girls or of married men referred for diet, the home must be visited to give instructions to the mother or wife, as the latter seldom appreciates the need for diet or understands the kind of diet required without a special interview.

In some cases it has been necessary to give actual cooking instructions as well as recipes. After the home has been visited once the patients are interviewed at the hospital, although more definite results might have been obtained in certain cases if the home could have been visited more often, and the patients more closely followed up.

In the cases in which the patient did not return to the dietitian for further instruction a letter was sent asking the patient to report. This sometimes resulted in a continuation of visits. The cases in which no answer was received from the patient were closed.

There were 50 special patients and 16 families, including in all considerably over 100 patients directly under study and supervision. Of the 50 special patients referred during the nine months, 10 patients have not returned regularly or have been seen only once or twice and have not answered letters sent them. With the dietitian on full time many of these patients could have been better followed up and kept under supervision. Seven patients have been referred so recently that nothing definite can be determined as to the results of instruction. Five others were patients with gastric ulcer, three of whom are to be operated on. In these five, however, despite the condition, some degree of improvement has been brought about by following the diet prescribed. The remaining 28 patients show definite improvement, most of them now being on a general diet and reporting only occasionally to the doctor or the dietitian.

All of these have been relieved of the symptoms which brought them to the dispensary. Many of them have gained in weight and are working full time. In some chronic indigestion had been present for many months and was unrelieved by private or dispensary physicians, who relied especially on drugs; these patients often showed prompt improvement with a readjustment of diet and instruction as to the proper preparation of food. Many of these patients have stopped coming to the dispensary, and when recently visited were found to be in good health and following the instruction given them.

In some of these patients, however, there was a tendency to relapse. This usually occurred where for one reason or another they had gone back to their old habits of eating. This emphasizes the need in the case of these special diet patients for cooperation with the home, and is well illustrated in three cases. The patients returned to the physician and dietitian after an absence of three to five months because feeling so well that they began to eat what the family had for meals, with the result that they again became ill. One of them, Mary S., was sent for diet because of anemia, gastroptosis, and acne. She had been eating very irregularly, much of her food being candy or ice-cream. She was given a strict diet, which she followed very carefully and on which she began to improve. The kinds of food were gradually increased until she was eating a general nourishing diet. Then she went back to work and stopped coming to

the hospital. In four months she returned, after having adopted the habits of her family again, unable to retain food eaten, and the same course of dieting had to be started all over again. William B. was referred for hyperchlorhydria on November 6. He followed directions very carefully, improving so much that by December 20 he was on a general diet and was not to return to the hospital again unless he became ill. In about three months he returned because he had had a recurrence of the trouble, due, he said, to eating the food the rest of his family were eating. George W. was also referred for hypochlorhydria on October 30. He was a travelling salesman, who, after three visits to the dietitian, went out of the city for a time. Before leaving he was put on a general diet, which he followed carefully for five months, during which time he gained 16 pounds in weight. May 19 he came in to see the physician in regard to a stomach upset following his return to home conditions. All of these relapses might have been prevented if the instruction could have been carried beyond the patient to the home.

Diet work for the individual is not broad enough. To be very effective and lasting corrections of the home conditions must be made to prevent the patient returning to the habits which caused his original trouble. These corrections can only be made by spending more time in visiting the homes and trying to change the habits of the family as well as those of the individual. Another reason why special diet cases should become family readjustment cases is because it is usually found that the same digestive trouble which brought one patient to the hospital is present to a greater or less degree in all the members of the family. It is usually only a matter of time before other members of the family will need treatment of one kind or another.

The necessity of giving a patient (1) proper food properly prepared, (2) more nourishing food for the money spent, (3) relief from indebtedness, is the basis of the family readjustment attempted in sixteen families.

Some of these families were referred by the Children's Dispensary because of chronic digestive disorders in several of the children of the family. The physicians found that their advice about kinds of food necessary for the patient could not be carried out because of either the cost of the food or ignorance in the matter of preparation. Of these sixteen families five were in the care of two volunteers who accomplished very little because of insufficient training for the work and lack of adaptability to conditions.

The other eleven families were handled by the dietitian and three volunteers. The dietitian, although paid for only four hours weekly, really spent more than this, owing to her interest in the work. The volunteers were each able to give only one-half day's work every two weeks.

In six of these families there has been very definite improvement, not only in the physical condition of the families, but also in lowered cost of living. The families are having better planned, better cooked, and more nourishing meals, expenses are lower, and in four families outstanding bills have been paid in part or in full. One family has paid a debt of $42, and is now paying cash for food instead of charging.

Another family—father, mother, and eight children, the oldest a girl of 15 years—is earning about $80 monthly. December 1 they owed a debt of $161 at a corner grocery, where they paid one to five cents more than they would have paid in cash for the same article at a cut price store. Besides the grocery debt, they owed $50 milk bill, $15 loan to a neighbor, $44 butter and egg bill, besides other small bills amounting in all to about $25. In order to try the experiment of saving money by paying cash, $35 was advanced by the Social Service for groceries. This advancement enabled them to start out the month without last month's grocery bill to pay. After instruction it was also found that $7 weekly gave the family better meals than they had had before for $8 or $9. Since January 1 the family has paid cash for all food besides paying an average of $12 monthly on debts. The grocery bill is now $118, the neighbor's loan of $15 is paid, besides a small amount on all other debts. The loan of the Social Service Department will be paid last. The physician reports that the family as a whole are in very much better condition physically than they were last year at this time. The father has drawn full wages for two months. Up to January 1 he usually was ill from six to twelve days monthly. The family now have something to work for; their ambition at present is to have the grocery bill paid off by next year at this time. Intensive work has been done in this family under very favorable conditions, but also with the drawbacks of large debts, the charging habit, and ill health. The good accomplished here shows the need, which is found in many other families, of systematic keeping of household accounts, careful planning for meals and necessary expenses, an occasional loan, until the family is on a better basis, to prevent the beginning of charge accounts at food stores, a little encouragement and help in solving the problem of how to make money serve its full value to furnish healthful nourishing foods.

Of the five unsuccessful families out of the eleven, two showed only slight improvement, one was unsuccessful because of poor co-operation, and the other two were given up as readjustment cases because of chronic illness, which in one case affected the supply of money and in the other prevented the mother from making the necessary effort.

In the six successful cases, after the confidence of the family was gained, the mother was encouraged to keep an itemized account of meals and bills from week to week. Corrections were made by the dietitian and suggestions given as to cheaper, more nourishing foods.

The following are the most common corrections:

1. Use of skimmed milk (5 cents per quart) for cooking.

2. Use of stale bread, two loaves for 5 cents, instead of 5 cents a loaf.

3. Cereal in bulk rather than in package. Oatmeal in package, 10 cents. By bulk same amount costs from 5 cents to 6 cents.

4. Coal by half ton instead of by bucket. One family used 30 cents worth of bucket coal daily, costing $8.40 a month. After instruction half a ton at $2.75 lasted the same length of time.

5. Paying cash for food at cut-price stores, instead of buying on a book at the corner grocery. One family saves $1 to $1.50 weekly in this way.

6. Housekeeper going herself to buy perishable foods, such as fruit, vegetables, and meat. In one family a small girl of 10 years is usually sent for supplies. One day she was given tainted meat;

another time she was given 1¾ pounds of meat when she asked for a pound. Again she received small, gnarly apples for the same price that was charged for good ones.

7. Watch bargains at cut-price stores; branches of the large retail stores sell, for example, 3 cans of vegetables for 25 cents, ordinarily 10 cents to 12 cents a can. It is possible for them to do this partly because they do not deliver goods, and the discount on the large quantities bought at the center enables them to undersell small retail stores.

8. Use of butterine at 25 cents and 30 cents a pound as substitute for butter at 40 cents or even 50 cents per pound in winter. Cheap butter is usually made of material not so pure as a good quality of butterine.

9. Use of properly cooked cheese as source of cheap protein. When used with other foods, such as macaroni, potatoes, rice, etc., or in soup, it is quite digestible, provided it is melted, but not boiled.

10. Use of cream vegetable soup for lunch for school children, who need more milk daily and more mineral, which can be obtained in vegetables and milk, and a hot nourishing lunch in order to do their best work in school.

11. Use of cheap cuts of meat cooked a long time in brown gravy, or potroast, etc. Much more nourishing than frying the same for 10 or 15 minutes.

12. The drinking of more water, which in all patients has been a definite factor in improving conditions.

All the mothers were given the printed recipes, and in some cases the use of these was taught in actual cooking lessons in the home, using their own equipment to overcome the objection that they have not the utensils to work with. There is found very often a prejudice against certain cheap foods which is sometimes overcome by careful preparation by the dietitian. Cooking lessons are especially necessary for foreigners who cannot read English and who do not know the kinds or the ways of preparing American foods.

In these six families showing definite improvement there are 47 members being benefited by improved conditions. Many of the suggestions given have been carried to the neighbors, so that the field of improvement has spread beyond the single patient or family.

There is found in the special diet cases, as well as in the family readjustment cases, an amazing ignorance of the common methods of cooking and the economical purchase of nourishing foods. If cereal is used it is seldom cooked more than one-half hour. Vegetables, except cabbage and potatoes, are said to be too expensive and usually not liked especially by children, who need them the most. Meat is fried or boiled, and considered absolutely necessary to furnish strength to do work. In these cases some of their digestive disturbances can be improved very much by substituting the carbohydrate foods for meat. Many patients are troubled with constipation, yet fruit is scarcely used except bananas, which are almost always eaten green, or oranges, which are too expensive. The use of dried fruits, cooked apples, figs, dates, etc., is almost unknown.

The improvement noted in the special diet patients and the family readjustment cases, with the small amount of time spent on them during the past nine months fully demonstrates the need and advantages of this work in connection with medical dispensary work. Diet instruction and supervision through the agency of the Social Service will not only save time for the physician, but will accomplish results in the patients which at least thus far in dispensary work have not been obtained. It will shorten the time of treatment in the dispensary and start habits which will not only cure the disease which brings the patient to the dispensary but also prevent its recurrence. In other words, this work starts at the foundation and source of many ills, the removal of which will give us better nourished, better developed, and more healthy citizens, and will help to solve many of the problems arising from poverty and disease.

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POSTOPERATIVE INTESTINAL STASIS AND THE INTRAABDOMINAL USE OF OIL.*

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Since my subject has reference to a postoperative abnormality, it is interesting to note that much has been accomplished in hastening convalescence and eliminating the discomforts and complications of the surgical patient by permitting early postoperative freedom of movement and through placing of the patient in the partial or complete sitting posture after the administration of the general anesthetic. The abdominal case operated upon without delay, returned to a bed raised eighteen to twenty-four inches at the head, permitted to move from side to side and sit upright in bed upon the second or third day, convalesces rapidly and, more important, avoids such complications as embolism, thrombosis, pneumonia, and difficult micturition with its dangers of cystitis. Intestinal functioning is likewise bettered, there is less inhibition of peristalsis and evacuations occur sooner; yet frequently intestinal disturbance is shown by a coated tongue, loss of appetite, abdominal distention and pain, while excessive vomiting and inability to easily pass gas or bowel contents by rectum emphasizes the fact that there are other important considerations.

Referring, in this communication, not to the cases with more or less complete inhibition of intestinal peristaltic activity, such as is present in advanced peritonitis, nor to those where there exists an obstruction, dependent upon adhesions, kinks, exudates, rupture of the operative wound, or accidental constrictions of the gut caused at operation, but to the more common ones, with less interference with the fecal current, seen after many abdominal surgical procedures, it is evident that the last are associated with a regional or segmental gut spasm. There is present a form of intestinal obstruction accompanied by its usual signs, vomiting, some abdominal distention, and inability to readily pass bowel matter and gas. The bile-stained, continued, and often excessive vomiting is not fully accounted for by the gastritis resulting from the anesthetic. Comparative rarity of true fecal vomiting indicates the evanescence of the obstruction, which seldom exists long enough or to the extent necessary to cause regurgitation from the ileal loops. Fecal vomiting, however, does occur in this condition, may be mis-

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taken for acute gastric dilatation, and overcome without the necessity of secondary operation, required when some mechanical etiological factor is present. Acute abdominal pain develops, dependent upon intestinal spasm and edema, while, proximal to the gut involved, increased peristalsis occurs. Accumulation of gas follows when obstruction is unrelieved or spreading peritonitis is present and meteorism may become extreme, indicating overdistention and relaxation of the intestinal musculature, and a congested, sluggish circulation, conditions favorable to the spread of intraabdominal inflammation. Pain then becomes much decreased on account of the septic condition which supervenes and from discontinuance of muscular spasm. In its place there is the distress which results from encroachment of abdominal viscera and diaphragm upon the thoracic cavity, breathing becomes more difficult, and interference with heart action increases its irregularity and adds to the abdominal vascular disturbance. Associated with the condition there is always more or less irregular peristalsis, distention, and incomplete evacuation of the colon and rectum, which to some extent explains the beneficial results of an effectual stimulating enema. However, the expulsion of gas, following a rectal irrigation, is not in itself as important as the reflex, activating effects which a successful colonic stimulation exerts upon the rest of the intestinal tract, causing a return to normal, uninterrupted, wavelike peristaltic contractions.

The small intestine is usually the site of the abnormality as is shown by the diffuse character of the pain and distention, when present, which is not typically colonic. With distention of the colon pain is never so severe or only becomes so when, with obstruction, the small bowel distends secondarily, it is more definitely located, either in the sigmoid, most frequently, cecum or other portion, and the "ballooning" is most marked in the transverse colon above the level of the umbilicus. Moreover, that the small bowel, not the large, is principally involved, is clinically demonstrated by the frequency of serious, excessive vomiting and severe abdominal pain following operative procedures upon the small intestines or in the upper abdomen, where they are more exposed to irritation during operation than in either pelvic or iliac regions. In the lower animals, the dog in particular, the small gut contracts violently and becomes a stiffened, spastic tube upon even moderate irritation, whereas the rectum and large bowel are less perceptibly affected.

During the early stage of postoperative intestinal stasis the prognosis for spontaneous return of normal peristalsis is good, relief is affordable, and suitable measures favor the propulsion and evacuation of intestinal contents, but with the advent of distention, following a primary period of spasm and pain, the condition present has, almost without exception, passed what might be termed an exaggerated physiological stage, has become complicated and demands secondary operation. In the aged, following operations where large intraabdominal growths have been removed, or where a relaxed belly wall exists, there may occur, in the absence of actual obstruction, a degree of distention postoperatively which is not usual. In these instances there is the distress caused by pressure upon the respiratory and circulatory organs in the thorax but absence of severe abdominal pain. The condition is one of intestinal atony, associated with deficient intraabdominal pressure, the danger is less, and with stimulation, especially the use of strychnine, atropine, enemata, and extraabdominal pressure intestinal activity is regained.

The treatment of intestinal stasis and spasm consists in resorting to rectal enemata, containing soap, turpentine, alum, castor oil, glycerin, magnesium sulphate, etc., in combination or singly, or the use of large, continuous, saline rectal irrigations, with or without essence of peppermint added. Strychnine aids the weakened patient; atropine, in large doses, inhibits abnormal spasticity; turpentine stupes and mustard pastes applied to the abdomen reflexly favor return of normal peristalsis, and the rectal tube left in place for the escape of gas, and stomach lavage may both be effectual. Eserine, theoretically contraindicated, is often used to overcome an intestinal atony, erroneously believed present, while "hormonal" acting similarly and more powerfully upon a bowel already in spasm, is consequently additionally distressing and ineffectual in producing results in the worse cases. Attempts through enterotomy to empty the gut of its contents, with failure to eliminate the cause of obstruction, is attended with almost universal disaster. The position of the patient, lying upon the side, especially the right, is often a means of affording relief, and the partial sitting posture, drinking of fluids, and early taking of solid food conserve energy and hasten recovery. Morphine is indicated in many instances, not only controlling pain but, through relaxing the spastic gut, aids intestinal propulsion.

The pain disturbance and actual dangers resulting from postoperative bowel stasis makes evident the importance of prophylaxis. Not only are the means used to remedy the condition largely symptomatic and only partially effective, but some of them are in themselves attended with discomfort and often repeated procedures, each adding to the patient's fatigue, are required before a normal condition is restored. All attempts at prophylaxis depend upon recognition of the causes of postoperative intestinal stasis and these may be classified as follows:

1. Irritation of the intestinal musculature or peritoneum resulting in spasm and obstruction at the site of excitation, with consequent increased peristalsis and accumulation of intestinal contents proximally and a reflex contraction at other susceptible portions of the alimentary canal.

2. A secondary circulatory engorgement, which prevents the absorption of the gas and renders peritoneal and other tissues less resistant to spreading infection.

3. The restoration of intestines to nonanatomical positions and the oversight, at operation, of kinking or prolapse.

4. Abrasions of the visceral peritoneum, followed by adhesions sufficient to cause angulation or to retain a displaced bowel in abnormal position.

To avoid intestinal irritation at operation it is important to have large or easily enlarged incisions to minimize the use of foreign substances, such as sponges and pads, within the abdominal cavity, relying instead upon posture of the patient, to manipulate the gut, when required, with a gloved hand, to avoid infection and exposure of intraabdominal parts to the drying effects of air or to all but body temperatures, failing which congestion follows (consequently as little evisceration as is feasible), to eliminate from the operating room all irritating solutions in bulk, such as plain water, bichloride of

mercury solution and alcohol, which upon the hands might gain entrance to the belly, and to exclude the use of all chemicals, such as phenol or iodine, employing instead the actual cautery, the effects of which are controllable.

Evisceration and faulty replacement of intestinal coils or displacement and angulation, following operative procedures, are frequent sources of unrecognizable mild intestinal obstruction. Concerning the position of small intestines Mall says, "the jejunum first arranged itself into two distinct groups of loops situated well up in the left hypochondriac region. Each group made more than a complete circle and both of them came in contact with the anterior abdominal wall. After this the intestine passes through the umbilical region to the right side of the body. Then the intestine recrosses the median line to make a few convolutions in the left iliac fossa after which it fills the pelvis and lower abdominal cavities between the psoas muscles." To a great extent misplaced intestines and purely mechanical disturbances will be restored after operation to normal position and overcome by physiological shifting of which the gut is capable. However, with any abdominal distention or in the presence of fresh adhesions this is made more difficult or impossible. Likewise an omentum placed in malposition or spread out and pulled down into the lower abdomen always tends to regain its natural position, carrying with it and kinking coils of intestine to which it may have adhered, or, becoming involved in the inflammatory process, it may press upon or constrict the intestinal lumen. Mechanical obstruction may have origin, moreover, in a mobile, prolapsed cecum, ileal kink (Lane), ptotic colon or voluminous sigmoid, all of which portions of gut should be inspected, when practicable, during operation.

Abrasions of the peritoneal surface of the gut is a most common and frequently unavoidable cause of postoperative intestinal stasis. The method of overcoming the effects of this traumatism by means of mineral oil introduced within the abdominal cavity at operation has proved effectual and safe, and the advantages of the procedure were fully demonstrated in the following case:

A patient, a woman 32 years of age, was operated upon early in January, 1913, for the relief of obstinate constipation and cecal distress, volvulus of the cecum was found and appendectomy and cecopexy performed. The patient left the hospital upon the seventh day and for a few days the bowel evacuations were natural but a certain amount of "gas" pain and attacks simulating increased peristalsis now occurred. The pain became severe at the pyloric region and was associated with vomiting which gave temporary relief. Upon each of the twelfth, thirteenth, and fourteenth days vomiting occurred three or four times and pain, coming at intervals, was controlled by lavage. Upon the fifteenth day vomiting became more frequent, occurring every two or three hours, colicky pains became severe and enemata resulted in the passage of a little gas and particles of feces. The temperature, which had been normal, rose to 100.5° at 4 P.M., the pulse remained under 90 but considerable general abdominal distention appeared. Two hours later, at secondary operation, coils of small intestines, beginning at a point about 1 foot from the ileocecal valve, lying to the left of the mesentery and filling the pelvis, were found matted together with extensive, fresh, soft adhesions, sufficiently firm to cause acute angulation in three places and constriction in others. Upon separating them, which was done by blunt dissection, areas of peritoneum were torn off and denuded portions of gut, aggregating approximately 10 square inches, remained. It was found necessary to break down adhesions at about twelve places, involving perhaps 8 feet of bowel. The site of absolute obstruction was near the cecum, the intestine distal was collapsed, that proximal greatly distended, but as usual it was the jejunum which suffered most in this respect. This part of the gut for 3 feet was distended to double its normal, black, but still presented a glistening peritoneal surface. The peritoneum ruptured in several places upon putting back the jejunum, evisceration having been required; its walls were so thinned out and tense that sutures would not hold, and attempts in this direction were soon abandoned. Six ounces of liquid petrolatum or mineral oil were sterilized, poured into the abdominal cavity, and sponged over the coils of intestine. Approximately 5 ounces of oil were left within the abdomen, the fluid welling up into the wound upon closing the belly wall. Convalescence was uneventful, except for the occurrence of an extensive urticaria and temperature of 102° upon the fifth day, the temperature remaining at other times under 101° F. The pulse rate after leaving the table was 128 but soon dropped to below 100, no vomiting followed the operation, nor did "gas" pains, other than low colonic ones, relieved at once by rectal irrigation, reappear, but as a precaution cathartics were given early and persisted with for three weeks. The patient again left the hospital before the completion of a full seven days and is now in good health.

The writer has carried out a series of animal experiments showing the harmlessness and value of neutral mineral oil, used intraabdominally. In most simple abdominal operations its use is not required since prophylactic care will limit postoperative distress, but in all others the oil is of the greatest value when employed upon abdominal pads during operation or sponged gently upon intestinal coils previous to closure of the incision, excluding only areas where adhesions are desired and having care that all plastic procedures and intestinal anastomoses are completed before oil is introduced. In cases presenting extensive adhesions or widespread peritonitis, large amounts of oil (up to 6 or 8 ounces) are required to prevent recurrence or formation of adhesions, to limit the absorption of toxins from the peritoneal cavity, to assist nature in combating infection, and as a prophylaxis against intestinal stagnation, obstruction, spasm, and final paresis. In the case of more than moderate severity, intestinal spasm and stasis, together with abdominal pain, are largely eliminated and convalescence is more comfortable and safe, while the individual in dire straits at the time of surgical intervention has, postoperatively, manifoldly better chances of recovery.

Conclusions, based upon the peritoneal reaction to chemical irritation and upon the results of using neutral oil intraabdominally to control infection and effects of traumatism, both mechanical and chemical, as observed in guinea pigs and dogs,* are as follows:

1. Iodine, mercuric chloride solution, carbolic

*Experimental studies carried out, through the courtesy of Dr. S. P. Beebe, at the Loomis Laboratory, Cornell University Medical School.

acid, alcohol, etc., applied to the peritoneum, rapidly spread beyond the area intended, through capillary action and affinity for the tissues, destroy the endothelial cells, cause an excessive exudate and tend to produce permanent adhesions.

2. Olive oil, containing fatty acids, and commercial liquid petrolatum, the impurities in which are acids, rosins, fats and oils, both animal and vegetable, combining irritating substances with a bland oil, produce inflammation of intact peritoneal surfaces, as is shown by the occurrence of a watery hemorrhagic exudate, which differs, however, from that which takes place in the absence of oil, in that agglutination and organization do not follow.

3. Bland, nonirritating oil, represented by a purified liquid petrolatum obtained from Russian oil, causes none of the changes occurring in the process of adhesion formation, which are endothelial cell injury, coagulable exudate, agglutination, organization, and finally connective tissue and fibrous scar formation. The oil has no appreciable chemical action upon the tissues nor deleterious effect upon the animal and is slowly absorbed.

4. Oil, used intraabdominally in sufficient quantity, prevents, to a great extent, the formation or recurrence of adhesions.

5. Oil fills the lymphatic channels leading from spaces denuded of peritoneum or opened by incision, thus limiting septic absorption, and, through preserving the endothelial cells, prevents extension of destructive processes.

6. Oil is used to advantage, intraabdominally, in place of salt solution, upon abdominal pads, and to protect and lubricate the abdominal contents, thereby eliminating or minimizing postoperative intestinal statsis, vomiting, and abdominal pain.

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40 East Sixty-second Street.

THE DETECTION OF DISTURBANCES OF THE DIGESTIVE TRACT BY THE EXAMINATION OF THE FECES.*

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The greatest stride made in medicine in the past 50 years is probably that which deals with the diseases of the digestive tract. Since Brinton's pathological and clinical investigations, which were summed up in his "Lectures on Diseases of the Stomach," our knowledge of gastrointestinal diseases has been revolutionized by the use of the stomach tube in diagnosis, the information gained through surgery, and recently by the use of the Röntgen rays in diagnosis. These measures have taught us the true significance of many of the symptoms which were, until quite recent times, universally misinterpreted. Although the significance of certain symptoms is now clear, their actual cause is in many instances as obscure as ever. With the help of our modern methods of research it should be possible to throw light upon some of the obscurities.

Probably the most neglected of all our modern methods of investigation is the examination of the feces. Discrepancies have occurred between clinical observation and laboratory findings, and this has led some to consider laboratory findings of little value in their relation to gastrointestinal disturbances. Many of these discrepancies have arisen from faulty technique, from forming conclusions from a single specimen, and from the lack of proper interpretation of the laboratory findings. Persistent and routine examinations are often necessary to detect true gastrointestinal conditions. No laboratory finding should be taken as conclusive without the aid of an examination of the gastric contents, the urine, the blood or the sputum; without the aid of a careful anamnesis and a careful and complete physical examination of the patient.

Gastrointestinal pathology more than any other department of medicine shows the influence of nonhygienic living, worry, and the strenuousness of modern daily life. It is therefore of the greatest importance to determine the difference between pathological and functional diseases of the digestive tract, since the accuracy of this knowledge determines the therapy. Organic diseases of the digestive tract require local treatment, while nervous or reflex disturbances are to be treated with reference to the primary cause. Indiscriminately, the term "intestinal indigestion" is often given to the various derangements, both organic and inorganic, and the treatment is carried out upon purely empirical lines. Quite frequently this is productive of good results, but, on the other hand, many conditions require careful and scientific diagnosis. Our knowledge of the physiology and pathology of the intestine is more scanty and more uncertain than that of the stomach because the intestine is practically inaccessible, and its contents reach us only after the chyme has been subjected to many complex digestive and absorptive processes.

Many efforts have been made to elaborate a method of clinical examination of the feces that would give reliable information in regard to functional disturbances of intestinal digestion. To Adolph Schmidt, of Halle, must be given the credit of devising a method which has put our knowledge upon a more scientific basis. By the use of the Schmidt diet, or the diet modified by Steele and others to conform to the American dietary, fairly reliable data can be obtained concerning the power of the intestine to digest certain foods like potato starch, butter fat and muscle fiber. If there is found an excess of muscle fiber, neutral fat or fatty acids, or potato cells, we assume that proteid, starch or fat digestion is imperfect. A correct interpretation of the exact variations from the normal is almost impossible because the digestive processes in the intestine are very complex, and are probably interactive to a certain extent. An excess of undigested meat fiber in the feces does not always indicate failure of the pancreatic secretion alone. Other factors must be given consideration, such as

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the presence or absence of trypsin or its activating enzyme, enterokinase, gastric digestion, proper mastication, and the rapidity of passage of food through the digestive tract. On the other hand, there may be considerable disturbance of the pancreas, but if there is any trypsin present there may not be an excess of undigested meat fiber present in the feces.

The stools in pancreatic disease are usually exceedingly bulky, soft, greasy and pale. They contain undigested fat and muscle fiber and are extremely offensive. Musser is inclined to lay as much stress upon their macroscopic appearance as upon their microscopic and chemical examination. Patients frequently state that they suffer from diarrhea, but this is usually an error, for, although the stools are bulky and soft, they are not lqiuid in consistency. Marked increase in the daily average residue of feces, in the Schmidt diet, is considered by Musser to be suggestive of pancreatic disease.

Recent investigators have been advocating methods for the detection of neutral fats, fatty acids, and soaps. The stools usually show about 80 per cent. fat in the form of neutral fats, 10 per cent, as split fats, and 5 per cent. as soaps. Diminution of the split fats below 70 per cent. of the total fat points to pancreatic disease. Saathoof[1] uses a stain (90 c.c. glacial acetic acid, 10 c.c. 90 per cent. alcohol, and a knife point of Sudan III), in addition to the heat method of distinguishing between the neutral fats, fatty acids, and soaps. He discusses the importance of the findings in cases suggesting liver and pancreatic disease, in metabolic disturbances, and in bowel trouble in infants. He found an abnormally large proportion of fat in the stools of patients with exophthalmic goiter and other thyroid derangements, and the course of the cases could be followed by the increase or decrease of the fat in the stools. The normal amount of fat in the feces varies between such wide limits that it is quite difficult to determine whether there is actually an increase of fat in the stool. The most practical value in the examination of the stool for fat is in watching the digestion and absorption of the various amounts of fat. Pathological starch fermentation means poor starch digestion, and indicates, as a rule, alteration in the pancreatic secretion. An attempt is now being made to estimate the function of the pancreas by the dosage of anylase in the feces.

The amount of mucus in health is small and intimately mixed with the feces. It usually requires the use of the microscope or chemical tests for its recognition. Its macroscopic or microscopic appearance indicates, as a rule, the presence of inflammation of the mucous membrane or some deviation from the normal physiological condition. The form of mucus usually indicates in a general way the part of the intestine from which it comes. Mucus without feces or surrounding the feces shows the colon is inflamed. When mixed with the feces the upper colon or small intestine is inflamed. Mucus when bile stained indicates disease of the small intestine, and if colorless, catarrh of the large intestine or lower part of the small intestine is present. There are many exceptions to these rules. The important exceptions are: (1) Thin mucus spread over the surface of a hard dry ball of feces without evidences of a rectal inflammation; (2) hyper-secretion of mucus with discharge of the mucus in the form of casts, causing the so-called mucous colic.

In cases of colicky abdominal pain, where cholelithiasis is suspected, the feces should be examined for biliary concretions. "A normal fresh stool will give a pink color with mercuric chloride. A green color of part or all of a stool, by the sublimate test, is pathological, except in children. It means a too short period of passage through the intestine and that time for a normal reduction process of the bilirubin into hydrobilirubin was lacking. If a color reaction of any kind is absent it indicates a very fat stool, or an absence of bile in the intestine."[2] Colorless feces"[2] without jaundice does not always indicate defective supply of bile to the duodenum. It may also be present in intestinal catarrh, tuberculosis of the digestive tract, malignant disease of the intestine, septic abdominal disease, chlorosis, and leucemia. The diet of the patient must always be considered, as a milk diet will give a light colored stool, and has no significance.

The fermentation test should be made with Steele's modification of Strasburger's fermentation apparatus. "The fermentation test should show practically no gas, and the original reaction should be unchanged for twenty-four hours. If more than one-third of the tube is filled it is pathological. If, then, the reaction is decidedly more acid, it is a carbohydrate fermentation; if alkaline and with a foul smell it is a fermentation of albumins."[2]

In recent years considerable attention has been paid to the clinical importance of recognizing minute quantities of blood in the gastric contents and in the stools. The stools are examined in preference to the gastric contents because of the greater ease in securing material and because there is less likelihood of confusion by blood of no significance. Practically the presence of occult blood is of decided value in the detection of gastric and duodenal ulcer and of cancer of the gastrointestinal canal because it occurs with considerably more frequency and regularity in these two affections than in any other condition of the alimentary tract. Its absence is of equal or greater value in the diagnosis than its presence. Its presence is of value only when sources of bleeding that have no significance are excluded. The presence or absence must not necessarily be conclusive in establishing or confirming a diagnosis of ulcer or malignancy of the gastrointestinal tract, yet it should play a considerable part in the routine laboratory examination. When one considers the simplicity of this test and the valuable aid of this clinical test in establishing or confirming a correct and early diagnosis, it is surprising to learn how infrequently it is used. The presence or absence of occult blood is very important as a guide in the dietary of the patient and in watching the progress of the case of gastric or duodenal ulcer. Its presence is of great value in denoting recurrence after the removal of a cancer.

The best methods of examination for the detection of occult blood in the feces is probably the simple but very delicate benzidine test, to be followed in case a positive result is secured, by the Weber modification of the guaiac-turpentine test and the Klunge aloin-turpentine test or the Boas phenolphthalein test. A positive result should not be accepted unless the patient has first been placed on a meat free diet and the stool marked off by giving the patient a capsule of charcoal. The first black stool marks the first stool passed after the exclusion of the meats from the dietary of the patient. Red meats, carmine, swallowed blood,

hemoptysis, epistaxis, and menstruation will give a positive result, so they must be excluded. Cirrhosis of the liver, purpura of the gastrointestinal tract, tuberculous ulcer, typhoid ulcer, hemophilia, hemorrhoids, fissure and fistula of the rectum are rather easily ruled out. A positive result after the exclusion of the above points rather strongly to either ulcer or malignancy of the digestive tract. Pus and red blood corpuscles are rarely found in the stools unless they come from low down. If from the small intestine or high up in the colon, they are destroyed in the passage through the bowel.

The diagnosis of intestinal autointoxication is usually rather difficult, for the picture is not always clear and well defined. Aside from the well defined forms there are masked and insidious forms which require more demonstrative, more convincing proof. For these we must have recourse to a study of the blood, urine and feces. An examination of the feces gives some information but not absolute proof. The examination may give us the kind and degree of the digestive disturbance, whether nitrogenous, fatty or carbohydrate, but gives no assurance of the diagnosis. The anaerobic flora always corresponds to a considerable increase in intestinal putrefaction. In our examination we should determine if the intestinal flora is abnormal and if the proteolytic anaerobic bacilli predominate, for these findings give important therapeutic indications.

Intestinal parasites are more common in the United States than is generally supposed and a patient presenting vague abdominal symptoms, or the symptoms commonly grouped together under the name "chronic dyspepsia," not otherwise explained, should have his feces examined for the evidences of infection with intestinal parasites. The diagnosis of helminthiasis from the stools may be very easy or it may require considerable painstaking research. If segments of the tenia pass in the stools, the diagnosis is evident. In other cases, a diagnosis can only be made by finding the ova in the feces. If a differential blood count shows an eosinophilia the feces should be searched for intestinal parasites. In a case of chronic diarrhea, not otherwise explained, the feces should be searched for cercomonas infection.

Routine examination should be made of all cases of typhoid convalescents for the typhoid bacillus. Lentz has shown that about four per cent. of all cases of typhoid may be expected to become chronic carriers. Up to the present time the isolation of the typhoid bacillus from the urine and feces has been looked upon as difficult and uncertain, but with the Hesse, the Endo fuchsin or the Russell media it becomes more easy. Russell has found the Endo fuchsin agar medium routine simple and reliable. "With this medium typical colon colonies are colored with the fuchsin of the medium and are readily differentiated from typhoid. In some stools there are many 'slow colonies,' which in the first twenty-four hours are practically indistinguishable from typhoid, and as such colonies may give rise to considerable confusion the plates must be incubated for forty-eight hours or some special method used to bring out the colon characteristics. With Russell's double sugar medium typhoid, paratyphoid and dysentery bacilli give a characteristic appearance. This medium enables one to throw out of consideration almost all the colons and many other organisms which bear some resemblance to typhoid on the Endo plates, and which leaves the culture in a suitable condition for macroscopic agglutination on the second day following the receipt of the material."[3]

The microscopical examination of the feces for tubercle bacilli is of little value, for many bacteria make their appearance in the feces with the morphology and staining characteristics of the tubercle bacilli which, however, fail to prove themselves as such. Pappenheim's stain should be used, and if the diagnosis is important animal inoculation should be done.

Many of the laboratory methods are too slow and difficult to be of use in the routine examination of large numbers of patients and many require a specially trained physiological chemist to carry out the investigations. On the other hand, there are many simple tests that can be carried out by the general physician with much benefit. It has not been the aim of the writer to make any contribution to the literature on the examination of the feces, but rather to urge the more frequent employment of the various methods at our command as a diagnostic aid in the detection of many more or less obscure disturbances of the digestive tract.

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EXPERIMENTS ON INTRADURAL ANASTOMOSIS OF NERVES FOR THE CURE OF PARALYSIS.*

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Anastomosis of peripheral nerves for the cure of paralysis has been successful in certain cases of facial paralysis, but when applied to nerves of the extremities the results have not been very encouraging. In 1908 Kilvington† conceived the idea of crossing the intraspinal motor roots of the spinal cord for the relief of paralysis of the bladder which results from injury of the lumbosacral spine. He performed this operation experimentally upon a series of dogs, and the results seemed so encouraging that he afterwards operated upon a man suffering with incontinence of urine caused by injury of the lumbosacral spine. Unfortunately Kilvington did not record any post-mortem examinations. Microscopical study of the nerves would have made his experiments much more valuable.

It is evident that if this operation could be proven to be practicable in man for the possible return of

*From the Laboratories of Neuropathology and Surgical Research, at the University of Pennsylvania.

†Kilvington: *British Medical Journal*, April 13, 1908.

at least partial function in an already paralyzed bladder, even though absolute cure could not be assured, then it might be a justifiable procedure in certain carefully selected cases. Moreover, it might be possible to obtain beneficial results in other forms of motor paralysis. As the experimental evidence indicating the usefulness of the procedure did not seem to be conclusive, we determined to attempt to anastomose the intradural motor roots of the spinal cord of normal dogs and to study the symptoms produced as well as the microscopic appearance of the nerves after death.

Without going into long details we will at once state that none of our dogs presented any clinical evidence of restored function. The loss of function produced by the operation itself was permanent, because regeneration of the nerve roots had not taken place. Each of our cases was a failure so far as the return of function was concerned, although the surgical technique appeared to be satisfactory and adequate. Microscopical examinations showed that considerable fibrous connective tissue had developed within the dura and about the nerve roots which had been sectioned and reunited. The proximal stumps of the cut roots always developed bulbous ends, similar to those observed in peripheral nerves after section. The distal segments were degenerated and did not show any evidences of new axis cylinders which might have grown and extended downward from the central segment, and in addition there was a considerable accumulation of fibrous connective tissue and leucocytic infiltration at the point of union which still separated the united ends of the nerves. We believe that it was this excess of scar tissue formation which was the most important factor in preventing complete regeneration of nerve tissue and subsequent return of function. In the absence of so much scar tissue regeneration might have been perfected. In dogs the intradural tissues are exceedingly delicate and a certain amount of traumatism cannot be avoided, even with perfect technique. But unless a minimum amount of connective tissue proliferation about the site of anastomosis be assured, the ultimate regeneration of nerves and return of function would appear to be impossible. However, it should not be forgotten that a certain amount of connective tissue proliferation takes place normally about the united ends of cut nerves. But whether an excess of connective tissue is entirely due to proliferation of the perineural tissues or to the endoneural tissues or to both, does not seem to be positively determined. We are inclined to believe that if the perineural proliferation could be greatly diminished, or better still, entirely obviated, then regeneration might take place and the operation might become practicable and exceedingly useful in carefully selected cases.

In order to determine this point we operated upon a dog in January, 1913. The median nerve of each side was sectioned; on the right the ends were joined without unusual precautions, and the wound closed; but on the left side both ends of the divided nerve were cautiously drawn into a very delicate celloidin tube about one and a half centimeters long, the ends of the nerve were carefully approximated inside the tube and then united and fixed in place with silk, and the wound repaired. After three months had elapsed, even though too soon for perfect restoration of function, the dog was killed and the nerves were examined microscopically. Both nerves proved to be undergoing regeneration, but it was not nearly completed and it was uncertain whether the nerve which had been enclosed in celloidin was in a more favorable condition than the other, still it was certain that an excess of scar tissue had not formed. We still have a series of animals under observation in which peripheral nerves were sectioned and drawn into celloidin tubes and united. This method was also applied in crossing and joining the intradural spinal roots, but as yet no conclusions would seem justified, as only three months have elapsed since the operations were completed.

No doubt intradural root anastomosis could be much more easily done in man than in dogs, for the tissues of man are so much firmer and the nerve roots larger and less easily damaged therefore the chances of excessive proliferation of fibrous tissue would be diminished. But we do wish to emphasize the extreme difficulty of determining whether or not improvement which might occur after operation should be attributed solely to the nerve anastomosis and not to some other cause. It is evident that proof would be exceedingly difficult to obtain; therefore it is all the more important that opinions should be cautiously expressed. Furthermore, it is well known that considerable function can be regained long after an injury to the spinal cord.

We have had under observation in the service of Dr. John K. Mitchell at the Orthopedic Hospital and Infirmary for Nervous Diseases two cases, both men, who had fallen from high scaffoldings and had received severe injuries of the lower lumbar spine which caused profound paraplegia and incontinence of urine. Both these patients have been carefully watched since the time of the injury; one occurred in 1907 and the other in 1910. For the first year after injury improvement in both cases was insignificant, yet during the second year partial recovery of motor power was very distinct; considerable power of the lower extremities was regained and the function of the bladder became nearly normal. One of these patients (Willetts) continued to improve, even during the third year after the accident. All the usual therapeutic measures had been carefully carried out, such as massage, electricity, etc., but operation had not been done.

Dog I.—Dark brindle male: Operation November 8, 1911. The seventh lumbar anterior root of the left side was cut intradurally close to its point of exit from the dura, and the first sacral anterior root of the same side was cut close to the spinal cord within the dura, and its peripheral end was joined by a single silk suture to the proximal end of the seventh lumbar root, and the peripheral end of the seventh root was joined to the proximal end of the first sacral root. The dura was closed, and wound repaired, and iodine collodion used for dressing. Recovery from operation was normal. The next day there was decided weakness of the left leg. Dog could run or walk fairly well, but there was a tendency for the toes of the left hind foot to be spread out more than normal, and the whole leg was abducted. The posterior thigh muscles were weak; the sphincters were normal. The knee jerk was decreased on the left. The left leg was not flexed with as much power as the right. December 5, 1911: Atrophy of the posterior thigh muscles and decided weakness of left leg. June, 1912. Condition much the same; atrophy was marked, paralysis had not improved. Post mortem, December 20, 1912: No change in condition previously noticed. There were many adhesions from the surrounding nerve tissues and the dura and nerves were adherent. Microscopical examination showed complete degeneration of the peripheral segments

of both the seventh lumbar and the first sacral roots. At the point of surgical union there were many leucocytic cells and much connective tissue. Axis cylinders growing from the proximal segments seemed to end in this connective tissue.

Dog II.—Black and tan female. Operation November 20, 1911. The sixth root was divided intradurally and the proximal end was joined to the peripheral end of the seventh root. Wound repaired as usual. The day after operation there was decided weakness of all the movements of the left leg, but paralysis was not complete. Some power of flexion of the thigh remained. January, 1912: There was decided atrophy of all the thigh muscles without any return of power. March, 1912: Atrophy was profound. No return of power. There was contracture of the posterior thigh muscles so that the leg was held in flexion. June, 1912: No change. General health good. Post mortem, November 19, 1912. As in the other cases the dura was adherent to the roots which had been sectioned and there were many adhesions surrounding the nerve roots so that they were identified with great difficulty. Microscopically the peripheral segments as before were severely degenerated as were the proximal segments. Many leucocytes and connective tissue cells had accumulated at the point of union—within the anterior horns of the left side in the sixth and seventh lumbar segments many of the ganglion cells were swollen and pale as compared with those of the opposite side, some seemed to have entirely disappeared.

Dog III.—Short haired black and tan dog, bobtail. Operation November 27, 1911. The sixth and seventh motor roots on the left side were cut, and their ends were approximated as carefully as possible with a single silk suture. The wound was repaired as before. Next day there was incomplete paralysis of all movements of the left leg. January, 1912: Decided atrophy of all the thigh muscles. March, 1912: No return of power; otherwise the same. Post mortem, March 28, 1912. Microscopical examination: Degeneration was complete in all the intradural portion of the sixth and seventh lumbar roots. The cut ends were joined by fibrous tissue, but there was no evidence of regeneration of nerve fibers. The roots were closely matted together and firmly bound to the dura by many adhesions. Identification was very difficult.

Dog IV.—Black and white rough coated male dog. Operation November 28, 1911. The sixth and seventh lumbar roots on the left side were cut, and their ends carefully approximated without suture. The next day there was incomplete motor paralysis of the left hind leg. January, 1912: Decided atrophy of all thigh muscles. February 14, 1912: No change, only no return of power. Post mortem, February 28, 1912. There were many intradural adhesions binding the cord, and the cord was firmly attached to the dura. Also adhesions were found about the sixth and seventh anterior spinal roots. It was very difficult to distinguish one from another. Microscopical examination showed that regeneration had not taken place though here and there new axis cylinders appeared to be growing.

1710 Locust Street.

A NEW METHOD FOR THE DETERMINATION OF URIC ACID IN MINIMUM QUANTITIES OF BLOOD SERUM AND OTHER FLUIDS OF THE BODY.

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This new method for determining uric acid in body fluids was first described in two articles which appeared in the *Münchener medizinische Wochenschrift* in 1910 (Nos. 7 and 45). The working out of the method since its completion is, however, somewhat different from the first description.

As stated in the above-mentioned articles, the value of the method can be demonstrated by direct and by indirect proof. There can be no doubt that it is capable of determining uric acid; the results obtained with it are in agreement with those obtained by means of the analytic methods on large quantities of blood. Moreover, in cases where the analytic methods fail to show any uric acid, as in the blood of mammals, the new test is able to determine slight traces, while in the blood of gouty individuals and in bird's blood more or less considerable quantities of uric acid can be determined by this method.

The exactness of the method has been increased considerably since its first description. With an exceedingly small quantity of blood, from ten to fifteen drops, five to nine analyses can be made simultaneously; there is no loss of time in making this number. In this way practically all risk of error is eliminated and the experimenter is able to arrive at a very exact average result.

Another advantage of the method is this, that it permits of frequent blood tests being made in short intervals of time, without inconveniencing the patient; up to the present, such repeated examinations have not been possible. I venture to say that these numerous tests should do much to clear up dark points in the pathology of gout and other diseases, and to determine the importance of uric acid in all cases.

The fact that quantitative blood tests for the determination of uric acid have been made infrequently in the past is not astonishing when one considers the great amount of blood required for such tests, and the difficulty and delicacy of analytical analyses. Unfortunately, Garrod's method, though simple, is not reliable, and it also requires from ten to twenty cubic centimeters of blood. Kowarski's new method (*Deutsche medizinische Wochenschrift*, 1911, No. 24) demands only ten cubic centimeters, but takes up much time, and is complicated. Considering these drawbacks, the new method meets a real need, and should prove indispensable to those of the profession especially interested in this branch of medicine. It is quite as simple as the hemoglobin test; the operator draws the blood from the finger tip or the lobe of the ear. The method possesses great advantages over the older procedures in that it requires no special training or chemical equipment. Finally, an important factor to be taken into consideration is the relatively small amount of time necessary to accomplish the test; it requires only minutes, not hours of time to obtain exact results.

The technique of the method is as follows: A small quantity of blood is drawn from the finger tip or the lobe of the ear into a special glass tube, from ten to fifteen drops being usually sufficient for from six to nine tests, which are made simultaneously and serve to control one another. The glass tube must be kept in an upright position for several hours, until complete separation of the serum has taken place. If necessary—especially if placed in an even temperature—the blood may be kept from twelve to twenty-four hours. As can readily be seen, if kept for a longer period of time there will be loss of uric acid by fermentation or putrefaction.

The best environment for the test is a dark room with a red light, though equally good results may be obtained in a room with a subdued light, or one lighted by a small electric bulb placed at a distance of two or three yards. Two, three, or more strips of the reagent paper—a special kind of filtering paper impregnated with nitrate of silver—are placed on a glass slide. The silver paper should not be exposed to the light except during the time necessary for manipulations; in the intervals it must be screened. With a dropper, a fifteen per cent. solution of carbonate of soda is dropped onto the pa-

per, allowing a certain margin to surround each drop. The drops must be very small and must absorb quickly, leaving a perceptible round spot. After waiting two or three minutes, a quantity of the blood serum is withdrawn by a dropper from the glass tube containing the blood; it is dropped slowly onto the round spots made by the carbonate on the test papers. In two or three minutes more the strips of paper are lifted from the glass slide and placed to soak in a porcelain or earthenware dish filled with water. The nitrate of silver now dissolves, while the carbonate remains insoluble. The basin must be kept covered to protect the strips of paper from the light until the nitrate is totally dissolved, which generally requires at least thirty minutes. They may be left to soak much longer without harm. The strips are now ready for fixation. They should be removed from the basin and placed in a solution of ammonia (one part of pure ammonia to four parts of water), which removes any unreduced carbonate of silver. Five minutes are sufficient for this process. The strips of paper are then placed in clean water screened from the light, to wash them thoroughly and to remove the ammonia and remains of the salts of silver. After remaining for several hours in the water, the strips are dried between blotting or writing paper, care being taken to protect them from the light. The dried strips are then ready to be placed under the scale; a color scale is necessary for the determination. By comparing the color and the intensity, the degrees of reaction and the proportion of uric acid contained in the blood can be determined. Only spots with distinct outlines are to be considered.

An immense amount of time has been spent in analyzing the uric acid content of the urine, and the results obtained have given but meager conclusions as to the quantity contained in the blood, the quantity not eliminated by the kidney being unknown. It must be kept in mind that the composition of the urine in all its substances is very variable, while the blood in a healthy organism is relatively constant. For these reasons, I believe that the described clinical method for determining the uric acid content of the blood must needs be of importance to the medical profession, particularly on account of the great simplicity of the analysis and the saving of time that is effected.*

AMBULATION AND FULL DIET AS FACTORS IN THE DIAGNOSIS OF GASTRODUODENAL ULCER.

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The diagnosis of gastric and duodenal ulcer is frequently a matter of such difficulty and the physician so often misled in his recommendations of treatment, that this clinical note is offered for the purpose of calling attention to a much neglected feature in the conduct of suspected ulcer cases. I have reference especially to those subacute and chronic cases which seek hospital and sanatorium aid. In private office practice and dispensary service the situation does not usually develop.

It is a common experience with those in hospital service to find upon making rounds that such a patient, after his admission, has been put to bed on a light lacto-farinaceous diet. If this be continued, it will frequently be observed that the pain and vomiting cease, promptly or gradually in different cases, the patient begins to feel better, digestion improves under the influence of diet, physical rest and changed environment; the test-meals are found to be of themselves inconclusive and, in response to the reiterated demands of the patient, he is allowed up, permitted a moderately increased diet, and in a short time is discharged as an improved case of gastric neurosis, chronic gastritis, or some equally indefinite condition. The subsequent developments are typical; in order they are, return to work and the previous hearty diet, reappearance of the pain and distress after meals, and eventually the readmission of our patient to the hospital for further treatment.

All this can be in large measure avoided and neither patient nor physician misled, if the patient be *kept up and about and on his previous general diet while under study*. In this way the clinical picture retains its high lights, clearly and distinctly. Such pain and discomfort as the patient experienced when first observed, he continues to exhibit, and it is, I take it, the persistent and typical recurrence of the pain of ulcer which gives it its diagnostic value rather than any other characteristic it may possess. Under these circumstances, with the patient ambulant and on liberal diet, a diagnosis is reached while all symptoms are fresh and clear in his mind.

If the above plan be followed systematically in the routine conduct of such cases, fewer cases of ulcer will escape recognition, and this means much, as upon correct diagnosis rests proper treatment. Sufficient emphasis has not been laid upon these factors in diagnosis in the recent American literature of ulcer.

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*M. Schaerer, Sanitätsgeschäft, Berne, Switzerland, supplies a case containing all requisites for the new method.

Medicolegal Notes.

Expert Witnesses—Credibility.—In an action for personal injuries, where the testimony as to these consisted largely of that of expert witnesses on both sides, the gravest injury complained of was a fracture of the pelvis. Commenting upon the credibility of paid witnesses the court said: "There is no good reason why an expert whose relations to a case are purely professional, and whose competency exists perforce of his profession, should not be compensated, or why the fact of such compensation should of itself discredit him. So long as the present procedure as to expert witnesses is in force, the criticism upon it should not be directed to the individuals who by it alone must be brought to the witness stand."—Jacoby v. Brooklyn, Q. C. & S. R. Co., N. Y. Appellate Div., 138 N. Y. Supp. 486.

Compensation—Professional Courtesy.—In an action by one physician against another for professional services rendered it appeared that the plaintiff and defendant were both members of the staff of a hospital. While the defendant was performing an operation upon a patient, he desired the plaintiff's aid, and sent a telephone message requesting the plaintiff to come to the hospital to help him out. The plaintiff immediately came to the hospital and went into the private operating room. A woman was on the operating table. Her abdomen was open, and she was suffering from a hemorrhage. The defendant said to him: "Doctor, I wish you would finish this operation for me. This woman is bleeding. I can't control it." The plaintiff then finished the operation. The defendant was performing the operation for a fee of $10, and the patient was not strictly a charity patient, although the defendant was paying for the private room. It was held that the plaintiff was deemed to have rendered his services from the high sense of the professional obligation and courtesy which exists in the medical profession, and could not recover upon an implied promise by the defendant to pay for such service. The fact that the operation was not performed in the charity ward, and that the defendant received a nominal fee for his own services did not change the rule.—Gilday v. Hennen, N. Y. App. Div., 139 N. Y. Supp. 934.

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THE THREE SUPRARENAL SYNDROMES.

THE history of the knowledge of the clinical importance of the suprarenal capsules dates back to Addison's description in 1855 of the disease that bears his name. Since then a large number of facts have been discovered showing that there are other conditions, besides the above, associated with disease or functional impairment of the suprarenal capsules. Langlois discovered the power which these organs possess in destroying muscle poisons; Dieulafoy perceived a relationship between asthenia and some pathological condition of the suprarenal capsules; Oliver and Schäfer revealed the vasoconstrictor function of these organs; Vaquez pointed out their rôles in the production of arterial hypertension; and Josué showed how these organs may even be responsible for atheromatous changes in the blood vessels. Still later, Sergent and Bernard delineated a clinical picture which they termed suprarenal insufficiency, and Bernard, Bigart, and Labbé were able to discern the anatomical basis of this condition as well as that characteristic of excessive suprarenal function.

Léon Bernard in *La Presse Médicale*, October 4, 1913, presents an interesting description of the three conditions which are now to be recognized as clinical entities, namely, the suprarenal syndromes. A lucid conception of the latter demands a knowledge of the histopathology of the suprarenal capsules, a knowledge to which Bernard and others have recently made ample contributions. In the first place, attention is directed to the cortical cells whose most important secretions are a series of lipoids including lecithin and cholesterin. The cortical cells which are also called "spongiocytes" have the function of neutralizing muscle poisons, and are therefore endowed with the myotonic function of the suprarenals. The medullary or chromaffin cells of these organs have been thoroughly studied. They contain the granules which produce the specific internal secretion of the suprarenals, so potent in raising arterial pressure—a capacity well described by the term angiotonic function. The third important anatomical element of the suprarenal capsules comprises the nerve cells which are in intimate relationship with the sympathetic system on the one hand and the chromaffin cells on the other.

The three suprarenal syndromes are named by Bernard as follows: the syndrome of *hyperépinéphric*, the syndrome of *hypoépinéphric*, and the syndrome *mélanodermique*. The first of these was studied by Bernard and Bigart in experimental intoxications in animals and was found to be associated with a swelling and fatty infiltration of the cortical cells and with a swelling of the medullary cells which are also surcharged with an excess of granules. The pathological picture of *hypoépinéphric* is just the opposite: the spongiocytes tend to disappear; the labile fat likewise vanishes; and the remaining cellular elements are small with finely granular protoplasm. Similar degenerative changes are present in the medullary substance whose cells are void of the adrenalinogenic granulations.

The syndrome of *hyperépinéphric* consists of clinical phenomena that depend upon an excess in the production of the specific secretion of the medullary cells. These manifestations are arterial hypertension, aortic atheroma, and glycosuria. The hypertension is at first transient. Later it recurs from time to time. Finally it becomes permanent, with its numerous well-known symptoms of vertigo, headache, etc., and its outcome in aphasia or transitory hemiplegia, convulsive crises, cerebral hemorrhage, acute edema of the lung, or sudden death. The presence of hyperglycemia in association with the evidences of arterial hypertension points particularly to a common origin in the excess of function of the suprarenals.

The syndrome of *hypoépinéphric* is characterized by the presence of muscular asthenia and diminished arterial tension. The former, which is the chief manifestation, may be so intense as to simulate a veritable paralysis. The arterial hypotension may express itself in a number of ways: there may be tachycardia, arrhythmia, a tendency to collapse and syncope, and peripheral vasomotor disturbances. There is also an impairment of the digestive functions. The nervous manifestations include midriasis, headache, delirium, convulsive or apoplectiform states, coma, and sudden death. Sergent has distinguished three different types of suprarenal insufficiency: the chronic, the subacute, and the acute. The last of these, which has not been recognized until recently, may be revealed under the guise of an acute poisoning, a peritonitis, or a meningitis. Many of the manifestations of acute infections or toxic conditions are to be attributed to suprarenal insufficiency. These manifestations are apt to occur particularly in diphtheria, scarlet fever, typhoid fever, erysipelas, and chloroform poisoning.

The syndrome *mélanodermique* is the one that has been recognized the longest time, but is the one that is least directly connected with the functional impairment of the suprarenals. It seems that these organs influence the cutaneous pigmentation through the intermediation of the sympathetic nervous system. The above syndrome may occur in lesions of the solar plexus. It is associated with disturbances in the suprarenal secretions, and may occur with slight or even minimal lesions of this organ. The melanodermic syndrome comprises the cutaneous and mucous pigmentation described by

Addison, and epigastric and lumbar pains. The syndrome may be perceived clinically in its pure state, provided that the pathological lesion undergoes a slow evolution and does not encroach too much upon the suprarenal tissue. If, however, the glandular portion is greatly invaded there are then superadded the symptoms of *hypoépinéphrie*, and the clinical picture of Addison's disease is then complete. Tuberculosis of the suprarenal capsules is the most common cause of the latter, but it may instead cause other manifestations, as the acute form of suprarenal insufficiency.

THE SOCIAL FACTOR IN THE DIAGNOSIS OF FEEBLEMINDEDNESS.

Even with the great advance made along technical lines in the diagnosis of feeblemindedness, the results have been far from uniform; and already those engaged in this work exhibit a wide latitude in the evaluation of these technical methods, and their results—specifically, in the value of the measuring scales of intelligence and their modifications. This fact was noted by Friedman (Medical Record, Nov. 2, 1912). More recently Glueck (*New York Medical Journal*, Oct. 18, 1913) illustrates the same point in an article dealing with work done in sifting the feebleminded from the stream of immigrants. Here, it seems that attempts at obtaining some show of uniformity in the examination even of immigrants of similar racial and environmental constitution through the use of the measuring scale principle have given such discordant results that it becomes a question whether it will not be necessary to disregard the scale principle entirely, or to commence the construction of a more elastic method of measuring intelligence. Yet these results, while discouraging, to be sure, are nevertheless helpful, because they act as checks to an only too natural but unhealthy tendency on the part of workers in such an especially difficult field as this, to be carried away by the enthusiasm of first success, and to overlook factors that would promise a larger though not so quickly attained measure of success.

The difficulty with the measuring scale principle is that of determining the normal standard with which to compare the defective. Jordan's definition of the normal—that individual who can take care of himself and have something left over for the common welfare—while rather broad and without limitation has not been improved upon, and thus far sums up our entire knowledge of the normal. This definition embraces also a modern and to be sure the material conception of success. In other words, it bears out the oft-repeated epigram that a man is not what he is but what he has. The immigrant, cited by Glueck, whose actual age was 35 but whose mental age was only 10, who nevertheless not only provided for his family but had money and property besides, might well be included in the modern class of the successful rather than among the feebleminded. At any rate it is hardly consistent to set the yardstick principle of measurement to any individual without at least having it corrected to conform to this material normal.

The test for the detection of the feebleminded is, then, somewhat social, a little material, but not entirely intellectual. But what is the social standard? It is as intangible as the intellectual standard. Every large social organization is composed of divers component organizations which go to make up the composite; and in this composite the lower social organizations are as necessary as the higher—the worker as well as the thinker. And is not the question of the normal and of the feebleminded one of evolution and one of atavism, in a social as well as in an intellectual sense, since social refinement goes only with an intellectual refinement? The higher social standards are evolutions from the lower; and may not the present social and intellectual atavists be equal to the normal of remote times? To the class of social and, therefore, intellectual atavism belongs the immigrant as a unit. In his own social organization he is normal; in our own he is backward or even feebleminded, but really atavistic. This suggests a question as to the constitution of the feebleminded in this lower order. This can be determined approximately at best, with a measuring scale principle, only by the formulation and by the use of a modification for each race, the average normal standard being drawn from the race to be tested. In this, the difficulty lies in becoming sufficiently acquainted with every race to construct such a standard scale. The immigration station offers the best opportunity for this work, for nowhere in the world of medicine do such opportunities for study and observation exist.

The measuring scale must be social in its limitations, and not universal in its application. Either the lower orders must be considered defective as a whole, or else normal as a whole, but each judged according to its own standard for normal. If the whole social fabric of the immigrant is lower than our own then the pertinent question arises whether, not being an inherent characteristic, it can be raised by environment, or, if inherent, does it account for the increase in the census of the feebleminded; and will admixture with them be likely to lower our own social fabric absolutely, or only in the Mendelian proportion of three desirable offspring to one undesirable for every crossing, which will, therefore, in the latter instance, have a tendency to be soon entirely eliminated.

Some Vagaries of Sex Teaching.

There appears to be no subsidence in the world-wide epidemic of teaching the young all about their sexual selves. Newspaper reporters, magazine writers, public school teachers, prelates, lecturers, social workers, novelists, and so-called leaders in the "feminist" movement, are tearing the last veil of secrecy and of modesty from a subject which our forefathers approached with the greatest caution and reserve. If the knowledge of sex were confined to the essential facts of sex and to the dangers of illicit indulgence, one might have no reasonable ground for objecting to this teaching. But this knowledge is peculiarly the kind that creates a keen appetite for more. One of the results of the modern campaign of moral prophylaxis is the wonderfully extensive knowledge of sex and

of its disorders which many young men and young women of the present day have acquired. Books on these subjects are readily accessible in many of the public libraries. Some of the classic authors of young ladies are Havelock Ellis and Albert Moll, not to mention the host of writers in the magazines whose candor equals their indiscretion in arousing a prurient curiosity in many young readers. But this is not all. The small child must get a share of this important knowledge. In the latest of the Edward Bok Books of Self-Knowledge for Young People and Parents, entitled "The Changing Girl," by Caroline Wormeley Latimer, a book that is written for the *girl of ten to fifteen*, we find the following: "From time immemorial girls have been taught to suppress and conceal every vestige of emotion connected with sex, not only from the world at large but from themselves, and the result of all these years of repression has been to create a state of things in which sex instinct in women shows itself in indirect ways." Here is an epitome of Freud's psychology presented for the little miss of ten or twelve years to ponder over!

Half-Joint Transplantations.

On the subject of transplantation of vital and other organs necessary for normal existence, the public, and to a large extent the profession, are very poorly informed. A successful transplantation naturally leads to the belief that the procedure quickly comes into common use. Lexer's case of transplantation of the knee joint of a girl, with descriptions of her subsequent dancing on the partly heterogeneous member was considerably pieced out by the imagination. And remarkable as was the case, it is one which may not soon be duplicated for purely outside reasons, such as lack of proper grafting material, lack of patient's consent, or disinclination of the surgeon to take the risk. It is, therefore, of great interest to note that last summer, in Jena, Lexer himself published a comparatively modest case of half-joint transplantation at the wrist (*Münchener medizinische Wochenschrift*, September 30). The patient, aged thirty-three, had once submitted to extirpation of a tumor of the epiphyseal region of the right ulna. Several years later he broke his radius during a fall, and the *x*-ray showed that the break was due to a tumor of this bone. The lower end of the latter was resected and the stump of the ulna taken off with it. The tumor was sarcomatous. As a leg was amputated about this time, the lower end of the tibia was used to make good the defect of the radius, the malleolar process having been removed. A good functional recovery was obtained, and the new wrist was so good that it probably will not be necessary to replace the missing portion of the ulna.

News of the Week.

Non-Practising Professors at Johns Hopkins.—The General Education Board, which was founded by John D. Rockefeller, announced on October 24 an appropriation of $1,400,000 for the Johns Hopkins Medical School, Baltimore, the appropriation being granted for the purpose of reorganizing the Departments of Medicine, Surgery, and Pediatrics in the school. Through this reorganization, the professors and instructors in these departments will be enabled to withdraw from paid practice and devote their time entirely to teaching, hospital work, and research. At the request of the Board the fund thus given will be known as the William H. Welch Endowment for Clinical Education and Research. This is the first appropriation made by the General Education Board to a medical college. In explanation of it, the Rev. F. T. Gates, chairman of the board, said that the Trustees of the Johns Hopkins University and the Johns Hopkins Hospital and the Medical Faculty of the Johns Hopkins University had united in requesting of the General Education Board funds that would enable them to reorganize the departments of medicine, surgery, and pediatrics so that the professors and their associates in the clinic and the laboratories should be able to devote their entire time to their work. In making the gift the General Education Board has placed absolutely no restriction upon the freedom of these men. They will be in position to do any service that either science or humanity demands, and they will be free to see and treat any one, whether inside or outside the hospital, but they will accept no personal fee for any such service.

Rumored Endowment of Cornell Medical School.—The report that Col. O. H. Payne of New York had completed his benefactions to the Cornell University Medical School in this city by a gift of $4,000,000 for endowment, has been denied by the President of the University.

Radium for Philanthropy.—It is announced that the product of the newly discovered radium ore mines in Colorado is not to be placed on sale but is to be given first to the General Memorial Hospital, New York, for the treatment of cancer and other ailments, and as additional supplies become available, to the Johns Hopkins Hospital, Baltimore, and other institutions for the same purpose. The United States Bureau of Mines, it is said, will provide experts to supervise the mining of the ore and the extraction of the radium, a new method having been evolved which will reduce the cost of the process materially.

The Friedmann Serum.—At the International Anti-Tuberculosis Congress, which closed its sessions in Berlin on October 25, Dr. F. F. Friedmann declared that his serum would henceforth be available to medical men for use without restrictions. Cases of surgical tuberculosis showed by Dr. Friedmann at a clinic on the same day received favorable comment from Schleich and others of the Friedmann supporters.

Modern "Blackmailer."—An original method for extorting money was tried in Chicago recently. Several wealthy women of the city received letters, in which were daubs of some sticky substance, the writer of which declared that the receiver had become infected with deadly germs by the mere act of opening and reading, and that relief could be had only through a curative serum which would be supplied for the sum of $2,500 placed in a certain place in Lincoln Park. None of the women so approached yielded to the demands of this original blackmailer, nor have any of them suffered from the deadly bacilli said to have been contained in the letters. In fact, the sticky substance so described when examined proved to contain only a few moulds and harmless bacteria.

Plague in Russia.—An outbreak of plague is reported from Novopatrovsk, a suburb of the capital of the territory of the Don Cossacks, in Russia, and the place is under military quarantine. Eleven deaths had occurred up to October 19.

Posture League. — The American Posture League, having for its object the improvement of human health and efficiency through the medium of correct physical postures, was incorporated at Albany, N. Y., on October 22.

Personals.—Medical Director Lucien G. Heneberger of the United States Navy was placed on the retired list on October 17, after thirty years of service. Dr. Heneberger was surgeon on the battleship *Maine* at the time of her destruction in Havana Harbor.

Col. William C. Gorgas, chief sanitary officer of the Canal Zone, reached New York on October 20, and will shortly leave for South Africa, where he will undertake to check the ravages of pneumonia among the negro miners of that section. Col. Gorgas will be assisted in his work on the Rand by Dr. Samuel Darling, one of his colleagues at the Ancon Hospital, and Major Robert Noble, executive officer of the sanitary department of the Isthmian Canal Commission.

Dr. Christian R. Holmes, professor of otology in the Medical College of the University of Cincinnati, Ohio, has recently been elected dean of that institution, and has accepted the election, although, because of the pressure of other work, with some reluctance. Dr. Holmes' connection with the new City Hospital of Cincinnati, his prestige in the Academy of Medicine, and his influence throughout the city, all promise to make the University of Cincinnati one of the leading medical centers, and the medical school is to be congratulated on securing the benefits of his wide experiences and sane leadership.

Dr. Thomas Darlington, formerly Health Commissioner of this city, is the Tammany candidate for President of the Borough of Manhattan in the present municipal campaign.

American Hospital Ward.—The project of endowing an American ward in one of the hospitals of London, which was proposed some years ago, is now likely to be carried to completion, arrangements having been made with the London Hospital whereby one ward will be reserved for American patients, provided sufficient funds for its maintenance are forthcoming.

Memorial to Dr. Newcomb.—A memorial window to the late Dr. James Edward Newcomb of New York has been placed in the Hall of the Stony Wold Sanatorium, Lake Kushaqua, N. Y., a charity in which Dr. Newcomb was greatly interested, and dedicatory exercises were held there on October 26.

Smallpox in Connecticut.—Twenty cases of smallpox in the small town of Brooklyn, Conn., were reported on October 21, and it is feared that a large number of cases have been concealed among the mill hands of that section.

Church Eugenics Class.—The Mount Morris Baptist Church of Harlem, New York, is the first in this city to start regular classes for the teaching of eugenics to both men and women. The officials believe that if the church is to assume authority over the marriage contract its duty is to educate its young people in the significance of the propagation of the race.

Politics in Hospital Service.—The Civil Service Reform Association of New York has protested to the Governor of the State against what it describes as "political appointments in the State Hospital service" during last July and August. The protests have to do particularly with the appointment of the present secretary to the State Hospital Commission, the creation of the position of "confidential accountant," and the appointment of a secretary to the purchasing committee, the latter two being exempt from the civil service.

French Vital Statistics.—A review of the vital statistics of the French nation for the last six months of 1913 shows an increase in the birth rate, the number of births during that period being 387,512 as compared with 378,807 in the corresponding period of 1912. This increase, however, is more than counterbalanced by an increase in the number of deaths, which numbered 376,508 or 11,875 more than the total for the first six months of last year, so that while the excess of births over deaths for the first half of 1912 amounted to 14,712, for this year the total was only 11,004.

City Death Rate.—The death rate for New York City for the week ending October 18 was the lowest ever recorded in the history of Department of Health, being only 11.20 per thousand of population. The total number of deaths for the week was 1,153 as compared with 1,243 for the corresponding week of last year. There was a big drop in the infant mortality, and decreases occurred also in the number of deaths due to scarlet fever, whooping cough, typhoid fever, and lobar and bronchial pneumonia.

The New York Laryngological Society, which was founded in 1873, will celebrate the fortieth anniversary of its organization during the latter part of the present month. The event is especially interesting, from the fact that this was the first society of its kind to be established, the earliest to imitate its example, either in Great Britain or in Europe following it by more than ten years. Twenty-five years ago the Society was merged into the Academy of Medicine, becoming the Section of Laryngology and Rhinology. A formal meeting at the Academy of Medicine has been arranged at which addresses will be offered and a bronze tablet and other memorials commemorating the occasion will be presented.

Meeting of Pediatric Societies.—On the invitation of the New England Pediatric Society, a joint meeting of that Society with the Philadelphia Pediatric Society, the New Jersey Pediatric Society, and the Pediatric Sections of the Medical Society of the State of New York and of the New York Academy of Medicine will be held in Boston on November 8. During the day clinics will be held at several hospitals. There will be a dinner at the University Club at 6:30 P.M., and at 8:15 P.M. the combined societies will meet in John Ware Hall, Boston Medical Library, to listen to papers on the "Bacteriological Diagnosis and Treatment of Alimentary Disease in the Infant and Child," by Dr. Ralph Vincent of London; "Investigations in Vulvovaginitis, by Means of the Female Urethroscope," by Dr. John F. Sinclair of Philadelphia; " Active Immunization in Diphtheria by Toxin-Antitoxin Mixture," by Dr. William H. Park of New York, and "The Position of the Stomach in Children," by Dr. James Warren Sever of Boston. Dr. James S. Stone will preside.

Harvey Society Lecture.—Dr. Charles V. Chapin of the Health Department of Providence, R. I., will lecture before the Harvey Society at the New York Academy of Medicine, on Saturday evening, November 1. Dr. Chapin's subject will be: "The Air as a Vehicle of Infection."

Red Cross Seals.—The State Charities Aid

Association, which has charge of the sale of the Red Cross Christmas seals in New York State outside of New York City, is preparing 10,000,000 seals between December 1 and the New Year. This will mean $100,000 to be used in the campaign against tuberculosis. Last year $60,000 was raised in this way.

Cancer Hospital.—The new Hospital of the New York State Institute for the Study of Malignant Disease at 113 High Street, Buffalo, N. Y., will be opened today, November 1, with appropriate exercises.

Operative Clinic.—The New York Hospital announces that an operative clinic will be held at the hospital on Saturday mornings from nine to twelve throughout the year, by Dr. C. L. Gibson, attending surgeon, and Dr. J. M. Hitzrot and Dr. J. B. Lee, associate surgeons, on the first (Cornell Medical College) surgical division.

Barnier Solarium.—The Methodist Episcopal Hospital of Brooklyn, N. Y., on October 20, opened the new solarium erected for the hospital by Mrs. E. Barnier Shaw, in memory of her parents, John J. and Elizabeth B. Barnier.

Whooping Cough Camp.—The Trustees of St. John's Guild, New York, recently decided to use their floating hospital, the *Helen C. Juillard*, during the winter season as a whooping cough camp. The camp will be operated in connection with the Department of Health. The Trustees have also extended the work of the Seaside Hospital at New Dorp by ordering that it be kept open during the winter as a convalescent hospital.

The Von Ruck Serum Tests.—Some disagreement is said to have occurred between the officials of the Public Health Service and Dr. Von Ruck of Asheville, concerning the details of the testing of the latter's anti-tuberculosis serum, and it is probable that the tests will be transferred from Asheville to Washington, and continued in the laboratory of the Public Health Service. Surgeon John Anderson was directed on October 19 to proceed to Asheville for a conference regarding the investigation of the remedy.

Dr. Just Lucas Championnière of Paris, honorary surgeon at the Hotel-Dieu, a member of the French Academy of Medicine, ex-president of the French Surgical Society, and a commander of the Legion of Honor, died suddenly on October 22, while delivering an address before the Academy of Sciences. Death was due to an attack of angina pectoris.

Dr. Bulkley's Lectures.—Through an error the date of the opening of this course of lectures on diseases of the skin was given in a recent issue as November 15. The first lecture will be given on Wednesday, November 5, at 4:15 o'clock.

Fire Near Hospital.—A fire on the second floor of the disinfecting station of the Department of Health at Sixteenth Street and the East River, New York, caused some alarm among patients in the Willard Parker Hospital and the Hospital for Scarlet Fever and Diphtheria Patients nearby. The flames were subdued, however, without serious results.

The Physician's Part.—In an address before the Medical Club of Philadelphia on October 17, Dr. John Grier Hibben, president of Princeton University, in discussing the menace of social diseases, said: "What is needed above everything is that zeal should be balanced by sanity and guarded by expert knowledge. As regards the menace of the whole catalogue of social evils the physician is preeminently the man who knows. His counsel and his warning will be sober, sane, and steady. We look to you for the word of wisdom and the spirit of sacrifice which will enable us to solve the great human problems of the day."

Maternity Hospital Opposed.—The application for a certificate of incorporation for the Bronx Maternity Hospital, New York City, which was refused a year ago by the State Board of Charities for financial reasons, was renewed recently, the assurance of $30,000 in cash and pledges having been obtained. The granting of this certificate is opposed by the officials of the Lebanon Hospital, representatives of which appeared before a committee of the board on October 16. The opposition is based on the fact that the proposed new hospital would be within a mile or so of the Lebanon Hospital and on the belief that the establishment of another Hospital in the district is not called for by the conditions. Decision in the matter was reserved.

Obituary Notes.—Dr. George Drury of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1878, and a member of the New York State and Kings County Medical Society, the Brooklyn Pathological Society, and the Alumni Association of the Long Island College Hospital, died at the Skene Sanitarium, Brooklyn, on October 20, aged 56 years.

Dr. Charles A. Ayers died at Philadelphia on October 9 at the age of 62 years. He was graduated from Hahnemann Medical College and Hospital of Philadelphia in the class of 1888.

Dr. William Wright Markoe, a son of the late Dr. Francis H. Markoe of New York, a graduate of the Yale University Medical Department, New Haven, in 1898, and a member of the American Medical Association, died at Charleston, N. H., on October 19, aged 39 years.

Dr. Charles E. Goldsborough of Hunterstown, Pa., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1855, a veteran of the Civil War, and one of the survivors of Libby Prison, died recently at his home, aged 79 years.

Dr. Stewart L. Henry of New Orleans, La., a graduate of the Medical Department of the Tulane University of Louisiana, New Orleans, in 1866, died at his home, after a protracted illness, on October 11, aged 79 years.

Dr. Arthur Adelbert Downs of Fairfield, Me., a graduate of the Baltimore Medical College, Baltimore, Md., in 1897, a member of the American Medical Association and the Maine State and Somerset County Medical Societies, secretary of the Maine Anti-Tuberculosis Association, and medical director of the Central Maine Sanitarium, Fairfield, died at the Cousins Hospital, Portland, from cerebral meningitis, on October 12, aged 39 years.

Dr. H. C. Thiess of Akron, O., a graduate of the Columbus Medical College in 1880, and a member of the Ohio State and Summit County Medical Societies, died on October 13, from injuries received when the automobile in which he was driving was struck by a trolley car a few hours before.

Dr. John D. Brundage of Westhampton, N. Y., a graduate of the Yale University Medical Department, New Haven, in 1864, and a member of the New York State and Suffolk County Medical Societites and the Associated Physicians of Long Island, died at the home of his daughter in Goshen, Conn., on October 21, aged 79 years.

Correspondence.

REMEDIES FOR SLEEPLESSNESS.

To the Editor of the Medical Record:

Sir:—Your issue of October 18 contains a letter from London in which, among other interesting items, there is a good report of Dr. Cushny's paper on "Remedies for Sleeplessness" and its discussion. Permit me to direct attention to a valuable but unhappily neglected hypnotic that fulfills all the conditions so forcibly stated by Professor Cushny. As I urged in the discussion of his excellent paper, the commendations of drugs pained me, especially since the most highly praised one was an American proprietary medicine that no physician who has respect for his calling would use. When I mentioned this sad fact to Dr. Fortescue Fox, he defended its recommendation by the highest authority in Great Britain on the ground that its composition was known. Why then, I asked, does not this authority prescribe the ingredients instead of using the "registered" name?

I detailed the technique of the wet pack, its physiological action derived from animal experimentation, and the clinical results in the Vanderbilt Clinic, where the students have seen men coming for treatment for long-standing insomnia fall asleep, amid the noise of falling water and other disturbances, and while lying on a hard table. I also detailed the successful result in a desperate case in which suicide had been attempted and six months' treatment in Asheville and the Battle Creek Sanitarium had failed utterly.

In closing the discussion Professor Cushny challenged the right of this remedy, which he claimed as acting by suggestion chiefly, to be admitted, losing sight of the fact that the discussion was on "remedies" and not on "drugs" for sleeplessness. That this is a sad commentary on the benighted condition of British therapeutics I took occasion to point out on the following day in the paper mentioned in your London letter.

S. Baruch, M.D.

51 West Seventieth Street, New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE RADIUM INSTITUTE—TUBERCULOSIS AUTHORITY UNDER INSURANCE ACT—CHARING CROSS HOSPITAL—ROYAL DENTAL HOSPITAL—HOSPITAL FACILITIES FOR AMERICANS IN LONDON—SATURDAY FUND—OBITUARY.

London, Oct. 10, 1913.

The Radium Institute invited a select number of Press gentlemen to witness, on October 2, a demonstration of the methods used in handling the substance and to hear an account of the work carried on during the two years since the institute was established by the munificence of Sir Ernest Cassell and Lord Iveagh. In consequence of this meeting the newspapers have published a number of facts, accompanied in some cases by opinions more or less noticeable. Mr. Hayward Pinch, F.R.C.S., medical superintendent, described the work done with water charged with emanation. They would charge the water to a degree many thousand times stronger than could otherwise be obtained, and he reported that water so charged had been found to have the same effects as radium itself. This active water has been largely supplied to medical men in the country, for although it rather rapidly grows weaker it retains its activity long enough for transmission. In three or three and one-half days the strength is reduced to about half. Several cases of arthritis deformans had been greatly benefited.

The Institute claims to possess radium to the value of £80,000, and all this for the purpose of therapeutic investigation. Forty-two applicators are in constant use, varying in strength from 5 to 150 mg., but some patients have been treated with far greater quantities. Sir F. Treves (chairman of committee) said the resources of the institute are at the service of all on the introduction of a medical man. In the last eleven months 400 paying and as many nonpaying patients had been treated, the treatments numbering 3,000 to 4,300, respectively. They tested and weighed radium for medical men and mounted apparatus for them at a nominal charge. They had mounted apparatus for other institutions in Denmark, Germany and the United States. During the International Medical Congress a lantern lecture was delivered to the Dermatological Section, and a number of demonstrations given at the institute. The institute prepares plates and emanation tubes, for which there is a continual demand. This work is under the immediate supervision of Mr. W. L. S. Alton, the director of the institute's chemicophysical laboratory.

The institute is not in debt, a remarkable thing for any medical establishment. But the explanation is the magnificent endowment, apart from which the debt would probably be as great, or greater, than any of the hospitals. Great extension has begun, the rest of the street adjoining the institute has been purchased and further buildings will soon be begun. In them there will be ample provision for investigation and research in all directions and for post-graduate instruction in all that relates to the therapeutical employment of radium.

There is no little confusion as to the tuberculosis scheme of the Insurance Act. It was at first proposed that the London County Council should deal with it and that body resolved to utilize all existing institutions and not to approve any scheme which did not provide for each dispensary to be linked up with a hospital. So the Local Government Board was informed, with the result, apparently, that they determined to intrust the matter to their several local authorities. Accordingly, the Local Government Board has issued a return on the sanatoria approved under the act, in which only two of the teaching general hospitals are stated to have been so approved. The question naturally arises whether tuberculosis should thus be withdrawn from the other clinical hospitals, and in that way have students deprived of the opportunity of studying the disease under the direction of eminent teachers. The hospital authorities, as at present appears, seem to be so much divided that it looks as if they have scarcely realized their position.

At the meeting of the Asylums Board on Saturday last letters were received from ten metropolitan Borough Councils indorsing a resolution of another formerly submitted, that the Asylums Board should become the authority for the residential treatment of the tuberculous, its constitution being enlarged in order for the borough councils to be represented upon it. Letters were received from other bodies on the subject, including one from the local governing board indorsing the one to the County Council, in which they had suggested

it should be the authority through which other agencies should be co-ordinated. The board referred all the documents to the law and parliamentary committee which may perhaps bring an orderly report out of the confusion.

Princess Louise, as president of the Charing Cross Hospital, has made an appeal for a special fund which Lord Lonsdale is raising to free the hospital from its financial liabilities (some £70,000 is needed), and permit the reopening of the five wards which have long been closed. Her Royal Highness' appeal was dated the 3rd inst., and generally published in the press yesterday. In the meantime a statement "went the round" that the committee had decided to reopen the wards for paying patients to accommodate persons just above the usual hospital class but who could pay enough to defray the cost of their maintenance. Two lines of policy are thus simultaneously put forward; it almost looks like divided councils, but this is not the case.

Prince Alexander of Teck presented the prizes at the Royal Dental Hospital on Tuesday, and insisted on the need of high qualifications. He said this was over and over again borne in upon him in his work at the Middlesex Hospital, where he saw how much suffering might be spared the poor if that which could be prevented actually were prevented, and it was the same at this hospital. The care of children's teeth was an example. The donor of a gift to endow a research worker to find the means of preventing dental disease would be a benefactor to the human race.

Americans residing on this side are proposing to endow a ward in the London Hospital, to be devoted exclusively to the use of their compatriots. The suggestion has been favorably received, and perhaps the most distinguished body of patrons of American charitable objects in England has been formed to carry out the idea. Considering the fine American Hospital in Paris it is a little surprising that nothing of this kind has previously been thought of.

Yesterday the Lord Mayor issued the customary appeal on behalf of the Hospital Saturday Fund.

Dr. G. P. Tennant, cousulting physician to the Western Infirmary and to the University Lying-In Hospitals, Glasgow, died on the 13th September, aged sixty-seven. He was a Glasgow graduate, 1867-70, and a Fellow of the Faculty of Physicians and Surgeons. By his will he bequeathed £25,000 to the Glasgow University, for such objects in connection with the Faculty of Medicine as his trustees may select. The residue of the estate he left to the following Glasgow charities: Western Infirmary, the Royal Infirmary, the Victoria Infirmary, and the Royal Hospital for Sick Children.

Dr. Forbes Ross, who died September 18, aged forty-five, was surgeon to the Kensington Hospital, and at one time was a civil surgeon to the Guards' Hospital. He was M.D. Edin., 1893, and later took the F.R.C.S. Eng. He made many contributions to the journals, and was the designer of several instruments and of modifications of others.

Lieut-Col. John Ritchie, R.A.M.C., has died suddenly in his fifty-first year. He graduated at Glasgow, 1884, and joined the Army Service in 1887, served in India, the Gold Coast, and West Africa. He was also in the late South African war. He held the Queen's medal with four clasps, and the Kings with two.

Dr. Inspector-General John Lyon died on September 25. He took M.D., Glosgow, in 1876, entered the Navy in 1871, was at Magdala and Alexandria, and received the Khedive's medal and star. He retired in 1891.

Dr. Carnegie Brown, Honorable Secretary of the Society of Tropical Medicine, died September 30, aged fifty-four. He took M.D., Aberdeen, 1884, and became member of the London College of Physicians in 1906. At one time he had been a Consul in Belgium. He wrote in the Journal of Tropical Medicine on "Myocardial Degeneration in Hot Climates," 1906, and "Malaria in Madagascar," 1907. He also was the author of a monograph on "Sprue," and another on "Amebic Dysentery."

OUR LETTER FROM HAVANA.

(From Our Regular Correspondent.)

TRACHOMA IN CUBA—INFANTILE HYGIENE—THE SAN LÁZARO LEPROSY HOSPITAL—THE THIRD NATIONAL CUBAN MEDICAL CONGRESS.

HAVANA, October 13, 1913.

THE Clinical Society of Havana begun its autumn sessions with the reading by Dr. Horacio Ferrer, a young army surgeon, of an interesting paper on "Trachoma in Pinar del Rio Province," in which he stated that out of nearly 9,000 children examined in the rural districts and in the towns of that province he found about 300 cases of trachoma; the disease being more prevalent the further from Havana was the site examined. Dr. Santos Fernandez, President of the Havana Academy of Sciences, stated that in his opinion Dr. Ferrer's work had been very good but that trachoma prevailed in Cuba to a far greater extent than was believed by Ferrer. Dr. Finlay thought also that trachoma was increasing in Cuba, owing to the bad methods of inspection in places outside of Havana, and to the almost complete absence of expert school inspection. Dr. Francisco M. Fernandez, recently government expert, stated that he had had considerable experience in Pinar del Rio Province. While doing work on trachoma in several towns, he found almost 10 per cent. of the school children affected with the disease.

Dr. Nogueiras of the Hospital Número Uno has taken charge of the Mercedes Hospital during the absence of Dr. Emiliano Núñez, who is in the States on private business.

A new service of Infantile Hygiene has been established in Havana. The city has been divided into eighteen inspection districts, with a doctor in charge of each one. The medical officers have the supervision of all poor pregnant women as well as the inspection of the feeding of all infants of the poor, and suggestions are given to the mothers as to the best way to feed them.

The new Board of Trustees of the San Lázaro Leprosy Hospital begun its duties on the first of this month. Much criticism has been aroused on account of their electing as the president a lawyer, who knows nothing of medicine and much less of leprosy. Incidentally it may be mentioned that it is proposed to change the present site of the hospital to a place in the country bought with the funds of the hospital. The change would be welcome as the present hospital is an eyesore to all who visit the city. The institution has a fund of over a million dollars. Yesterday a cable was received from the sanitary authorities of Porto Rico stating that

the steamer *Manuel Calvo* of the Spanish Transatlantic line had on board a suspected case of bubonic plague. Aerograms sent to the steamer were answered by its captain stating that the case was one of abscess of the thigh and that there was not the slightest danger of it being bubonic plague. The port medical officers have been given instructions as to the strict examination and quarantine of all the passengers when the steamer arrives.

The work of the Executive Committee of the Third Cuban National Medical Congress has been very good, a large number of Cuban physicians, dentists, pharmacists, and veterinary surgeons have been inscribed. The Congress will be held in December, 1914, and the committee hopes to have a large gatherng of Cuban and American medical men in Havana at that time.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 16, 1913.

1. Relationship Between Gynecological and Neurological Diseases. W. P. Graves.
2. Notes on Pellagra in Massachusetts. With Report of Two Cases in Danvers State Hospital. J. B. MacDonald.
3. Surgery of the Biliary Passages During a Period of Ten Years from January 1, 1901, to January 1, 1911, at the Massachusetts General Hospital. W. Whittemore.
4. The Pathological Lesion of Whooping Cough. F. B. Mallory.

1. Relation Between Gynecological and Neurological Diseases.—W. P. Graves points out that the performance of gynecological operations cannot be expected to cure true psychoses, but may greatly improve the mental condition by removing the pelvic irritation of pain and discomfort, while in certain cases, which from the standpoint of the psychiatrist are essentially curable, operations may greatly facilitate or hasten a complete cure. This is a subject of the widest importance and one capable of very great development. The author emphasizes the point that there exists no mysterious or peculiar nerve connection between the female genital organs and the central nervous system, and that disturbances in the former cause manifestations in the latter by the irritation of pain and discomfort. If this simple theory be borne constantly in mind in the practical treatment of patients there will be fewer mistakes on the part of the gynecologist and the neurologist.

2. Pellagra in Massachusetts.—J. B. MacDonald reports two cases of this disease that have been admitted this year to the Danvers State Hospital, Massachusetts. Neither case was recognized prior to admission. One presented on admission a typical picture of typhus pellagrosus, a condition described by Lavinder as "an acute explosion peculiar to pellagra and occurring as an incident in the chronic course of the disease," and by Edward Jenner Woods as "a terminal phase, an acute exacerbation of the usual chronic condition." The other case developed the characteristic skin lesions after a residence of two months, but the history is strongly suggestive of previous attacks of the disease. In the one case the cutaneous lesions had been variously described as eczema, psoriasis, "vagrant's disease," dermatitis, etc., while the existing stomatitis, and gastrointestinal, nervous, and mental disorders obtained different interpretations. In the other, the history received contained nothing suggestive of pellagra. With the appearance of the skin lesions a fuller investigation revealed a long-standing condition of gastrointestinal disturbances coincident with mental depression and confusion. The obscure nervous disturbances said to have existed in this case, the depressive mental state with the added digestive disorders, form not uncommonly the earliest manifestations of the disease. Indeed, instances are not rare in which the mental and gastrointestinal symptoms have existed for years before the skin lesions claimed attention—the so-called pellagra sine pellagra, in which the cutaneous eruptions are so insignificant and of so short a duration as to escape notice or excite no serious consideration from the sufferer or the medical attendant.

New York Medical Journal.

October 18, 1913.

1. The Clinical Forms Presented by Nervous Syphilis. F. X. Dercum.
2. A Report of Seven Cases of Syphilis Apparently Cured with One Injection of Salvarsan. A. L. Wolharst.
3. New and Improved Duodenal Instruments and Technique of Speedy Intubation of the Normal Duodenum. I. O. Palefski.
4. The Teeth and Their Relation to the Eye. A. M. Macwhinnie.
5. Pyelitis in the Adult. C. J. Bartlett.
6. The Mentally Defective Immigrant. B. Glueck.
7. General Paralysis in the Negro. F. M. Barnes, Jr
8. Report of a Case of Retropharyngeal Abscess in an Adult. C. M. Mann.
9. A New Method of Diagnosticating Masturbation in Girls. B. Kaufman.

1. Syphilis of the Nervous System.—F. X. Dercum emphasizes the importance of making a clear distinction between syphilis of the vessels and membranes on the one hand and tabes and paresis on the other. The facts of the prognosis of the parasyphilitic affections make such a distinction imperative. It has become necessary to go one step further and to emphasize the distinction between the two great parasyphilitic affections themselves. The clinical distinction between tabes and paresis has of course long been admitted. It is the occurrence of taboparesis, that is, the form in which spinal symptoms appear early, which has tended to obscure the subject. The knee jerks may in such cases be much diminished or even lost. If at the same time incoordination is noticeably absent, the picture of locomotor ataxia may be more or less closely simulated. However, certain striking differences obtain between taboparesis and tabes. In the first place, the history of tabes is one of very slow and gradual evolution. There is a history of difficulty of walking in the dark, of unsteadiness in the mornings while washing the face, of shooting pains more or less severe, of gastric crises, of delayed sensation in the feet and legs, of disturbances of micturition. Early, too, the ataxia becomes a marked feature. Finally, pupillary disturbances make their appearance. These differ notably from those met with in paresis. Most frequently they consist of a narrowing of the pupils with an early impairment or loss of the light reaction. It is to be especially noted, however, that in tabes the pupils are equal; inequality is excessively rare. Secondly, the impairment of the light reaction is commonly the same on the two sides; sluggishness and the degree of loss are usually not more pronounced on one side than on the other. In taboparesis, the evolution of the symptoms may be slow, though as a rule it is far more rapid than in tabes. Secondly, mental symptoms make their appearance relatively soon, so that the real nature of the case early becomes apparent. Again, incoordination though present is rarely so pronounced as to play a striking rôle in the early period.

2. Salvarsan and Syphilis.—A. L. Wolbarst reports a series of seven cases of syphilis in which the patients received but one intramuscular injection of salvarsan; no other treatment was administered; they all became, and remained, perfectly well; there have been no recurrences of any kind, and all have gained remarkably in body weight. The periods since the administration of the injection vary from two years and ten months to two years and one month, an average of two years and six months; in four of these cases the Wassermann reaction has been taken repeatedly and has persistently remained negative; it therefore appears that one intramuscular injection of salvarsan has removed all manifestations of the disease and has produced a persistently negative Wassermann reaction. No other method of treatment has ever produced results equally satisfactory.

5. Pyelitis.—By C. J. Bartlett. (See MEDICAL RECORD, July 19, 1913, page 131.)

7. Paresis in the Negro.—F. M. Barnes, Jr., states that paresis is more frequent among the colored race as a whole than among the white, and nearly three times as frequent in the colored female as in the white. Fifty per cent. of the author's cases were admitted between the ages of thirty and forty years. In about 50 per cent. the duration of the disease on admission was eight months or less, the balance having been in existence for a longer period, bringing the general average duration prior to the beginning of hospital treatment up to about one year plus, the period usually given for whites. In fifty-eight per cent. of the cases the onset was gradual and in sixty-two per cent. the usual gradually progressive course was followed. Definite remissions in the course of the disease occurred in thirteen per cent. of the cases. Hereditary taint, such as alcoholism, nervous or mental diseases, syphilis, tuberculosis, etc., was noted in about twenty per cent., but in only one instance, a case of juvenile paresis, was it possible to prove a similar heredity. Fifty per cent. of the patients were alcoholic, but only one excessively so, and it is believed that the alcohol in these cases is more symptomatic than causal. Head trauma was noted in only six instances, and in none could a definite connection between it and the paresis be established. Previous attacks of mental disorder in colored paretics are rare, having occurred in this series in but four patients, and in no instance was the attack similar to the symptoms manifested by the patient as a paretic.

Journal of the American Medical Association.

October 18, 1913.

1. Radiographic Studies of the Gastrointestinal Tract in Infants. H. D. Chapin.
2. Use of the Roenteen Ray in the Diagnosis of Obscure Abdominal Conditions in Infancy and Childhood. J. L. Morse.
3. Disarticulation of the Knee-Joint. F. J. Gaenslen.
4. A Study of the End-Results of the Baldy-Webster Operation. J. O. Polak.
5. Is Membraneous Dysmenorrhea Caused by Endometritis? K. J. Sanes.
6. Radium in Internal Medicine. Its Physiologic and Pharmacologic Effects. L. G. Rowntree and W. A. Baetjer.
7. Rupture of a Mediastinal Lymph-Node Into the Bronchus. A. L. Goodman.
8. Roseola Infantum. J. Zahorsky.
9. Joint Disease Due to Infection from Other Parts of the Body. J. W. Cokenower.
10. The Injection Treatment of Tuberculous Joints. L. W. Ely.
11. Varicose Veins as Described by Haly Abbas. D. W. Montgomery.
12. Negative Results with the Ninhydrin Reaction as a Test for Amino-Acids in the Serum of Nephritics and Others. R. M. Pearce.
13. Passage Through Gastroenteric Tract of Black-Headed Pin, without Symptoms. P. J. Mangan.
14. Hepatic Abscess (Non-Amebic) and Gastrointestinal Myiasis. G. I. Jones.

1. X-Ray Studies of Gastrointestinal Tract in Infants.—By H. D. Chapin. (See MEDICAL RECORD, June 21, 1913, page 1149.)

2. X-Ray Diagnosis of Obscure Abdominal Conditions in Infancy and Childhood.—By J. L. Morse. (See MEDICAL RECORD, June 21, 1913, page 1,149.)

3. Disarticulation of the Knee Joint.—F. J. Gaenslen describes his method of disarticulation of the knee joint, devised for the purpose of securing a broad weight-bearing surface, utilizing the patella in addition to the condyles. In common with other disarticulating operations there is no necessity for carrying the artificial limb to the tuber ischii for support as in thigh amputation. The principal points in the technique are the preservation of the patella and the extensor apparatus by division of the patellar ligament close to the tibial tubercle; lengthening of the quadriceps tendon to allow the patella to be brought down into apposition with the lower surface of the femur, and the performing of an arthrodesis between the patella and the femur in the intercondyloid space at such a point that the pressure bearing point of the patella will lie on a level with the condyles. In this way weight will be distributed equally between these three large smooth surfaces, thus affording an eminently satisfactory weight bearing surface. Furthermore, the skin covering the patella is more or less thickened and therefore suited for bearing purposes. The muscular balance of the limb is little interfered with. The various methods of amputation in this region are discussed. The author thinks that when one has a choice, disarticulation with lateral flaps seems to have its advantages when used as in the operation of Stephen Smith. His own procedure differs from Smith's in the lengthening of the quadriceps tendon, allowing the patella to be brought down between the condyles; arthrodesis between the patella and the intracondylar surface and its fixation in this position by suturing of its ligament to the hamstring tendon and capsular tissue behind.

4. End Results of the Baldy-Webster Operation.—By J. O. Polak. (See MEDICAL RECORD, July 1, 1913, page 45.)

5. Membranous Dysmenorrhea and Endometritis.—K. J. Sanes believes that membranous dysmenorrhea does not depend on endometritis for its occurrence. The inflammatory appearance of the lining membrane of the uterus is physiological, and if the picture of menstrual membrane could prove a endometritis, then all menstruating uteri have endometritis. The author quotes from Van Herwerden that in certain monkeys a membrane is always cast off during menstruation, and if this is considered physiological in the monkey, why should it be considered unphysiological in the human species? Is it because it is rare in the human female? It is, however, a great deal commoner than is generally supposed. It is not always accompanied by pain and naturally such cases are not reckoned as membranous dymenorrhea. Dysmenorrhea is common and there is no reason why it should not occur in cases in which a membrane is cast off. A number of authorities are quoted to show that a menstrual membrane is not inconsistent with fertility and a suggestion is made that the formation of the membrane may be due to a more excessive stimulation of the process by the ovarian hormones.

6. Radium in Internal Medicine.—L. G. Rowntree and W. A. Baetjer present a summary of the physiological and pharmacological effects of radium as observed by European authors. Its value is unqestionably established in chronic and subacute arthritis (luetic and tuberculous excepted), in rheumatism, gout, sciatica, neuralgia, polyneuritis, lumbago, and the darting pains of tabes. In certain other diseases it is said to be of some value, though more data are required. These include chronic bronchitis and pharyngitis, pneumonia, myocarditis, arterial sclerosis, vasomotor disturbances, scleroderma, chronic lymph-node enlargements and chronic constipation. Certain authors have warned against its use in hemorrhagic diathesis and purpura, gastric ulcer, pregnancy, marked neuroses, especially if involving the vegetative system, also in advanced tuberculosis and polycythemia, but these last two are queried by the authors. Nephritis was at first considered a contraindication, but this is not now accepted. As regards methods of administration, baths have been in use for many years, the benefits of which are now credited to the radium emanation. It is sometimes used now as a local application to the skin, but the best method is by inhalation. This, however, is also the most expensive, requiring a special air-tight room or cabinet. The author's patients were treated entirely by drinking water activated with radium emanation, and were under observation for periods varying from two weeks to three months. The daily dose was from one-half to forty microcuries. The series of eighteen cases included five of infectious arthritis, three of which seemed to be temporarily benefited; five cases of muscular rheumatism and neuralgia, one apparently cured and another temporarily benefited, and three cases of tabes were unaffected, as well as one of acute rheu-

matism and one of sciatica with the same result. One case of Parkinson's disease was slightly improved for a time; one of nephritis and high blood-pressure showed rather marked improvement. In one case of gout a severe exacerbation followed the treatment. The most favorable results were in the arthritis cases, in which there was a slight definite lasting improvement after the first relapse.

7. **Rupture of a Lymph-Node into a Bronchus.**—By A. L. Goodman. (See MEDICAL RECORD, June 28, 1913, page 1186.)

8. **Roseola Infantum.**—By J. Zahorsky. (See MEDICAL RECORD, June 28, 1913, page 1191.)

9. **Infectious Arthritis.**—J. W. Cokenower holds that failures in treating joint disease are due more to wrong diagnoses of the cause than to improper treatment, and back of this is a lack of knowledge of the anatomical structure of joints as well as of the pathology of the disease. It will often be necessary to have the help of regional experts and the aid of roentgenography and bacteriology. One must not forget, omitting trauma, that arthritis is only a symptom of a disease or diseases whose real nidus is in some distant part of the body. A urethritis or suppurating antrum may either cause the same symptoms, but we must treat one as gonococcal and the other as septic. The diagnosis in children is mainly between tuberculosis on the one hand and sepsis, rickets, congenital syphilis, and coxa vara on the other, and in early adult life special forms of septic infection from the gastrointestinal and genitourinary tracts are most common, while in still later life chronic septic infection of the mucous tracts of nearly all parts of the body must be considered. The author specially emphasizes the importance of the mouth as a source of arthritis. Absence of all the teeth without replacement by artificial ones is a sure proof of oral sepsis. The tonsils and the teeth should be carefully inspected in all nontraumatic cases where there is any doubt as to infections from other parts of the body. No diagnosis is complete in such cases without this examination.

10. **Injection Treatment of Tuberculous Joints.**—L. W. Ely traces the employment of injections of tuberculous joints back to Mikulicz in 1881, who used iodoform, which has been the substance most persistently advocated by those who recommend this treatment. Many other substances, however, have been used, such as iodine, phenol, formaldehyde, etc. The author has gone over the literature relating to the use of iodoform and finds that the evidence for iodoform, after thirty-two years of trial, consists almost exclusively of unsupported clinical opinion. While this does not necessarily condemn it, an approximately equal weight of unfavorable clinical opinion would point in the direction of some other method of treatment. Iodoform is not widely used in this country at present except by those who possess an extreme reverence for foreign authority. The claims for the other substances are just about as well supported. They are at first vigorously advocated and then abandoned. Formaldehyde is at present still being tried. It is as rational to attempt the cure of tuberculous joints by injections as it would be to attempt to cure the disease in the lung by injecting the pleura. One should simply attempt to aid nature in its reaction against the presence of the tubercle bacillus and discount the ability of any substance injected into a joint to destroy the infection.

The Lancet.

October 11, 1913.

1. Fever in Pulmonary Tuberculosis: Its Significance and Therapeutical Indications. F. J. Wethered.
2. Examinations, Examiners, and Examinees. Sir William Osler.
3. The Present Problems Relating to the Origin of Modern Races. A. Keith.
4. The Problems of University Medical Education in London. W. Hunter.
5. The Relation of Medical Knowledge to War Conditions. B. M. Skinner.
6. Hard *vs.* Soft Water. J. C. Thresh.
7. Arteriovenous Anastomosis for Impending Gangrene; a Report of 15 Consecutive Cases with Arteriovenous Anastomosis of the Femoral Vessels. C. Goodman.
8. Formation of an Artificial Vagina by Transplantation of a Portion of the Ileum (Baldwin's Operation); with Remarks on the Ethical Aspect of the Procedure. V. Bonney.
9. The Use of Atropine Tablets for the Determination of Refraction in Children. F. Moxon.
10. The Use of Gelatin in Microscopical Technique. W. Johnson.

1. **Fever in Pulmonary Tuberculosis.**—F. J. Wethered states that it may be assumed that a rise of temperature, apart from accidental factors, may be considered an indication of activity, and that the most reliable means for reducing activity is rest. If, therefore, a patient who has been progressing favorably exhibits a rise of temperature, it must be accepted as a sign that rest must be insisted on. In other words, a patient suffering from pulmonary tuberculosis must live in accordance with his temperature chart. Any increase of cough and expectoration, headache, general malaise, and so on, should always be regarded as calling for a record of the temperature for a few days, and should a rise be found, the necessary measures should be taken in accordance with the general features of the case.

2. **Examinations and the Medical Student.**—Sir William Osler presents an interesting paper on this subject. He concludes that the student needs more time for quiet study, fewer classes, and fewer lectures, and, above all, the incubus of examinations should be lifted from his soul. To replace the Chinese by the Greek spirit would enable him to seek knowledge for itself, without a thought of the end, tested and taught day by day, the pupil and teacher working together on the same lines, only one a little ahead of the other. This is the ideal towards which we should move. The pity of it all is that we should have made an intolerable burden of the study of one of the most attractive of the professions, but the reform is in our own hands and should not be far off. A paragraph in an address of the late Dr. Stokes contains the pith of the author's remarks: "Let us emancipate the student, and give him time and opportunity for the cultivation of his mind, so that in his pupilage he shall not be a puppet in the hands of others, but rather a self-relying and reflecting being."

7. **Arteriovenous Anastomosis for Impending Gangrene.**—C. Goodman finds that arteriovenous anastomosis is applicable in angiosclerosis and in arterial thrombus, where the integrity of the limb may be preserved by this means until collateral circulation is established. In regard to methods, end-to-end anastomosis offers the most simple technique and is least likely to be followed by thrombosis. The author has tried the operation in 15 cases, and in this series noted that the foot, previously cold and cadaverous in appearance, took on a feeling of warmth and a healthy pink color. The valves of the veins were only a temporary barrier to the course of the blood against the constant pounding of the heart. The pain due to ischemnia was relieved shortly after the operation in all these cases. Strongly presumptive evidence of establishing a reversal of the circulation are the following facts: Improvement of color, increase of warmth of the affected part, relief from pain, filling of the superficial veins, pulsation of veins below the site of anastomosis, and the return of the part threatened with gangrene, or the actual seat of gangrene, to the normal. All writers seem to agree that angiosclerosis of the lower extremity is an ascending process and leads eventually to gangrere. A review of the author's cases shows six successes. Several of these cases which promised success required amputation later, but even these had temporary relief from pain. In his experiments upon animals he tried all the usual methods of anastomosis—end-to-end, side-to-side, end-to-side, intubation, and invagination. In his operations upon human beings he used the end-to-end method in all excepting one case, as he found it the simplest in execution and least likely to cause thrombosis. The operation should not be undertaken in the presence of

sepsis, or advanced or fulminating gangrene. The opportune time for intervention is in the pregangrenous stage before mortification has set in, in order to prevent its inception. In non-septic gangrene the improved nutrition of the limb may be hoped for, permitting lower amputation than would otherwise be possible, as is shown in several of the cases. The utmost delicacy and skill in minute detail must be observed in order to avoid the formation of thrombi; a most rigid asepsis is required throughout the operation, or the object of the operation will be defeated. To reduce the dangers of thrombosis to a minimum the author practised the following precautions: Before the sheath of the vessel is opened the wound must be absolutely freed from, and dried of, any visible signs of blood, and then covered with sterile wound protectors. For this purpose the author used various materials and found that a thin, black, oriental silk gives the best results; this material adapts itself to the wound without encroaching upon the operative field, and the color removes the glaring and trying effect of the open wound upon the eyes of the operator during the more minute details of the operation.

British Medical Journal.

October 11, 1913.

1. The Action of Strophanthin Upon the Cardiac Tissue. A. J. Clark.
2. Maximal and Minimal Blood Pressures and Their Significance. J. F. Halls Dally.
3. The Idioventricular Rhythm. A Clinical Case with Polygraphic Records. C. A. Robinson.
4. Fatal Purpura Following Scarlet Fever. J. Biernacki and A. L. Dykes.
5. Acute Facial Dermatitis Produced by a Hair Dye. H. C. Semon.
6. On the Genesis of Cancer. A. Turnbull.
7. Electrargol in Smallpox. R. Denman.

1. **Action of Strophanthin Upon Cardiac Tissue.**—A. J. Clark discusses the action of strophanthin upon the heart. The action can be divided into two stages—a first or therapeutic stage, in which the force of contraction of the auricle, and to a less extent that of the ventricle, are increased, and a second or toxic stage, in which the force of contraction is diminished, the rate of conduction is impaired, and the diastolic relaxation is imperfect. In the action of strophanthin upon the hypodynamic heart the increase in the force of the ventricular contraction is much greater than in the fresh heart; this difference suggests a possible parallel to the difference in the action of cardiac glucosides upon the healthy heart and the diseased heart in mammals.

4. **Fatal Purpura Following Scarlet Fever.**—J. Biernacki and A. L. Dykes note that relatively rarer than the mild purpura chiefly affecting the lower extremities which occurs after scarlet fever is a malignant form with extensive superficial lesions in various parts of the body. The authors report a case that belongs to the latter type, but is unique in that the purpuric areas showed a definite inflammatory element. The inflammation was revealed not only by an undue degree of tenderness, but by marked swelling of the loose tissues, and a certain amount of induration. Early in the attack it seemed likely that the lesions would become gangrenous, but the patient died before any breaking down had occurred; also it was noticed before death that at points on the right leg and left arm the purpura was beginning to recede.

Deutsche medizinische Wochenschrift.

October 2, 1913.

Nature of Human Diabetes.—Frank, assistant of Minkowski, discusses the two leading views of the nature of diabetes. These do not exclude each other necessarily, while it is possible that they repose on a common basis, to wit: the pathology of glycogen. The latter is often regarded as a dead reserve, but Ehrlich has shown that it is united with a "carrier substance"—according to Arnold the "plasmosomes" of the liver cells. We know of two ways in which glycogen leaves the liver: one, the ordinary type, is the result of hyperglycemia, while the other is seen only in certain intoxications (phosphorus, etc.), in which the sugar content of the blood remains unchanged. The toxic substance uses up the glycogen rapidly and completely, so that some of it enters the blood. Embden has shown that if a liver rich in glycogen is completely bled, large quantities of lactic acid are formed, while when blood rich in glucose is infused through the liver, but little lactic acid is formed. Numerous other finds of this type appear to show that glycogen is more readily attacked in the liver cells than is glucose. Since bodies which act vitally must be bound with other substances we look upon glycogen as vitally bound with protoplasm; perhaps with a phosphoric-acid-holding complex. From this viewpoint the pancreas yields a something which may be able to vitalize glycogen into the chemistry of the living cell. Should this intermediary be absent the glycogen, set free from its combination, is quickly transformed by cell diastases into glucose, a subject much less readily utilizable. The liver cells which need glycogen for their own metabolism strive to form glycogen out of their protein content, but in vain. It is quite possible that these protein fragments by accumulating in the cell damage its power to fix new glycogen. Glucose now escapes into the blood, because it can no longer be fixed as glycogen in the liver cells, and in itself cannot be but slightly utilized. It is to be hoped that we may be able to demonstrate the nature of the process by which the pancreatic hormone "vitally fixes" the glycogen.

Treatment of the Cardiac Weakness of Pneumonia with Venesection and Saline Infusion Containing Suprarenin.—Lonhard, a military surgeon, relates in great detail a case in which life was saved by this treatment. The patient was a soldier of none too good physique and heredity, who developed a fulminant type of pneumonia as a result of catching cold on parade. On the second day he was unusually ill and grew worse until the fourth day when he seemed to improve a little without the intervention of a crisis. He soon became worse again, evidently from extension to a new lobe and complicating nephritis. On the seventh day, after he had long been taking digalen, camphor, cognac, and a pneumococcus serum, he was pronounced moribund. On account in part of the indication furnished by his extreme cyanosis he was bled to the extent of 300 c.c. and with marked temporary benefit, his sensorium becoming clear. The venesection had at once been followed by saline infusion containing suprarenin. The improvement lasted a full day when the grave symptoms returned. No more blood was withdrawn but the infusion was repeated on several occasions and the usual cardiac stimulants were kept up, the disease ending by lysis. The pneumonia had been asthenic in type with tendency to migration. After the failure of analeptics alone, venesection, followed by the renewed use of cardiac stimulants prevailed over the disease.

Etiology of Bone and Joint Tuberculosis.—Möllers concludes his paper as follows: In the pus or in diseased portions of tissues in twelve cases of human tuberculosis of the bones and joints from which fifteen pure cultures were cultivated we were able to distinguish all the characteristics of tubercle bacillus. Fifteen preceding authors on this subject had collected 163 similar cases, in but four of which bovine bacilli were present, all the others presenting only the human type. But Fraser, of Edinburgh, has recently published a similar series, in nearly two-thirds (61 per cent.) of which the bovine germ was present. Fraser should subject his material to a more general analysis in order to bring out possibilities of fallacies—*Deutsche medizinische Wochenschrift.*

Insurance Medicine.

A Study of Rejections.—Statistics as to the future of rejected applicants are few and information is meager. Dr. Frank W. Foxworthy, medical director of the Commercial Life Insurance Company and the Majestic Life Assurance Company, Indianapolis, Ind., in his President's Address, American Association of Medical Examiners, Minneapolis, Minn., June, 1913, speaks of some of the cases which have come under his observation and which have proved beneficial to him. In many cases a complete knowledge of the applicant, imparted confidentially to the medical director, will cause a rejection without further investigation. In other cases, special information secured by the medical director has changed a first-class recommendation by the examiner to a declined risk; the medical director wondering if the examiner was blind or deaf to facts that stood out prominently to the applicant's associates and yet were not elicited by the examiner in his examination. The first case is designated as the "Cured Tuberculous." In July, 1912, Mr. C. applied for life insurance and the examination by a trained physician was first class in every particular, including family history. A confidential report on him was first class, except a rumor that the applicant had at one time been treated at a tuberculosis camp. Through the agent who wrote the application and the applicant himself, it was found that the applicant had worked in a minor capacity at a tuberculosis camp, but he denied, under affidavit, ever having been treated for tuberculosis, not suffering from it. The medical director of the sanitorium was written to and confirmed the rumor, as the applicant had had tuberculosis and had been treated for it. The information was referred to the legal department, with the result that the policy was taken up. Information not long ago received stated that Mr. C. had died of acute tuberculosis in June, 1913. As the medical examiner is a conscientious and honest man, he could not be blamed for failing to find the lesion of tuberculosis. One of the lessons from this case is that healed consumptives are not cured, but that the disease remains in abeyance, only to break out under favorable conditions for its development. The next case was one of rheumatism in a woman of apparently perfect health. Mrs. S. applied for insurance in 1909, with an excellent family history and a good physical examination; the only history of illness being an attack of acute rheumatic fever which lasted five or six months, leaving her with a slight limp, due to a little stiffness in one knee. This attack had occurred two years previous, and the applicant had been in excellent health ever since with no heart involvement. The medical director at that time accepted the risk. Five years after her rheumatic attack and three years after the acceptance of the risk, Foxworthy was employed to examine the applications of the company, and laid aside this risk as suspicious. The applicant was re-examined by a competent physician and reported in first-class condition, with recommendation that the policy be reinstated. Foxworthy then sent for the woman and made an examination of her heart, but no lesion could be found. Believing, however, that acute rheumatism of several months' duration must leave an indelible mark upon the constitution of the individual, the risk was declined. Mrs. S. died of some acute heart disease within three months of her last examination. Among several other classes which are exceedingly difficult for the medical director to pronounce judgment on are those in which the impairment is not recognized by the applicant himself. Courts have held that an applicant, not being cognizant of any physical impairment, answering questions in the negative relative to a condition he may have, no misrepresentation is intended. One young man of nineteen applied for insurance, and just as the physical examination was completed had an epileptic fit. He had had one a year before, but had no idea as to the cause of his condition and was not informed, but was not accepted as a risk. The question arises, Should these applicants, ignorant of their impaired condition, be informed by the examiner? On the whole, it seems wiser not to enlighten them, as often the shock and the mental condition produced work more harm than good. Another class may come under the heading of the "graveyard" insurance. In this class are the applications made out for people, most often widows, who upon investigation are found to be on their deathbeds or else many years older than the application blank stated and liable to die in a short time. The agents who caused this condition were eventually sent to the penitentiary. The next class are those rejected risks who should be accepted. This class is usually caused by the examiner, who, though honest and conscientious, may lack experience, or delegate his work to others. Young examiners, out of college but a short time, often magnify slight imperfections. Ofttimes a pulse will be taken after violent exercise and passed on the examination as normal, or after the applicant has just smoked a cigar, either of which will cause a variation from normal. Or an office girl, ignorant of some of the results expected in urine analysis, doing the tests for a physician, may give a wrong report, and unless care is exercised higher up the applicant may be rejected. Blood-pressure rejections form still another class. Foxworthy considers that the standardization of blood-pressure tests is in its infancy, and that it would be worth while to have a committee of experts compile statistics with regard to the normal blood pressure at different ages. Blood pressure is almost a prophet. Foxworthy, in the course of his examinations, found a farmer aged fifty-five, retired, whose physical examination was perfect. This man at the time of the examination was a teetotaler, but in his earlier days had drunk considerable liquor. His blood pressure was between 158 and 160 m.m., and he was declined as a risk solely on account of the high blood pressure, which was not sufficiently high, however, to be detected at the radial pulse. Within the year the applicant died from cerebral hemorrhage. The last class is that of family history, which also has not received sufficient standardization, the personal equation of the medical director being apparently the leading factor as to the acceptance or rejection of an applicant. As a result of his excursion into the question of rejections, Foxworthy is more firmly convinced than ever that there should be a standardization of the application blank, as well as of blood pressure, family history and several other problems which daily come before the medical director. It would not only induce longevity in the medical directors as well as the medical examiners, but would be a protection to the company, and, in many cases, the applicant would benefit by being warned in time to conserve his health.—*Lancet Clinic*, July 19, 1913.

Book Reviews.

Ophthalmoscopic Diagnosis, Based on Typical Pictures of the Fundus of the Eye, with Special Reference to the Needs of General Practitioners and Students. By Dr. C. Adam, Assistant at the Kgl. Univ.-Augenklinik, Berlin. Translated by Matthias Lanckton Foster, M.D., Ophthalmic Surgeon to the New Rochelle Hospital; Member of the American Ophthalmological Society; Member of the American Academy of Ophthalmology and Otolaryngology. With 86 colored pictures on 48 plates and 18 illustrations in the text. Price $6.00. New York: The Medical Art Agency, Herald Square Building, Rebman Company, 1913.

This volume is one of 229 pages and is a good example of the printer's art. Part one is devoted to a description of the technique of ophthalmoscopy. Then follows a brief description of the anatomy of the eyeball. The author then takes up the description of the ophthalmoscopic appearance of the normal fundus oculi, following this with descriptions of the fundus oculi in disease. The work is abundantly illustrated by excellent cuts in the text and numerous excellent colored plates. Special stress is given to the differences in the appearance of the fundus ophthalmoscopically in diseases affecting like structures with a view to differential diagnosis. The signs and symptoms of the various disease conditions observed by means of the ophthalmoscope are carefully analyzed to this end. Some of the rarer forms of disease of the retina and chorioid have been omitted. Works of this nature are very helpful to the student. The work has been ably and conscientiously done and deserves wide recognition from ophthalmologists. The translation is most excellent.

Die Augeneiterung der Neugeborenen (Ätiologie, Pathologie, Therapie, und Prophylaxe). Von Dr. C. A. Crede-Horder, Frauenarzt in Berlin. Mit 33 Abbildungen im Text. Price 5 marks. Berlin, 1913. Verlag Von S. Karger, Karlstrasse 15.

This monograph is one of 140 pages. It is a comprehensive review of the subject in the light of the more recent careful studies of the affection. Etiology, clinical history, and treatment are quite fully prophylaxes exhaustively considered. The author states the lamentable fact that at the present time 12.39 per cent. of the blind in Germany owe their conition to ophthalmia neonatorum. The monograph is worthy of careful perusal.

The Ophthalmic Year-Book, Volume IX, Containing a Digest of the Literature of Ophthalmology for the Years 1911 and 1912. Edited by Edward Jackson, M.D., Professor of Ophthalmology in the University of Colorado. Assisted by Theodore B. Schneideman, M.D., of Philadelphia; William Zentmayer, M.D., of Philadelphia; William H. Crisp, M.D., of Denver; Casey A. Wood, M.D., of Chicago; Wendell Reber, M.D., of Philadelphia; Harry S. Gradle, M.D., of Chicago; Robert Henry Elliot, M.D., of Madras, India; Hugo W. Aufwasser, M.D., of Denver; Meyer Weiner, M.D., of St. Louis. Illustrated. Published with Assistance from the Knapp Testimonial Fund of the Section on Ophthalmology of the American Medical Association. Herrick Book and Stationery Company, Denver, Col., 1913.

This volume of the Ophthalmic Year-Book presents a most excellent digest of ophthalmic literature for the years 1911 and 1912. This publication has been very helpful to ophthalmic surgeons from its beginning, each volume being an improvement over its predecessor. Much credit is due to Dr. Jackson, the very talented editor, for the logical arrangement, development and execution of the work, all of which has been ably forwarded by the excellent corps of collaborators. The digests of the articles and the exhaustive bibliography enable the student to obtain a comprehensive knowledge of the work done on any subject in ophthalmology during the period covered by the volume with the least possible expenditure of time. The publication should be in the hands of all surgeons who are actively engaged in the practice of ophthalmology.

Selected Papers by Dr. Carlos J. Finlay. Havana: 1912.

This book is a compilation of most of the papers of the illustrious Scotch Cuban. Dr. C. J. Finlay, the greater portion contributions which have appeared in national or foreign scientific publications. The work of this intrepid and untiring investigator has opened the heretofore closed path of progress and civilization in tropical America. The confirmation of his theory of the transmission of yellow fever by the mosquito was one of the most important steps taken in these regions since their discovery by Columbus. The gigantic work of the Panama Canal, which will revolutionize geographical conditions in the world, could never have been done without his investigations and their confirmation by the U. S. Army Commission. This book is an exposition of his ideas. The biographical notes are very interesting. Part I deals with yellow fever; a paper on the mosquito hypothetically considered as an agent in the transmission of yellow fever read August 14, 1881; a paper reprinted from the *Am. Jour. of Med. Sciences*, "Yellow Fever, Its Transmission by Means of the Culex Mosquito," October, 1880. Then follow some papers in Spanish which are not translated. There is an interesting chapter in English on Yellow Fever before and after the Discovery of America, another on a Plausible Method of Vaccination against Yellow Fever. The most recent contribution, dealing with atmospheric temperature as an essential factor in the production of yellow fever, was read at the International Congress for Hygiene and Demography, Berlin, September, 1907. A smaller second portion of the book deals with the transmission of cholera and filariasis.

Tuberculin Treatment. By Clive Riviere, M.D., F.R.C.P., and Egbert Morland, M.B., B.Sc., M.D. Second Edition. Price $2.00. London: Henry Frowde and Hodder & Stroughton; New York: Oxford University Press, 1913.

In the interesting introduction to this volume the authors give the history of tuberculin in England, and although they call it strange and eventful, to the mind of the reviewer it does not differ from the history of tuberculin in the United States and in other countries. At first, over-enthusiasm, then entire abandonment by most phthisiotherapeutists and internists in general, and then a gradual taking up of the culture product as a therapeutic means, but in much smaller doses. Wright's discovery of the opsonic index seems to have given tuberculin therapy, particularly in England, a great impetus.

In Part I the authors discuss the general lines of tuberculin administration and give a very interesting subchapter on the relation of tuberculin to anaphylaxis. The many tuberculin preparations are a little bewildering. The authors do not commit themselves as to their choice, but very pertinently say "All the better known tubreculins have led to good results in various hands, and this is the true significance of the number of preparations on the market and not the deduction of Sobotta that "the actual specific preparation has not yet been discovered."

Part II of the volume deals with the immunization method as a curative procedure, that is to say, immunization by means of tuberculin given in increasing doses with a view to producing tuberculin tolerance. The authors claim this to be the treatment particularly indicated in the large majority of pulmonary cases in adults of the type in which the tubercle products are poured into the general circulation.

The last chapter speaks of the immunization without tolerance, as particularly indicated in localized tuberculosis. This chapter closes with a refreshing note of warning not to neglect the auxiliary treatment: "Tuberculin is no passive immunizer to neutralize the poisons of disease. Its action presupposes a power of response on the part of the body; it is a stimulus to the defensive mechanism, a call for active effort on the part of the tissues. Consequently no measures must be neglected which may help to put the body in the best possible condition to respond to this call."

The book on the whole is up-to-date. It deserves the most careful perusal by the tuberculosis specialist as well as the general internist and the surgeon called upon to treat local tuberculosis.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia; Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia, June 1, 1913. Price $6 per annum. Philadelphia and New York: Lea & Febiger, 1913.

The present number of "Progressive Medicine" contains five contributions. The article on Hernia is supplied by W. B. Coley; that on Surgery of the abdomen, exclusive of hernia, by J. C. A. Gerster; that on Gynecology by J. G. Clark; that on Diseases of the blood, diathetic, and metabolic diseases, diseases of the thyroid gland, nutrition, and the lymphatic system, by A. Stengel; and that on Ophthalmology, by E. Jackson. As usual, all of the contributions are of a high order of merit; and it is hardly necessary to do more than mention the appearance of the June number of this publication.

Acute Abdominal Diseases, Including Abdominal Injuries and the Complications of External Hernia. By Joseph E. Adams, M.B., M.S. Lond., F.R.C.S. Eng.; Senior Assistant Surgeon, East London Hospital for Children; Hunterian Professor, Royal College of Surgeons of England; Demonstrator of Anatomy, St. Thomas's Hospital Medical School; and Maurice A. Cassidy, M.A., M.D., B.C. Cantab., F.R.C.P. Lond.; Physician with Charge of Out-Patients, St. Thomas's Hospital; Honorary Physician, The Putney Hospital. Price $4.50 net. New York: William Wood & Company, 1913.

The real and fundamental unity of surgery and medicine is recognized in the joint authorship of this book. A surgeon and an internist here cooperate, just as they do in everyday practice. They aim "to discuss, compare and contrast all the various acute diseases and injuries to which the abdomen and its contents are liable, treating these conditions from the point of view of both physician and surgeon." This volume is unique in its plan and in the comprehensive and thorough manner in which the entire range of acute abdominal disorders is dealt with. The first chapter comprises a review of the essentially surgical features of the anatomy of the abdomen. In the next chapter are detailed the various steps in the investigation of acute abdominal cases. The significance of the various symptoms is clearly described. This chapter contains a number of admirable illustrations, such as one showing the areas of referred visceral pain, and the series portraying various forms of peristalsis. Chapter III describes the technique of laparotomy and its postoperative management. The authors believe that morphine has no place in the treatment of peritonitis and that this drug should be given in other acute abdominal lesions only when the decision to operate has already been reached or when one is certain that operation will not be required. The next chapter discusses the acute diseases of the peritoneum and omentum, such subjects being included as pneumococcal and gonococcal peritonitis, subhepatic, subphrenic, perirenal and perisplenic abscesses, acute pericolitis, abscess of the lesser sac, perigastric abscess, and diseases of the omentum, such as torsion and epiploitis. A most exhaustive and lucid exposition of the subject of intestinal obstruction is given in the one hundred pages which comprise Chapter V. Fourteen varieties of intestinal obstruction are described in detail. The next chapter deals with the stomach and duodenum. The large and small intestine form the heading of Chapter VII. Here are discovered intestinal diverticula, the various forms of colitis and enteritis, uremic ulceration, intestinal neuroses, idiopathic dilatation of the colon, and perforation of typhoid ulcers. Chapter VIII consists of full presentation of the subject of appendicitis. Of particular interest and value is the careful and exhaustive manner in which the differential diagnosis of this condition, on the one hand, and of a host of other acute abdominal diseases, on the other hand, is dealt with. The succeeding chapters discuss the liver and bile passages, the pancreas, the spleen and kidneys, the female genitalia, the vascular abdominal diseases, the complications of external hernia, abdominal injuries, and diseases which may simulate acute abdominal lesions. The careful perusal of the last chapter will repay every practitioner, who may be saved from some of the pitfalls of diagnosis that are of daily occurrence. Indeed, one may state without reserve that this book will be of inestimable value to the general practitioner no less than to the surgeon; in fact, more so, for it is the general practitioner who is the first to see the case of acute abdominal disease, and whose good judgment and prompt action are of such vital importance to the patient. The authors are to be commended for their profound knowledge of the subjects about which they write, and for their excellent literary style. Of particular value are the brief case reports which bring many of the topics concretely before the reader's eye. The excellent typography, paper, and binding are fully in keeping with the importance of this work.

John Barleycorn. By Jack London, Author of "The Call of the Wild," "The Abysmal Brute." "Smoke Bellew." "The Night-Born," etc. Illustrated by H. T. Dunn. Price $1.30 net. New York: The Century Company, 1913.

This is a remarkable human document. It is the autobiography of one, who, hating the taste of alcohol, nevertheless acquired a craving for it in a long battle with this insidious foe extending over a period of twenty years. It mirrors the adventurous life history of the author, who as newsboy, oyster-pirate, sailor, factory hand, coal-heaver, high-school and university student, newspaper and magazine writer, and finally as the successful novelist, was under the domination of "John Barleycorn," the lure of alcohol in its myriad phases. When no more than fifteen he learned the social attraction of the saloon, the clubroom of the workingman. It was only after the lapse of many years that John Barleycorn appeared to him in another light. He no longer drank for bravado or for camaraderie. He drank for the "kick" which alcohol gave him, for the mental stimulation which it produced, for its power to unlock the reserve forces of mind and body. The heroic part of the author's career came when in three years of intense study, with the robbing of sleep, he was transformed from the sailor with a common school education to the successful writer, who was publishing stories in the *Atlantic Monthly*. The author makes an eloquent plea for the control of the saloon evil, for it is this that makes alcohol so readily accessible, and because of its social associations, so alluring to the youth of the land. It is for the sake of them that he would control the sale of alcohol, just as the sale of strychnine is controlled, and just as China is stopping the traffic in opium. He has written a powerful indictment of alcohol, powerful because it is a personal confession, a penetrating insight into the physiological and psychological aspects of alcoholic indulgence, made by one whose miraculous physique and mental equipment enabled him to survive the onslaughts of, and adequately to size up, his foe. He would still continue to drink, however, "more skilfully, more discreetly, than ever before." He is therefore, not a prohibitionist, but an advocate of temperance.

Diseases of the Ear. By Philip D. Kerrison, M.D. Price $5.00. Philadelphia and London: J. B. Lippincott Company, 1913.

This new text-book comes as a significant addition to the notable advances in otology, crowded into the last decade. There are twenty-five chapters and three hundred and thirty-three, chiefly original illustrations. The first three chapters cover the anatomy and physiology of the sound-conducting apparatus; physical examination of the patient and functional examination of the Cocklear apparatus, with hearing tests, air conduction, and bone conduction of sound. Chapters on diseases of the external ear immediately follow. The most important features of the book, in the reviewer's estimation, are the chapters on the anatomy and physiology of the labyrinth. The chapters on the suppurative affections, eight in number, form the chief feature of the work: they will be read with retentive interest by the student of physiological acoustics, as also by the aural and general surgeon. There are two chapters on salvarsan and serumtherapy in aural disease, and others on dental lesions, deaf-mutism, and adenoids. It is very evident that aural surgery is no longer confined to the tympanum and mastoid, but includes the domain of the cochlea, labyrinth, and intracranium.

One excellent feature of the book is the plan of illustrating successive steps of important operations. The author has a clear, convincing, if also argumentative, style of writing which makes his methods easy to follow, quick to grasp. The reviewer notices very few references to the pioneers in aural work—Politzer of Vienna, Lucæ of Berlin, and Blake of Boston, while Gruber of Vienna and Roosa and Buck of New York are not mentioned.

Diseases of the Stomach Including Dietetic and Medicinal Treatment. By George Roe Lockwood, M.D., Professor of Clinical Medicine in the Columbia University; Attending Physician to Bellevue Hospital, New York. Illustrated with 126 engravings and 15 plates. Price $5.50. Philadelphia and New York: Lea & Febiger, 1913.

This is a very complete work on diseases of the stomach, and is based almost entirely on the author's personal experience. This gives to the volume a value and an individuality which will be much appreciated by the practitioner. Where the author's views and experience are at variance with those of other writers the fact is duly noted, full discussion of opposing opinions is given, but no attempt is made to reconcile contrary theories and figures. Throughout the book the reader is struck with the author's honesty of purpose, and a perusal of the various chapters confirms the conviction that to this volume the physician can safely turn for advice and guidance on any point in connection with diseases of the stomach. The subjects discussed are: Acute gastritis; chronic gastritis; cirrhosis of the stomach; acute and chronic ulcer; erosions and rare ulcers; cancer; sarcoma; benign tumors and foreign bodies; tuberculosis and syphilis; atony; acute dilatation; pyloric spasm and pyloric stenosis; congenital pyloric stenosis; hour-glass stomach; diaphragmatic hernia; eventration; volvulus; gastroptosis; hyperacidity; achylia; hypersecretion; neuroses, and various diseases and their gastric relations.

Hygiene and Sanitation. A Text-Book for Nurses. By George M. Price, M.D., Author of "A Hand-Book on Sanitation," "Tenement House Inspection," "Epitome of Hygiene and Public Health." Director Joint Board of Sanitary Control, Director of Investigation, New York State Factory Commission. Price $1.50 net. Philadelphia and New York: Lea & Febiger, 1913.

The author of this little book has performed a useful task in a most satisfactory manner. Most of the books on hygiene, written for nurses, try to cover too much ground, and at the same time leave some of the essentials untouched or insufficiently explained. This work avoids these faults, and should prove of value not only to nurses but also to the average lay reader. The book is well printed and handsomely bound.

A Text-Book of Midwifery for Students and Practitioners. By R. W. Johnstone, M.A., M.D., F.R.C.S., M.R.C.P.E., Assistant to the Professor of Midwifery in the University of Edinburgh; Physician Accoucheur, New Town Dispensary; Extern Assistant Physician, Royal Maternity Hospital; University Clinical Tutor in Gynecology, Royal Infirmary; Gynecologist, Livingstone Dispensary; Fellow of the Obstetrical Society of Edinburgh. Contains 264 illustrations. Price $3.25 net. New York: The MacMillan Company, 1913.

This is a small but very complete text-book of obstetrics. It is evidently intended for the junior student, and it certainly is an admirable introduction to the subject. It is concise, practical, fairly complete, and should be a popular book with medical students. The first section is on Anatomy and physiology; the second, on Physiology of pregnancy; the third, on Labor in the various presentations; the fourth, on Physiology of the puerperium; the fifth, on Pathology of pregnancy; the sixth, on Pathology of labor; the seventh, on Pathology of the puerperium; and the eighth on Operative obstetrics. There are numerous illustrations, most of them original, and all of value. The book gives the impression of being the work of one who is not only a master of his subject but also a practical teacher who knows what the student wants and knows also how to supply that want.

The Reduction of Domestic Flies. By Edward Halford Ross, M.R.C.S. England, L.R.C.P. London; of the John Howard McFadden Researches, the Lister Institute of Preventive Medicine, London; late of the Liverpool School of Tropical Medicine; and Sometime Health Officer, Port Said, the Suez Canal District, and Cairo; Author of "The Reduction of Domestic Mosquitoes," "The Prevention of Fever on the Suez Canal." With Illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This is a timely little volume on an important subject, and there are few households in which the information contained herein will not be welcome. There is no longer any doubt about the possibility of these insects being directly concerned in the spread of certain diseases; and the prevention of disease and discomfort appeals to all. The practical conclusions reached by the author are, that Fly-reduction (1) means a saving of life and therefore of money; (2) reduces sickness, sorrow, and misery; (3) results in the riddance of a pest; (4) entails better sanitary inspection; (5) improves our knowledge of certain diseases; (6) and all this can be done at a small cost. The book is well printed in large type, and is amply illustrated.

Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1912. Philadelphia and London: W. B. Saunders Co., 1913.

This is the sixth volume by the staff of the Mayo clinic, and contains articles written and presented for publication to the various medical journals during the year 1912. Almost all fields of surgery are touched upon and the most modern theories and technique discussed. There are fourteen papers on the alimentary canal, including ones on gastric ulcer, jejunostomy and radical operation for carcinoma of the rectum, three papers on hernia, 15 on urogenital organs, 10 on ductless glands, 7 on the head, spinal column, thorax and extremities, besides miscellaneous papers on technique and general subjects. The topics range from laboratory investigations such as the glycyltryptophan splitting agent in human saliva, to practical surgery such as involvement of regional lymph glands in carcinoma of the stomach.

Several well illustrated articles are written by William J. Mayo, including jejunostomy, the operative results in carcinoma of the gastrointestinal tract, radical operation for carcinoma of the rectum, prolapse of the uterus and walls of the vagina, nephrectomy without drainage, etc. Papers are also written by Chas. S. Mayo on surgery of single and horseshoe kidney, surgical importance of the thymus, posterior gastrojejunostomy, etc.

The book is well illustrated, excellent references to literature are appended to almost all articles and the publication is one the surgeon cannot afford not to read.

Massage, Manual Treatment, Remedial Movements, History, Mode of Application, and Effects; Indications and Counter Indications. By Douglas Graham, M.D., Consultant and Instructor in Massage, Boston, Mass.; Member of the American Association for the Advancement of Sciences of the American Medical Association, the Massachusetts Medical Society, etc.; with a Chapter on the Massage of the Eye by Dr. A. Darier, Paris, formerly President of the Ophthalmological Society of Paris, Chevalier of the Legion of Honor, etc. Fourth Edition, Revised and Enlarged, with 75 Illustrations. Philadelphia and London: J. B. Lippincott Co., 1913.

This book is largely a record of the experiences of the author, combined with that of the best writers and practitioners of massage both here and abroad. It partakes of the nature of a text-book and a reference book at one and the same time. There are forty interesting pages on the history of massage. The book is written from the standpoint of the physician and practical masseur.

Its range of usefulness is increasing all the time and has long since extended into every special and general branch of medicine. The effects of massage in fractures and upon the opsonic index are surprising. The chapters deal in a bright and spirited manner with the mode of applying massage, its physiological effects on the skin, muscles, circulation; influence of baths, massage and exercise on the blood pressure; effects of massage on the number and hemoglobin content of the R. B. C. on the flow of lymph, upon the secretions of the glands, upon the nervous system; massage of in neurasthenia and anemia of women, local massage for local neurasthenia, massage of internal organs, uterus, and surroundings, with report of 239 cases; relative value of massage, exercise, and baths in the treatment of heart affections; effects of massage on internal organs, upon simple chronic hyperemia of the liver, upon atony of the stomach and intestines, in chronic diarrhea, etc.; massage in the affections of the central nervous system, massage and movements in hemiplegia in infantile paralysis; in locomotor ataxia in progressive muscular atrophy, in chorea, risks of massage in diseases of the central nervous system, etc.; massage in Raynaud's disease, angina pectoris and arteriosclerosis; massage in writers' cramp and allied affections; in lateral curvature of the spine, flat foot; treatment of spring and synovitis by massage with report of over 1900 cases, recovery in one-third of the usual time in other methods of treatment. There are various chapters dealing with many phases of this interesting subject.

Le Mal de Tête, Les différentes formes, Nature, Diagnostic et Traitement par le Docteur Siegmund Auerbach. Traduction française par le Dr. A. Françon, d'Aix-les-Bains. Price 3.50 fr. Paris: Vigot Frères, 1913.

Of original ideas the result of clinical experience of Dr. Auerbach, this book is claimed to have profited by translation. After a short treatise on the anatomy of the brain there follow successively studies of migraine, rheumatic headache, etc. Chronic intoxications and constitutional diseases are given their place in the discussions.

Vaccine and Serum Therapy, Including also a Study of Infections, Theories of Immunity, Specific Diagnosis and Chemotherapy. By Edwin Henry Schorer, B.S., M.D., Dr.P.H., Assistant Rockefeller Institute for Medical Research, New York City. Second Revised Edition. Price $3.00. St. Louis: C. V. Mosby Company, 1913.

The first edition of this work was published four years ago and in that time the necessity for revision has been so great that the book has been practically rewritten for its second edition. In its present form it is a very complete and exhaustive work. There is a clear discussion of the principles of immunity and a very complete chapter on specific diagnosis. The section of specific therapy is naturally the main portion of the book and in it the author does not hesitate to say exactly what he thinks. The reader is warned against the reckless use of various proprietary preparations and the author's views are sane and rational. A brief appendix presents the subject of chemotherapy in syphilis and malaria. It is quite surprising to see his statement that "a mother free from syphilis on bearing a syphilitic child becomes immune." In view of present diagnostic methods it is more probable that she is also infected. The press work is excellent. The book can be highly recommended.

Society Reports.

MEDICAL ASSOCIATION OF THE SOUTHWEST.

Eighth Annual Meeting, Held at Kansas City, Mo., October 7 and 8, 1913.

THE PRESIDENT, DR. W. T. WOOTON, HOT SPRINGS, ARK., IN THE CHAIR.

Prophylaxis of Syphilis and Professional Ethics.—DR. ALFRED SCHALEK of Omaha said that syphilis must be attacked in two directions: in its relation to society and to the individual. Syphilis was contracted directly by sexual contact and indirectly through a virus carrier. Sexual functions were indulged in legitimately in marriage and promiscuously outside of it. Prostitution contributed the greatest factor in spreading infection. It was only a question of time before every prostitute became diseased. The problem how to deal with prostitution was not solved. Official regulation had proven a failure wherever attempted. Absolute suppression was the only relief. While seemingly a Utopian dream, it was feasible with the honest co-operation of everybody concerned. It could not be achieved by the closing of the bawdy houses alone. It necessitated measures to stop all other sources leading to prostitution, such as strict enforcement of the white slavery laws, and the protection of the poor. When the time came that syphilis was looked upon only as a pathological condition, in no way different from others, when its stigma of disrepute had been removed, when our therapy would destroy the microorganisms and eliminate their toxins and not only secure a symptomatic but a real cure, our ambition to make syphilis a disease of the past would be realized.

DR. WILLIAM FRICK of Kansas City, Mo., emphasized the fact that a great many cases of syphilis were innocently contracted. He recalled the case of a young woman, who developed a chancre on the upper lip. How it occurred was a mystery for some time. It was finally learned that she was having her teeth repaired, but this particular dentist was not clean about his instruments, and during the time of repair of the teeth injury was done to the upper lip, and in about the proper length of time a chancre developed. She had a secondary eruption, not knowing what it was. This was one phase of the subject that deserved great stress. He had seen quite a number of such cases.

Dr. J. D. KERNODLE of Boyle, Okla., believed ignorance was at the bottom of the trouble. There was not a boy or girl who did not know right from wrong, but they did not know the tremendous consequences following a wrong. They needed education along these lines.

Dr. E. H. MARTIN of Hot Springs, Ark., said if every house of prostitution was raided and the inmates all treated regardless of symptoms, there would be less danger than now. If we admitted we could cure syphilis, we would admit that the best method was prophylaxis. He stood almost alone in believing from observation and practical experience that salvarsan would cure syphilis. He had had more than fourteen cases of reinfection after having treated cases with salvarsan. He had one patient who had had three primary lesions in eighteen months. His method was to give one dose of salvarsan in proportion to the patient's weight every week until there was absolutely no reaction from the dose. In the secondary stage, after the chancre colony was broken up, and the organisms were expelled, after the chancre had softened, the average number of doses was three, given ten days apart.

Dr. R. H. T. MANN of Texarkana, Tex., asked if it was possible to eradicate syphilis from America. It was, and that such a thing could be done and done only when the medical profession awakened to its full responsibility and got the assistance of various communities and state governments. Whether this task could be performed in this generation, or whether it would fall upon future generations to drive syphilis out of America, depended wholly upon the activities of the physicians now living, but it was a task that could be accomplished. The medical profession owed it to humanity to eradicate syphilis from this country.

Dr. E. G. MARK of Kansas City, Mo., stated that in the prevention of venereal disease we must take the stand as physicians that prostitution could not be eradicated. It was the oldest profession in the world. You could not eradicate it, but you could segregate and control it. It had been brought to our attention in the last few weeks that Minneapolis, Chicago and other cities had eradicated prostitution, but the facts were it was not so. With proper segregation, proper inspection, venereal diseases could almost be eradicated; but prostitution could never be suppressed.

Dr. ROSS GROSSHART of Tulsa, Okla., said that in doing away with the segregation of prostitutes these were driven into various districts and were living in the midst of respectable people. Venereal diseases and their dangers should be taught to the pupils of high schools, and when this was done sexual evils would be lessened and much done toward the wiping out of syphilis.

Dr. SCHALEK, in closing, said he did not agree with Dr. Mark regarding the suppression of prostitution. Fifteen years ago he read a paper in which he stated that the suppression of prostitution was impossible, but he did not believe it now. He believed it was possible to wipe out prostitution. Most women were driven to prostitution; others wanted to lead a lazy life; they wanted to enjoy luxury, but these were few in number as compared with those who were driven to it for money.

The Operative Treatment of Glaucoma.—DR. R. H. T. MANN of Texarkana, Tex., said that the conjunctival flap should be made large. Care should be taken not to let the trephine enter the eye too far back. Should the piece which had been removed with the trephine fall into the anterior chamber, this could either be removed or left in the anterior chamber, as it did no harm when it was left in the anterior chamber. It seemed with a permanent opening in the eye, that infection might take place, but so far as the records went there was no danger of this. He did not believe that any one of the operations for glaucoma would be the operation permanently adopted for the cure of chronic glaucoma. He felt sure, however, that the operation finally adopted would be an operation which produced a filtering cicatrix, and until a better operation was devised, the Elliott operation should be the one adopted in chronic glaucoma.

Dr. C. L. WILLIAMS of Topeka, Kan., said as to this trephining operation for chronic glaucoma, the consensus of opinion was in making an opening through to include a portion of the sclera and a portion of the iris, going down through the cornea and corneoscleral incision, and by a mixture of the different formations of tissues permanent drainage would be established, thus relieving tension. However, we had not sufficient data at present to know the permanent value of this operation in chronic glaucoma.

DR. J. ELLIS JENNINGS of St. Louis, Mo., said he had had a set of these trephines sent to him from London and had done four or five of these operations recently. He had had one case of late of a very rapidly advancing chronic glaucoma in which he did the LeGrange operation and removed quite a bit of the sclera, and that case had turned out beautifully. He had to use eserin in that eye for several months, but since that time no eserin had been used. The tension was fine and the sight had improved. This trephining operation was very delicate, but one from which we could hope for very beneficial results.

Dr. JOSEPH S. LICHTENBERG of Kansas City, Mo., said glaucoma was not a disease, but a symptom, and since we did not know what glaucoma was, all this work was, more or less, done from the standpoint of treatment of the symptoms, and not from a clinical point of view. The operation of trephining was simple and efficacious.

Tumor of the Nasopharnyx.—Dr. C. L. WILLIAMS of Topeka, Kan., said the points of interest he desired to emphasize were: 1—Persistent growth in the nasopharnyx, with a tendency to occur when removed. 2—Frequent hemorrhages difficult to control and threatening the life of the patient. 3—The difficulty in arriving at the true pathology of this tumor.

Dr. JOSEPH C. BECK of Chicago, Ill., said the tumor was undoubtedly a small spindle cell sarcoma. These growths arose from the posterior naris in the region of the ostium tubæ and extended to the postnasal space and also into the nose. The literature was teeming with reports of these cases, so there was nothing to be said in regard to that. The method of removal of these tumors was that of Pynchon, of Chicago. When the doctor removed the adenoids, if he had made an examination it would have shown the sarcomatous nature of the tumor.

Dr. W. T. BLACK of St. Louis, Mo., said it looked very much like a small spindle cell sarcoma. The fact that the doctor was able to shell it out so easily was another indication that it was a sarcoma. We knew that fibroma of the nasopharynx was a difficult tumor to remove.

Dr. R. H. T. MANN of Texarkana, Tex., said that a good many years ago he operated on five or six of these tumors in one year. One tumor was a very large fibroma. If one knew he was going to have a severe hemorrhage, it

was best to ligate the external carotid artery on the side on which the tumor was situated. If this was done before the operation, one would have little or no trouble from hemorrhage.

Dr. M. F. Jarrett of Fort Scott, Kan., said he had one of these cases at his office the day before; he had been treating the patient for three or four months. It was probably six months since he removed the last adenoid tissue. He did not examine the tissue under the microscope, but supposed it was the adenoid tissue. The patient was 35 years of age. The growth had returned slowly. The slowness of the growth led him to think it was malignant.

The Complete Removal of the Tonsil in Its Capsule (Sluder Method) by Means of a New Tonsillotome.—Dr. J. Ellis Jennings of St. Louis, Mo., said that Sluder had described a method of removing the tonsil in its capsule complete by means of the guillotine or tonsillotome. The essential and distinctive feature of this method was removing the tonsil completely out of its normal bed and upwards onto the eminence of the lower jaw produced by the last molar tooth, and the utilization of this prominence in putting the tonsil through the aperture of the guillotine. For this operation a tonsillotome of great strength and leverage power was essential. Dr. Sluder used a Mackenzie guillotine which he had modified by doubling the thickness of the shaft, shortening its length and making the handle longer. The blade was driven home by pressure with the thumb. He had resigned an instrument for this operation with a ring knife to cut on the pull. The instruments necessary for the operation were the tonsillotome, the mouth gag, tongue depressor, several sponge forceps, and tonsil hemostat.

The Tonsil, with Especial Reference to the Sluder-Ballenger Operation.—Dr. Eugene Dixon of Oklahoma City, said the Sluder-Ballenger operation could be done with either local or general anesthesia; personally he preferred the latter, and would only mention the local in a way of warning against the too concentrated adrenalin solution, as many sudden deaths were being reported from tonsillectomies by its use, but it was safe with the weaker solution and just as effective in controlling hemorrhage. In this operation above all others, it was essential to have a competent anesthetist, one who knew at all times just in what stage of anesthesia his patient was, as it was very important not to begin the operation until the patient was thoroughly anesthetized and to have given one two-hundredth grain of atropine sulphate one-half hour before the anesthetic was started. Following the Sluder method of removal of tonsils, there was less trauma, and consequently less cicatricial tissue. If one examined his cases three months after operation he would not find both pillars bound together, obliterating the sinus tonsilaris, nor would he find contractions and shortening of the muscles interfering with the action of the throat and soft palate, thus impairing the singing voice. If those who insisted upon using the angular knife and snare would follow their cases up for several months and make a record of the condition of each throat they would soon be convinced.

Surgical Treatment of Tonsillitis.—Dr. T. L. Higginbotham of Liberal, Kan., said that tonsillitis was just as much a surgical disease as was appendicitis, a carbuncle, an osteomyelitis or a blind infected eye, and should receive the same determined and energetic treatment as the conditions named, and just as early, that the dangerous complications might be prevented. Since November, 1909, he had operated upon 142 cases of tonsillitis, in all stages of inflammation from the onset to bilateral quinsy, and with the results obtained he felt perfectly free to condemn methods that were inefficient and deceptive. With the vast number of men doing the perfected enucleating operation, this method of treatment could be extended to the most remote rural districts, just as was emergency surgery in other lines.

Dr. A. E. Hertzler of Kansas City, Mo., said he had not found a general practitioner yet who was not enthusiastically in favor of removing the tonsils soon after the beginning of the disease. He had been skeptical as to the correctness of the reports regarding the sudden dropping of the temperature and rapid convalescence. It would seem that the laryngologist had been behind the general surgeon in recognizing the acute lymphatic inflammations in this region as a proposition for prompt and radical surgery. He had a number of specimens of these acute tonsils, and it was exceedingly interesting to lay them side by side with acute appendices removed in the early stages of appendicitis.

Dr. Joseph C. Beck of Chicago, Ill., said that with his tonsillotome Dr. Jennings removed, but did not cut the tonsil. In a paper he had described the method of using Mathieu's tonsillotome, and the technic did not vary one particle, so far as the use of the instrument was concerned from that described by Dr. Jennings. He did not agree with Dr. Hertzler. The anatomical structure of the tonsil was different from that of the appendix; it did not matter at what time one operated on the tonsil, but it did on the appendix.

Dr. E. M. Sevdell of Wichita, Kan., said in a few instances he had removed acutely diseased tonsils. Patients had come to him and wanted the work done at once, and he had taken the chances of removing their tonsils, but at times had felt sorry he had taken these chances for fear of Ludwig's angina developing.

Dr. D. L. Shumate of Kansas City, Mo., had operated on acute tonsillar cases when they came to him from the outside and had not seen any bad effects follow. In removing tonsils if one removed all tonsillar tissue, one would have good results no matter what method one adopted.

Dr. F. B. Tiffany of Kansas City, Mo., said he had had the privilege of studying with Lennox Browne and Morell Mackenzie many years ago, and they never hesitated to operate when the tonsils were acutely inflamed. That had been his practice and he had not seen any bad results from it.

Dr. J. F. Shelley of Elmdale, Kan., said he had been in practice for twenty years and had hesitated to remove tonsils when they were acutely inflamed and when there was slight catarrh of the mucous membrane. In removing the tonsils when they were acutely inflamed one opened the raw surfaces for infection that came from surrounding tissues, and furnished a good basis for a damage suit. He would not do it under any circumstances.

Dr. C. L. Williams of Topeka, Kan., said it had been his practice in the past two or three years to watch the effect of operating in acute tonsillitis, or when patients were getting over the attack, and he was firmly convinced that if one operated on an acute case the wound would take longer to heal and the patient would be kept away from his work longer.

Dr. William E. Jones of Oklahoma City, Okla., said that at first he had some fear in operating on acute cases of tonsillitis, but with increased experience that fear had passed away. While the symptoms in a few cases were alarming from operating on acute cases of tonsillitis, they soon subsided.

Dr. J. H. Barnes of Enid, Okla., said he had seen Sluder do the operation, and in 10 per cent. of the cases he failed in getting the tonsils out. Ten years ago, when he first described the operation, he failed in one-third of the cases in children to remove the tonsils entirely.

Dr. W. T. Black of St. Louis, Mo., said he had the pleasure of seeing Dr. Sluder operate at different times, and he removed the tonsils intact in 28 per cent. of the cases.

Dr. D. D. McHenry of Oklahoma City, Okla., had never used the Sluder method; it might be all right but he had been having success with the old methods of removing the tonsils. Any method by which one could remove all of the tonsil would be followed by success.

Surgical Constipation.—Dr. A. L. Blesh of Oklahoma City, Okla., said that aside from various stenoses, congenital or acquired, constipation had principally to do with the colon, or (to better express his meaning) the colon had most to do with constipation. Coprostasis was the *fons et origo* of a train of pathological sequences ranging from the misnamed "biliousness" to true organic nephritis and other organic degenerations which had long been treated as entities. The field of so-called idiopathic or purely functional constipation was becoming more and more circumscribed, and more and more we were coming to realize that mechanical interference was at the bottom of the condition. These mechanical causative factors frequently consisted in embryological deviations having their origin in evolutionary processes, i.e., reversions to some remote ancestral type. Many of these deviations existed without symptoms being fully compensated in one or more of the several ways. They might exist symptomless for a time and then be brought to the surface by some grave physical crisis, such as reducing illness, and especially so by labor, in which hitherto compensating elasticity of a tense abdominal wall was lost by overstretching. That compensation, when it consisted in muscular overdevelopment of the colon itself, might be lost, as was the case with any other overmuscularization of a hollow viscus.

He had anchored the colon in eight cases, with complete relief of constipation and sequences in four, partial relief in two, and no improvement in two: ileosigmoidostomy with separation of ileum was performed in five cases, of

which three were completely relieved and two were unimproved. Cecosigmoidostomy two, completely relieved two. Lane short-circuiting, severing of the ileum with implantation low in the sigmoid, in three; all were much improved, but all had had attacks due to regurgitation mentioned above. This work covered the periods comprised between the dates of November 1, 1912, to August 1, 1913.

Operative Treatment of Constipation.—Dr. W. J. Frick of Kansas City, Mo., stated that the operative treatment of constipation was indicated when some degree of organic obstruction of the intestine existed. He was not an advocate of surgical interference in this condition except after all efforts at a medical cure had failed, and the patient was threatened with a permanent invalidism. Undoubtedly there were intraabdominal and intrapelvic conditions, purely surgical in nature, which were clearly responsible for the constipation. He referred to the recently much talked of developmental bands, membranes, adhesions, etc., with the resulting kinks in the intestinal tube, tumors in the intestinal wall, tumors of other abdominal and pelvic organs, and displaced viscera, many of which might be the direct or indirect cause of constipation by inhibiting in some degrees the normal peristalsis of the gut. Such cases were clearly operative, as there was no other method of dealing successfully with the primary cause of the trouble. Concerning the bands, membranes, adhesions and kinks as described by Treves, Jonnesco, Jackson, Lane, and others, we could not yet be certain whether they were the cause or the result of constipation. According to the available evidence, it would seem that they were the cause rather than the result, since the most recent researches appeared to support the theory that they were developmental in origin rather than the result of inflammatory processes. But that they might bear neither causal nor resultant relationship to constipation was shown by the clinical experience of competent observers. Certainly much improvement followed the division of these structures in some cases; just as certainly this treatment had given not the slightest benefit in other cases. Another of the causes of constipation was the result of chronic pelvic peritonitis. He had in mind the fixation of the pelvic colon to the pelvic floor or to the rectum. Tuttle recommended in this condition division of the adhesions and, if necessary, the fixation of the pelvic colon to the abdominal wall to prevent a recurrence of the angulation of the gut. In a series of fifteen operations of this kind he declared there was no case in which bowel movements were not free and comfortable after operation. In this series the operation was not always done solely for constipation; however, all of the patients operated for no other reason than constipation were completely relieved. Some fibroids of the uterus, retrodisplacements of the uterus, and tense cysts were capable of exerting such pressure upon the pelvic colon as to cause difficult, painful, and inefficient deflection. After removal of the tumor, or correction of the displacement, these patients recovered from their constipation. Among other short-circuiting operations was one done for exclusion of the splenic flexure, that is, anastomosis between the ascending limb of the transverse colon and the descending colon. Gant successfully established an anastomosis between the pelvic colon and the rectum after a division of the adhesions and fixation of the prolapsed pelvic colon to the anterior abdominal wall had failed. Mr. Lane was very enthusiastic about the more radical operation colectomy. It was safe to say that this operation relieved all the trouble that might have existed in the colon; however, the removal of the colon was a formidable operation and was not without danger even in the hands of such a great abdominal surgeon as Mr. Lane. It was not an operation for one who had not had a large experience in abdominal surgery. It must ever be borne in mind that all short-circuiting operations of whatever type were contraindicated in cases in which the cause of the trouble lay distal to the lower portion of the pelvic colon. In such cases ileosigmoidostomy could not relieve, but on the contrary might even aggravate the trouble.

Hookworm in the Middle States.—Dr. Estill D. Holland of Hot Springs, Ark., said the treatment of hookworm was not as simple, safe or satisfactory as one might have been led to believe, but if one could start treating a patient who had had two hundred hookworms and even get half of them with each course of thymol, it would not be long before he would either be cured or else have so few remaining that they would not cause him any inconvenience—providing he didn't get a reinfection. Any physician who made more or less of a specialty of digestive troubles, as he did, or who treated digestive troubles in the course of his general practice, would find that the examination of the stools of his patients would explain a great many of his chronic cases. There was no way to diagnose a moderately severe case of hookworm except by examining the stool, and if a patient had the disease it would practically always show on such an examination.

Prolapse of the Uterus and Bladder.—Dr. J. T. Antell of Newton, Kan., stated that: (1) The old cystocele operation should be discarded. (2) Replacement of the uterus alone was not satisfactory. (3) Hysterectomy alone was worse than useless. (4) The Watkins-Wertheim operation was good and satisfactory in most cases. (5) Where there was great atrophy or disease of the uterus calling for its removal, or in most severe cases the Mayo or Montgomery operation was better. (6) Vaginectomy gave excellent results where it was not objectionable.

The High Short Incision for Cesarean Section.—Dr. H. S. Crossen of St. Louis, Mo., said the high short incision in suitable cases had two distinct advantages. First, there was less extensive handling of peritoneal surfaces—hence less peritoneal shock and less danger of infection from handling. Second, the incised uterus dropped away from the abdominal wall, thus preventing adhesion and firm fixation of the incised uterus to the abdominal wall, which had proven a serious matter in some cases operated on by the usual incision. The dropping away of the incised uterus from the abdominal wound was well shown in this case. The abdomen was everywhere resonant down to the pubic bone, showing that the uterus had entirely dropped away from the incision and that the intestines occupied all this region as in the normal condition. On deep palpation, the fundus uteri was felt in the pelvis. Of course the high incision was suitable only for clean cases, where it was permissible to open the uterus within the peritoneal cavity. When the uterus was infected, the long incision should be used so that the uterus might be turned out before being opened. Again, when there was a probability that the uterus would have to be removed, on account of a tumor or other complication, the low incision should be employed. For example, in one of his cases, the indication for the Cesarean section was a fibroid blocking the pelvis and there was a strong probability that hysterectomy would be necessary. He made the usual hysterectomy incision, opened the uterus *in situ*, delivered the child and then brought the uterus outside of the cavity. A careful examination was then made to determine if myomectomy were practicable. Finding that it was not, the uterus was at once removed by supravaginal hysterectomy. Such a case, though clean, was not suitable for the high incision. But in the majority of clean cases requiring Cesarean section, the high incision would be found decidedly advantageous.

A Study of Epilepsy Based on One Thousand Admissions to the Kansas State Hospital for Epileptics.—Dr. M. L. Perry of Parsons, Kan., said to be effective, systematic treatment should be begun early in the course of the disease and must be long continued. There were few cases in which individual treatment was so important. Every case of epilepsy presented distinctive features which had a bearing on its proper and scientific handling. A very large number of patients would show temporary improvement under a change of treatment. In all head injuries a careful examination should be made for fractures of the skull and for evidence of depressed bone or meningeal hemorrhage. Any of these conditions called for immediate operation as a prophylactic measure. All cases of Jacksonian epilepsy should be operated on if seen early. In long standing cases due to cortical irritation, and in chronic epilepsy from other causes, little might be expected from intracranial surgery. As a routine measure a search should be made for peripheral irritations to the nervous system and if any were found appropriate remedies, either surgical or medical, should be instituted for their relief. The attention should not be too strongly concentrated on merely checking the convulsive attacks, but it should be borne in mind that they were only symptoms of a general nervous disease. There was no drug which of itself would effect a cure. Of all the drugs used in the treatment of epilepsy the bromide preparations were the most effective. The bromide of sodium was the most satisfactory as a usual thing. There was no advantage to be gained by combining a number of bromides. Comparatively small doses of bromides usually yielded better results on the disease as a whole than did large ones. Bromides should never be given except in proper doses determined for the individual case and where the patient was under the frequent observation of a physician. He was convinced that most of the

disrepute into which the bromides had fallen in recent years was directly due to their indiscriminate and unscientific administration. Any form of medical treatment would be limited in its effectiveness unless reinforced by hygienic and dietetic regulations.

The Surgery of Jackson's (Jonnesco's) Membrane, Naturally a Normal Ligament, Mechanically Considered.—Dr. JOHN E. SUMMERS of Omaha, Neb., said that most of the cases he had observed where abdominal symptoms were dependent upon defective or excessive development of the bowel in a so-called Jackson membrane, were in people over thirty years of age, and in several they had been between fifty and sixty years of age. The intestinal wall lost its tone just as the bladder might lose its tone from the various causes that produced it. Therefore, two lines of procedure might be required for the relief of intestinal stasis and the accompanying symptoms—the *one* to release the bowel so as to permit of freer function, the *other* to support the bowel, thereby increasing its muscular tone. Further experience had convinced him that the so-called "white line," which he believed to be the line of fusion of the colonic peritoneum with the parietal peritoneum after the rotation of the colon had been completed, was always demonstrable whenever the pericolic membrane could be shown, and it was the line of attachment of the pericolic membrane to the parietal peritoneum. It was demonstrated by rotating the attached hollow viscus in a direction continuous with the course of the blood vessels and fibers of the membrane. He had called this "white line" the *ligamentary attachment* of the pericolic membrane to the parietal peritoneum or to the peritoneal investment of a solid viscus. Usually, when it might be deemed best to release the intestine from the investment of this ligamentary support,—the pericolic membrane,—it should be divided along its loosest line of attachment; however, greater mobility might be obtained in some instances by dividing the membrane at its base,—the "white line" when this line is short, as it frequently was in the hepatic region and in the sigmoid region, the raw space left by the division of the line in the direction with its course, could be closed by sutering at a right angle to the line of division. If the "white line" was a long one, as was sometimes the case in an extensive membrane enveloping the ascending colon, this was not practicable. When, in addition to the presence of a Jackson membrane, there was a marked ptosis of the hollow viscera, particularly the cecum and transverse colon, the membrane should not be divided, but some of the methods advocated by Coffey and Connell were indicated. He had found, however, in women, that a properly fitted, front-laced, straight front corset would relieve many of the symptoms that depended upon these ptoses, provided proper habits of life were observed.

Gastric and Duodenal Ulcer.—Dr. FRED H. CLARK of El Reno, Okla., said gastric and duodenal ulcer might be roughly considered as a circumscribed loss of tissue on the inner wall of the stomach or duodenum beginning with the mucous membranes and extending in depth through the various layers of the stomach wall. They might be roughly divided into two general classes, viz: acute and chronic. While other and more delicate classifications might be made, these would suffice for a brief paper. As to the causes bringing about this condition, much had been written by various authors, and the purpose of the writer would be to consider this subject rather as a clinical study than a theoretical one, so he would consider, first, the cause of an acute ulcer as some hypertoxicity or poisoning or some direct bruise, such as a fall, the patient striking with force over the region of the stomach, which might cause the sudden destruction of the tissues; and, secondly, as the cause of a chronic ulcer a lowered vitality of the tissues causing them to become weakened so that either they broke down or became so softened that they were digested by the ordinary processes of stomach digestion. Mention had been made recently of the fact that this condition might be expected more frequently in the Spring and Fall than at any other time of the year. Probably more than 90 per cent. of patients suffering with gastric ulcer sought the physician for relief from what they termed indigestion. This was true especially in one of the cases he cited. This was caused by the fact that one of the earliest, if *not* the earliest symptom of gastric ulcer, was a sence of fullness in the stomach after eating. Another symptom often complained of was the desire to partake of food more frequently than usual and more or less pain when the stomach was entirely empty. One writer had described this condition by saying that many of these patients when presenting themselves for examination would be found to have a cracker in their pocket, so they could have something to eat whenever they began to feel this discomfort when they described as a gnawing sensation in the stomach. The writer mentioned, said that when that condition was met with one might always make a positive diagnosis of gastric ulcer without further examination. These were the early symptoms of what was usually termed a latent ulcer and which might go on for years or which might bring on at any time a crisis which would call for heroic treatment. Hyperchlorhydria was nearly always present in this condition also. The one symptom which should always be considered serious, especially in chronic ulcer, was the presence of blood, either in the vomitus, in the water, if lavage was practiced, or in the stools, the latter could oftentimes be found only by careful microscopical examination. With the positive diagnosis at hand what should we say of the treatment? He quoted the opinion of the largest number of men, and with which he coincided, that the acute form of either gastric or duodenal ulcer called for medical treatment if we would avoid complications which might be briefly summarized as early hemorrhage so severe as to be fatal, adhesions which caused great discomfort and more or less danger; the complete closure of the pylorus from cicatrization, an abscess with a fistulous opening and cancer which seemed practically to always have, or at least in a very large majority of instances to have, an ulcer for its starting point. Surgery, if done early, offered excellent results for this condition in the large majority of cases.

Acute Nephritis in Children, with Special Reference to Etiology and Treatment.—Dr. H. M. MCCLANAHAN of Omaha, Neb., stated that his personal observation was based upon twenty-one cases of nephritis in children ranging in age from two to twelve years, all except one having been treated in the home. All of these cases had been under his observation within the last five years. In all but three nephritis occurred as a complication of some acute infection. Five followed scarlet fever, five as a result of grip, three an attack of tonsillitis, one within a week after diphtheria, one after chicken-pox, one in the course of a severe enterocolitis, one after measles, and one occurred in a child recovering from general furunculosis. In the other three there was no history of any preceding acute infection. He was not able to secure in any of these any evidence of suppuration in any part of the body. Two of these came to his office because of the dropsy. The other one he saw at the home, the mother calling him because she noticed a peculiar shortness of the breath. In this case he suspected a pre-existing scarlet, but found no clinical proof. It was a reasonable inference that acute nephritis was usually induced as a result of some general infection. It seemed probable, therefore, that some toxin circulating in the blood acted as the exciting cause. Of the twenty-one cases, three had died; eighteen recovered; two died with uremic symptoms, and the other one apparently from heart failure.

Pseudomembranous Angina of the Nose and Throat.—Dr. HUGH B. CAFFEY of Pittsburgh, Kan., stated that (1) pseudo-membranous angina or Vincent's angina affecting the nose and throat resulted from an infection with the fusiform bacillus, developed a membrane, and presented clinical symptoms resembling those of diphtheria which could be positively diagnosticated only by the microscropic examination of a smear taken from the seat of the disease. (2) The ordinary cultural tests would always fail to show the fusiform bacilli, hence the necessity of examining the fresh smear taken from the patient's nose or throat. (3) The disease was not limited to the tonsils and mouth, but might affect the nose independently of any other infection.

The Use of Pig Skin in Extensive Grafts.—Dr. C. S. VENABLE of San Antonio, Tex., pointed out the value of pig skin for grafts where large surfaces were to be covered. A young pig from two to six months old was selected, as at about that time the tissues were at their heighth of cell metabolism; and etherized. The site from which the grafts were to be taken, preferably the rump, was shaved and cleansed with soap and water, using friction with a rag, instead of a brush, as this did not contuse the epidermis. Strong antiseptics were to be avoided, as their use interfered with cell growth and in their stead he sponged the area with gasolene, and finally with 50 per cent. alcohol, or a 1-2000 solution of bichloride of mercury; none of these coagulated albumin, which was the reason for their selection. The field was now surrounded by sterile drapery, maintaining the same surgical cleanliness as though a laparatomy were to be done. To remove the graft the skin was put on the stretch with hooks or clamps in the direction in which it was to be slided, and with a thin bladed razor folded on its handle by a sawing movement, strips of epidermis were cut of

the desired length and width after the manner of Thiersch. These strips were now carried on the blade to the area to be grafted and transferred by holding two fixed points with needles to the denuded area while gently withdrawing the blade which left the graft evenly spread, when any irregularities were teased out with the needles, avoiding at all times touching the graft with the fingers or handling in any way. When sufficient grafts had been applied the rubber impregnated open mesh of Davis or a freshly prepared parafin mesh was placed over them and held by adhesive beyond the edges and by multiple interrupted sutures throughout the area. This was covered with a simple dry gauze dressing, which was to be changed as often as soiled by excreted fluids. If this dressing was only four to six thicknesses of gauze it would be found that the excretions were less and the area remained dry better than should a heavier dressing be applied which more effectually excluded free access of air. About the third to the sixth day the sloughing superficial epidermis was to be gently clipped away and the area exposed to the sun for half an hour or so two or three times daily. The mesh splint was removed in ten or twelve days, and thereafter the site freely exposed for as much of the time as practical. The superficial layers of squamous epithelium were going to die and slough as in any graft, so one should not be discouraged at about the fifth to the eighth day when disappointment seemed certain, as in a few more days this would change to first a creamy white surface and then a healthy pink, and it would be found that the grafts had taken. He would mention here, lest one be deterred through fear of the patient becoming part swine, that this was not a source of such acquirement; the pigment soon disappeared and no bristles were grown, as the grafts were cut above the hair follicles. However, should such an unforseen catastrophe as the advent of bristles obtain, the prognosis even then was good, as the follicles would atrophy in a very short time. He had practised this method as one of election since 1905, and had found that he was able to attain from 85 to 100 per cent. of takes as against 50 to 75 per cent. of takes by using heterografts or other zoo-grafts.

The Preparation of Surgical Patients and Operating Room Technique.—Dr. Merrill K. Lindsay of Topeka, Kan., stated that on the morning of operation tea or coffee or wine and water might be given not later than two hours prior to the anesthetic, unless the upper alimentary tract was the field of operation. Cathartics should be dispensed with two days before operation. The reason for this is that the bacterial content of the bowel was increased in direct proportion to the fluid nature of the contents and the absorption was increased by removal of the protecting mucus. Lavage of the lower bowel with either warm water or soapsuds, or if this was not sufficient, soapsuds and glycerine or soapsuds and turpentine (soapsuds 8, turpentine 2) would remove the contents. This could be given on the evening preceding and the morning of operation. Stirring in the white of an egg with the turpentine before mixing would prevent separation of the oil. Every patient should be thoroughly bathed with warm water and soap the night before and the skin in the region of the operation shaved. The ease of removing the hair with a depilatory was evident after using, and the following formula might be found useful: Powdered calcium oxide, 10 grams; sodium sulphide, 3 grams; starch 10 grams. Mix and add water to make a thin paste and apply for five minutes. Wash off with water. Adjacent mucous surfaces should be protected with oil before applying the paste. The skin should next be washed thoroughly with soap and water, the water and other fluids being poured, not dipped. The soap was then washed off with sterile water and the parts sponged with Stewart's and Harrington's solution. The bladder should be empty in all cases before going to the operating room. The operating room should be gone over with warm water and soap, every piece of furniture washed, special care given to the removal of dirt from overhead fixtures, and the room tightly closed from dust. The operator and his assistants should appear in the wash room in freshly laundered garments and after preparing the hands and arms in one of the approved ways should present themselves to the nurse, who supplied them with a fresh sterile towel and then with gown and gloves. The application of tincture of iodine over the site of operation was not interfered with by the preparation mentioned.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. S. S. Glassock, Kansas City, Kan.; *Vice-President from the State of Missouri*, Dr. J. D. Griffith, Kansas City; *Vice-President from the State of Texas*, Dr. J. E. Dawson, Vernon; *Vice-President from the State of Arkansas*, Dr. L. R. Ellis, Hot Springs; *Secretary-Treasurer*, Dr. F. H. Clark, El Reno, Okla.

Galveston, Tex., was selected as the place for holding the next meeting.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held October 3, 1913.

Dr. Clarence A. McWilliams, Chairman pro tem.

Spina Bifida.—Dr. Joseph P. Hoguet read this paper in which he spoke of the comparative rarity of this condition, and the small experience that individual operators had in it on that account. He said that its etiology was unknown; the theory that an intrauterine hydrocephalus was responsible for it was not probable. The embryology of the condition was then spoken of so that the pathology might be better understood. The four varieties under consideration were: 1. Meningocele. Here there was a defect in the posterior osseous wall with a hernia of the dura with possibly the arachnoid. 2. Spina bifida occulta, really a variety of meningocele, with a cleft in the neural arch, which might be closed with a dense fibrous membrane, with no bulging of the external skin. The only external sign generally being hypertrichosis. 3. Syringo-myelocele, where there was a defect in the neural arch and generally in the dura, the posterior portion of the cord being thinned out by distention of the central canal. 4. Myelocele, where there was also a deficiency in the posterior portion of the cord, so that it ended directly externally, and was generally represented as a raw granulating area. This condition was incompatible with life and these children were practically always stillborn. The symptoms and physical signs were then brought out, with the means for a differential diagnosis between a meningocele and a syringo-myelocele. The different paralytic complications were then spoken of. It was generally conceded that this condition occurred most often in the lumbar and lumbosacral regions. There was a very bad outlook without operation, and spontaneous cure was rare. The inefficiency of the injection treatment was referred to, and the mortality of the open operation was put at from 20 to 30 per cent. Operation was urged in all cases, especially those with paralytic symptoms, and where nerve tissue was expected to be found in the sac. The surgical proceeding was then discussed and the writer showed a method of closing the cleft by means of a fascial flap. He reported six cases, one of which had not been operated upon; of the five operated upon, none had died as a result of the operation, although the youngest case, a baby of 16 days, had died two weeks after operation from marasmus. The paralytic complications had disappeared in one case, and had very much improved in another.

The Localization of Foreign Bodies within the Tissues, with a Description of a Method of Localization.—Dr. Alfred J. Brown read this paper, in which he stated that a review of the methods thus far described allowed them to be divided into two classes: 1. The localizing of the foreign body, if metallic, by the electric searcher, and, 2, localization by stereoscopic radiography. The electric probe was of value only in cases in which there was an open tract leading down to the foreign body. As a result the instrument was useful chiefly in gunshot wounds. Thomas made use of a telephonic searcher consisting of three needles mounted on a handle and so wired that contact of any two of the needles with a metallic object completed an electric circuit and rang a bell, the sound being transmitted to the ear of the operator through a telephone receiver. The current was turned off, the searcher left in place, and the foreign body cut down upon using the needles as a guide. Dr. Brown then described the Cole method of radiographic localization which embodied the principle of the triangulation of the planes of the shadows cast by the foreign body with the tube in two different positions. He also referred to the methods used by Brickner, Sweet, and Fürstenau. These methods left nothing to be desired in the way of theoretical accuracy, but were very exacting technically, and because of the special instruments required it was not always feasible to carry them out. Measurements were usually made from fixed bony points and this allowed for the possibility of two forms of error. The distance from the shadow cast by the bony point to that cast by the foreign body did not correspond to the distance between the actual objects in the living body. There was also the error due to the personal equation between the radiologist and the surgeon in taking the measurements. A further diffi-

culty for the surgeon was that in some of the methods there was no mark upon the surface of the body to follow at the operation, and in others there was only the small silver nitrate spot. The following method was suggested as being simple, accurate, and requiring no special apparatus beyond the usual *x*-ray outfit. A preliminary radiographic examination for the purpose of substantiating the diagnosis was made and the approximate position of the foreign body noted. The area of the skin over the foreign body and the surrounding area of a few inches was then prepared in the following manner. Vertical and horizontal lines running at right angles to each other were painted on the skin with silver nitrate solution, thus laying the skin out into squares. The size of the squares could easily be made to bear a proper relation to the size of the foreign body on the one hand and that of the part to be prepared on the other. As a rule 1 inch squares would be found very convenient. The component lines of this checker-board were numbered. The area thus painted should include one-half the circumference of the part. As an example, in the knee the first vertical line should run along the antero-internal margin of the knee and the last along the postero-external. The horizontal lines should connect the vertical. If the entire circumference was laid out in squares, the lines of one-half the circumference should be solid and those of the other half dotted. The silver solution was allowed to turn black and the skin thus stained. The lines were then painted over with white lead paint and this allowed to dry. Two radiographs were then taken, one antero-posteriorly and one laterally, the target of the tube being placed directly over the position of the foreign body as shown in the preliminary skiagraph. The resulting skiagraphs showed the shadow of the foreign body with relation to the squares painted upon the skin. By projecting imaginary lines from the shadow of the body in the two positions with relation to the overlying lines its approximate depth from the surface was easily calculated. If the entire circumference of the part had been painted, the position of the body was noted accurately by projecting the point of intersection of the shadow with the solid lines on one surface to its points of intersection with the dotted line on the opposite surface. If desired a tracing of the lines and shadows of the body might be made on a transparent paper and this tracing laid upon the skin so that the lines of the squares corresponded accurately. The shadow of the foreign body might then be marked upon the skin with silver nitrate to be used as a guide at operation. This method had been used in three instances on the First Surgical Division of Bellevue Hospital, in the services of Drs. John B. Walker and Lucius W. Hotchkiss. In each case the foreign body, a needle, had moved a considerable distance from its point of entrance and in none of the cases could it be palpated. In certain cases the position of the foreign body might be such that the painting of the part over the entire circumference would prove of value as it would allow of through and through projection of the shadow from a fixed point on one surface to a fixed point on the other.

Dr. Walter M. Brickner said that the method brought forward by him was rather crude; the triangulation method gave more definite information.

Dr. A. S. Vosburgh reported an interesting case in which he removed a bullet from the orbit, its position being estimated by *x*-ray plates. In another case he removed a bullet from the middle fossa of the skull, the opening being made as in decompression operations. In each of these cases the location of the foreign body was carefully estimated by means of the *x*-rays.

Dr. William Henry Luckett said he always obtained the exact location of a foreign body after but two pictures had been taken at right angles. Palpation should not be neglected especially when there was some foreign body, as a bullet, in the hand in the thenar or hypothenar group of muscles.

Philadelphia County Medical Society.

At a stated meeting held October 8 Dr. James Hendrie Lloyd read a paper entitled "Acute Syphilitic Infection of the Pons, Medulla and Upper Spinal Cord." He pointed out the importance of the discovery of the pallid spirochete as the causative factor in the development of syphilis and the bearing of this discovery on the pathology of various diseases of the nervous system. The finding of the spirochete in the brain in cases of general paresis and in the spinal cord in cases of tabes proves that these diseases also are syphilitic and that the terms parasyphilis and metasyphilis have lost their previous doubtful validity. At the same time explanation is wanting of the fact that in some instances it is especially the membranes and the blood-vessels of the nervous system that bear the brunt of the morbid process, while in others especially the parenchymatous elements suffer.

Dr. Francis X. Dercum presented a communication entitled "The Clinical Forms Presented by Nervous Syphilis; Significance of and Necessity for Their Differentiation." While admitting the identity of etiology with respect to so-called syphilis of the nervous system, general paresis, and tabes dorsalis, he contended that each of these affections presented individual features that differentiated them one from the other. For example, syphilis of the nervous system is amenable to antisyphilitic treatment, whether in the form of mercury or in that of arsenobenzol, while tabes and paresis respond little if at all to such measures. The one exhibits interstitial lesions through an impression exerted especially on the blood-vessels and the meninges, while the others are represented particularly by parenchymatous changes of a destructive nature. There must be some special reason why a given source of infection may give rise to a number of cases of paresis or tabes respectively, and also in explanation of cases of tabes and paresis in husband and wife. Also as between tabes and paresis, while at times there is an overlapping of symptoms each usually is distinct, with a number of differentiating features.

Dr. Milton B. Hartzell discussed "The Cutaneous Manifestations of Syphilis," illustrating his remarks by lantern demonstration. He pointed out that while it is perhaps the prevalent belief that the primary lesion is almost exclusively of genital origin, statistical investigation in many countries has shown that in a considerable proportion of cases extragenital infection takes place. He illustrated a number of unusual sites for the primary lesion, for example, the cheek and the lip, and also a number of unusual types of lesion. The primary lesion may simulate epithelioma, and there is scarcely any exanthem the cutaneous manifestations may not imitate.

Dr. Theodore H. Weisenburg exhibited a slide showing the *Spirochæta pallida* from the spinal cord of a paretic. He discussed various aspects of the subject in the light of recent discoveries.

Dr. Judson Daland discussed "The Diagnosis, Prognosis and Treatment of Syphilis." He dwelt on the utility of the Wassermann test in diagnosis, and of the globulin test, and of lymphocytosis when syphilis of the nervous system is suspected. He pointed out that while salvarsan is probably the most effective remedy in the treatment of syphilis in its various stages, it is advantageous to conjoin with its administration also that of mercury. The best mode of introducing salvarsan is through the blood-stream, while mercury is most effective when introduced by deep intramuscular injection.

Lieutenant-Commander George A. Lung, U. S. N., spoke of The Control of Venereal Diseases in the U. S. Navy."

The discussion was participated in by Dr. Jay F. Schamberg, Dr. George E. Price, Dr. Charles K. Mills, Dr. Henry W. Cattell, Dr. B. Alexander Randall, and Dr. W. Egbert Robertson.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Ohio State Medical Board.

June 2-5, 1913.

ANATOMY.

1. Locate and describe the scapula.
2. Give the course and relations of the brachial artery.
3. Give the boundaries of the fourth ventricle.
4. What structures pass through the jugular foramen?
5. Describe the urinary bladder of a male and give its relations.

PHYSIOLOGY.

1. Name the principal varieties of connective tissue, where are they found, and what purpose do they serve?
2. State the disposition of the fat principles of food after digestion; carbohydrate principles; effect of alcohol in small quantities with food.
3. What is understood by absorption?
4. Name four forces concerned in the circulation of the blood.
5. What effects do extremes of temperature have on respiration? What effect has age?
6. Describe the suprarenal capsules. What is their function?

7. What is the influence of the nervous system in the production of sweat?
8. Name the five laws of reflex action (Pfluger). How do they work?
9. Describe the process known as ovulation.
10. Describe the function of the tympanic membrane: eustachian tube.

CHEMISTRY.

1. Give properties and chemical formulæ of (*a*) carbon dioxide; (*b*) carbon monoxide.
2. Give a test for indican and state its clinical significance when found in urine.
3. Define (*a*) aldehyde; (*b*) alkaloid; (*c*) glucosid.
4. Name and differentiate the three classes of sugar.
5. What are proteins and from what are they derived?

MATERIA MEDICA AND THERAPEUTICS.

1. Briefly discuss the serum and vaccine theories.
2. Name four principal serums, give mode of administration, dose, and use of each.
3. What drugs would you use in anemic conditions? Write two prescriptions using the drugs named.
4. Mention two intestinal antiseptics. Give therapeutic use and dose of each.
5. Name three hypnotics; indicate use and dose of each.
6. State the physiological action, use, and administration of hot and cold water.
7. Name two cardiac stimulants and sedatives, and indicate dose of each.
8. Give the composition of Dover's powder. State its action, use, and dose.
9. Give the physiological action of nux vomica, name its principal alkaloid, and state its use and dose.
10. Give the range of indications for the use of galvanism and high frequency currents.

ANSWERS.

ANATOMY.

1. The *scapula* is a large, flat, triangular bone situated at the back and side of the thorax, between the second and seventh ribs. Its anterior surface contains the subscapular fossa for the subscapularis muscle. The dorsal surface is divided by the spine; above the spine is the supraspinous fossa for the supraspinatus muscle, and below it is the infraspinous fossa for the infraspinatus muscle. To the spine, the trapezius and deltoid muscles are attached. At the outer end of the spine, and overhanging the glenoid cavity is the acromion process. The superior border of the scapula has the suprascapular notch and the coracoid process. The axillary border gives attachment to the teres major and minor and triceps muscles; the vertebral border gives attachment to the rhomboideus major and minor and the levator anguli scapulæ; the biceps is attached to the apex of the glenoid cavity and to the coracoid process; to the latter are also attached the pectoralis minor and the coracobrachialis. The scapula articulates with the humerus and the clavicle.

2. *The brachial artery* is the continuation of the axillary, begins at the lower margin of the insertion of the teres major, passes down the anterior aspect of the arm, and terminates about half an inch below the bend of the elbow, where it bifurcates into the radial and ulnar arteries. It passes along the inner borders of the coracobrachialis and biceps muscles, it is superficial throughout its course, is accompanied by venæ comites, and at about its center is crossed by the median nerve, which passes from the outer to the inner side of the artery.

Relations. In front: The skin and fascia, the bicipital fascia, median basilic vein, and median nerve. *Behind:* Triceps, musculospiral nerve, superior profunda artery, coracobrachialis and brachialis anticus. *Externally:* Median nerve (above), coracobrachialis and biceps. *Internally:* Ulnar nerve, internal cutaneous nerve, median nerve (below) and basilic vein.

3. The fourth ventricle is the expanded portion of the central canal of the spinal cord; it is a diamond-shaped cavity situated between the cerebellum behind, and the posterior surface of the pons and medulla in front. It is bounded: *Above*, by the valve of Vieussens and the cerebellum. *Below* by the pons and medulla. *Laterally*, by the superior peduncles of the cerebellum, restiform bodies.

4. The *jugular foramen* transmits: The inferior petrosal sinus; lateral sinus, meningeal branches from the occipital and ascending pharyngeal arteries; and the glossopharyngeal, pneumogastric and spinal accessory nerves.

5. The *bladder* is a musculomembranous sac situated in the pelvis, behind the pubes and in front of the rectum. The superior surface is covered by peritoneum. The anterior surface is separated from the body of the pubic bone by the prevesical space of Retzius; the lower part of this surface is uncovered by peritoneum, the upper part being covered according to the degree of distention of the bladder. The lateral surfaces are covered behind and above by peritoneum. The ureters enter the bladder at the upper part of the base. The neck of the bladder is surrounded by the prostate. The trigone is a triangular smooth surface situated at the base of the bladder immediately behind the urethral orifice; it is bounded at each posterior angle by the opening of a ureter, and in front by the opening into the urethra. The lower part of the base is in relation with the rectum, seminal vesicles and vasa deferentia. The bladder is retained in its place by ten ligaments; five of these are called *true ligaments*, these are the two anterior ligaments, two lateral, and the urachus; the five false ligaments are formed by folds of the peritoneum.

PHYSIOLOGY.

1. The *principal varieties of connective tissue* are: Areolar, adipose, elastic, fibrous, retiform, lymphoid, cartilage, and bone. They all serve to connect and support other tissues. *Areolar tissue occurs* under the skin, beneath serous and mucous membranes, in glands, and ensheathing muscles, vessels, and nerves. *Adipose tissue occurs* almost everywhere in the body except in the cranium and liver. *Elastic tissue occurs* in the ligamenta subflava, vocal cords, bronchi, lungs, arteries, and some ligaments. *Fibrous tissue occurs* in ligaments, tendons, fascia, periosteum, perichondrium, dura mater, capsule of the kidney. *Retiform tissue occurs* in mucous membranes. *Lymphoid tissues occur* in lymphatic glands, the thymus, Peyer's patches, tonsils. *Cartilage occurs* in joints, at the articular ends of bones, trachea, nose, external ear, Eustachian tube, intervertebral discs.

2. *Absorption of fat.* "Fat is not absorbed as fat, but as glycerin and fatty acid or soap. It is generally accepted that the fatty acid set free in the intestine is dissolved by the bile salts, and in this way, together with the glycerin, is absorbed by the columnar cells, but that during absorption a lipase which is contained in the columnar cells re-synthesizes, by reverse action, the glycerin and fatty acid. In this way minute fat particles are found near the bases of the columnar cells, and these may be demonstrated by staining with a 1 per cent. solution of osmic acid. The fat globules are further taken up from the columnar cells by some of the lymphocytes, which are capable of exhibiting ameboid movements, and which are found in the lymphoid tissue between the columnar cells and the central lacteal. The fat is then deposited in the central lacteal by these ameboid cells, and in this way it gets into the general lacteal stream, and thence into the thoracic duct. The bile salts, which have been absorbed by the columnar cells, in all probability get into the portal vein radical, and in this way are taken back to the liver to be excreted again in the bile. After a fatty meal minute globules of fat may be demonstrated in the blood plasma of an animal; but they disappear rapidly, possibly existing in a soluble and invisible form absorbed to the blood proteins before they are deposited in the fat depots of the body."

Absorption of carbohydrate. "During digestion the greater part of the carbohydrate of the food is converted into the glucoses. These are comparatively small molecules which are readily dissolved, and easily passed through the columnar cells into the portal vein radical which lies beneath. It is possible that some maltose may be absorbed by the columnar cells, and that during its passage through those cells it is converted into dextrose before it enters the portal vein radicals. It is possible that in these columnar epithelial cells the glucose, which is being absorbed, is linked to the cell protein, and that, farther down the cells, this loosely combined substance is split into two, the dextrose passing into the portal vein radical and the protein molecule remaining intact in the columnar cells and ready to combine with fresh glucoses to be passed through the cells. A small portion of the dextrose, which is carried to the liver, goes on unchanged to the tissues to be assimilated, but the greater portion of the absorbed glucose on arriving at the liver is stored there by the liver cells as glycogen." (Lyle's *Manual of Physiology.*)

A small quantity of alcohol with the food is believed to slightly increase the digestibility of the proteids.

3. *Absorption* is the process by which the food, after it has been digested, is taken to the blood current and tissues of the body.

4. (1) The force of the contraction of the heart, (2) the

muscular coat of the arterial walls; (3) thoracic aspiration; and (4) the action of the valves in the veins.

5. A high temperature causes a diminution in the amount of oxygen consumed and carbon dioxide expired; a low temperature has the contrary effect.

6. The *suprarenal capsules* are ductless glands, situated in the back part of the abdominal cavity, behind the peritoneum, one on the upper extremity of each kidney, and extending slightly on the inner and anterior surfaces. They are generally from one to two inches in length, and weigh about a dram to a dram and a half. They consist of a cortical portion and a medullary portion.

The *function of the suprarenals* is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body.

7. *The nervous mechanism of perspiration.* "The sweat centers, one for each side, are situated in the medulla oblongata, but probably subsidiary sweat centers exist in the cord. They may be excited directly by (1) a venous state of the blood—hence the cold, clammy sweats seen in the later stages of certain diseases, as croup and pneumonia; (2) by hyperpyrexia, as when the temperature of the blood reaches 105° F. the sweating is profuse; (3) by certain drugs, such as pilocarpine, muscarine, nicotine, and ammonia salts. Atropine appears to inhibit the sweat centers. There appear to be secretory nerves which, when stimulated, increase the activity of the sweat glands. Vasomotor nerves regulate the supply of the blood to the skin; they act in connection with the secreting nerves. Sweating may be produced in the following ways: (1) By direct stimulation of the sweat centers. (2) By stimulation of the secretory nerves and vasodilator blood-vessels, as by the action of certain drugs, as pilocarpine, warmth to the surface, warm drinks, alcohol. (3) Reflexly by stimulation of certain sensory nerves. (4) By mental stimuli. (Ashby's *Notes to Physiology.)*

8. PFLÜGER'S LAWS OF REFLEX ACTION. "(1) *Law of unilaterality.*—If a feeble irritation be applied to one or more sensory nerves, movement takes place usually on one side only, and that the same side as the irritation. (2) *Law of symmetry.*—If the irritation becomes sufficiently intense, motor reaction is manifested, in addition, in corresponding muscles of the opposite side of the body. (3) *Law of intensity.*—Reflex movements are usually more intense, on the side of irritation; at times the movements of the opposite side equal them in intensity; but they are usually less pronounced. (4) *Law of radiation.*—If the excitation still continues to increase, it is propagated upward, and motor reaction takes place through centrifugal nerves coming from segments of the cord higher up. (5) *Law of generalization.*—When the irritation becomes very intense it is propagated in the medulla oblongata; motor reaction then becomes general, and it is propagated up and down the cord, so that all the muscles of the body are thrown into action, the medulla oblongata acting as a focus whence radiate all reflex movements." (Brubaker's *Physiology.*)

9. *Ovulation.* "In the process of development in the ovary, the individual Graafian follicle increases in size and gradually approaches the surface of the ovary. When fully ripe or mature, it forms a little projection on the exterior. Coincident with the increase in size, which is caused by the augmentation of its liquid contents, the external envelope of the distended vesicle becomes very thin and eventually bursts. The ovum and fluid contents of the vesicle escape on the exterior of the ovary, whence they pass into the Fallopian tube. In man and mammals ovulation apparently occurs only at certain periods." (Kirke's *Physiology.*)

10. The *function of the tympanic membrane* is to receive the vibrations of the atmosphere which are transmitted to it.

The *function of the Eustachian tube* is to equalize the air pressure on both sides of the tympanic membrane, and to aid in preventing echo.

CHEMISTRY.

1. *Carbon monoxide,* CO, is a colorless, odorless, tasteless gas, lighter than air, slightly soluble in water and in alcohol; it unites readily with oxygen to form carbon dioxide. It is very poisonous, uniting with the hemoglobin to form a stable compound which cannot carry oxygen to the tissues.

Carbon dioxide, CO_2 is a colorless, suffocating gas; it will neither burn nor support combustion; it is soluble in water; if inhaled pure it causes spasm of the glottis and death.

2. *Test for indican in the urine:* The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.

Indicanuria is found in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished peristalsis of the small intestines, as in ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc. (From Witthaus's *Essentials of Chemistry.)*

3. *Aldehydes* are the first oxidation products of primary alcohols; they are intermediate between the alcohols and organic acids; they are readily converted into alcohols by reducing agents, or into acids by oxidation.

Alkaloids are, as a rule, solid bodies; contain carbon, hydrogen, nitrogen, and oxygen; have very complex constitution; react with acids to form salts in the same way that ammonia does; are of vegetable origin, as a rule; are extremely poisonous; are optically active, generally levorotatory.

Glucosides are substances which, under the influence of heat or dilute mineral acids, split up into glucose and some other substance.

4. CLASSES OF SUGARS. "(1) *Monosaccharides, or Monoses*—which do not yield any other sugar or sugars by the action upon them of dilute acids (glucose, fructose, galactose, etc.). (2) *Disaccharides, or Saccharobioses*—which, under the influence of dilute acids, take up H_2O and yield two other sugar molecules (saccharose, lactose, maltose, etc.). (3) *Trisaccharides, or Saccharotrioses*—which, under the same influences, take up $2H_2O$ and yield three other sugar molecules; and (4) *Polysaccharides*—which, under the same influence take up more than $2H_2O$, and yield more than three sugar molecules (starches, gums, celluloses, etc.). The disaccharides, trisaccharides and polysaccharides may be considered as produced by the fusion of two or more monosaccharide molecules with elimination of one or more molecules of water." (Witthaus' *Essentials of Chemistry.)*

5. *Proteins* are substances of very complex composition and of unknown constitution; they constitute the greater part of animal and vegetable tissues. They all contain carbon, hydrogen, oxygen and nitrogen; some also contain sulphur, phosphorus, iron, or some other element. They are derived from plants and animals.

MATERIA MEDICA AND THERAPEUTICS.

1. "*Serum-therapy proper* is the prophylactic and curative treatment of certain infectious diseases by the subcutaneous or intravenous administration of a blood-serum containing an antibody (antitoxic, bactericidal, etc.) which is specific to the particular disease. As generally used, however, the term includes also the treatment of some of these affections by vaccines and by the toxic products (toxins) of attenuated cultures of their respective microbes; but these toxins, though sometimes grown on blood-serum, may be produced on other media, and are never administered in a blood-serum, as the antibodies invariably are."

"*Bacterial Vaccines.* The term vaccine was originally applied to the infective virus or antigen of vaccinia (cowpox), but in modern usage has been extended to include the antigens of all infectious diseases. In the preparation of stock vaccines the pathogenic bacteria are grown in pure culture, then killed by heat, suspended with their toxin in sterile physiological salt solution, protected from contamination by an antiseptic, and standardized to contain a definite number of bacteria in each cubic centimeter. They are used by injection, subcutaneously or intravenously, to develop in the patient's body a condition of active immunity against the corresponding pathogenic germs or their toxins by raising the opsonic value of his blood and thereby promoting the phagocytosis of invading bacteria. The advantage of this active immunization for prophylactic purposes depends on the facts that these vaccines are incomparably cheaper and simpler to prepare than the sera, and that the active immunity conferred by them is more durable than the passive immunity produced by the latter. On the other hand their immunity does not set in immediately as is the case with the passive form, but only after 8 to 14 days of treatment." (Potter's *Therapeutics and Materia Medica.)*

2. Four serums. (1) *Antidiphtheritic serum* (against diphtheria); administered subcutaneously; dosage, average about 3,000 units, immunizing dose for a well person about 500 units. (2) *Antitetanic serum* (against tetanus); administered subcutaneously, or into the spinal subarachnoid space; dose, 10 to 20 c.c. repeated if necessary. (3) *Meningococcus serum* (against cerebrospinal meningitis); administered into the spinal canal after lumbar puncture and withdrawal of about 40 c.c. of the spinal fluid; dose about 20 or 25 c.c. (4) *Antirabic serum* (against rabies); administered subcutaneously; for about two weeks several injections are made daily with viruses of gradually increasing strength.

3. In *anemic conditions* iron, arsenic, nux vomica, and manganese are recommended.

(1) ℞.

Massæ ferri carbonatis 5ji.

Divide in pilulas no. xxx.

Signa: Take one after each meal.

(2) ℞.

Liquoris potassii arsenitis ℥j.

Signa: Take five drops in water, after each meal. Increase the dosage according to directions.

4. *Two intestinal antiseptics:* Salol, dose 5 to 20 grains; and sodium phenolsulphate, dose 5 to 20 grains. They are used to control fermentation and putrefaction in the stomach and intestines.

5. *Three important hypnotics:* (1) Chloral hydrate; dose, gr. xv to xx. (2) Sulphonal; dose, gr. xv to xxv. (3) Trional; dose, gr. xv to xxv.

Indications: They are all used to produce sleep (when no pain is present.)

Chloral hydrate produces a natural sleep, acts promptly, but is of no service if pain is present; it also lowers the body temperature. It can be given for a long time without deleterious effect, but it may irritate the tissues and weaken the heart.

Sulphonal produces a natural sleep, but is of slow action, requiring 3 or 4 hours to take effect; it is of no use if pain is present, does not irritate the tissues and weaken the heart, but is probably not so good for continuous use as chloral hydrate, though the two may replace each other for a time.

Trional is very similar to sulphonal, but is more soluble, and acts quicker. Both sulphonal and trional are supposed to be safer than chloral.

6. *Therapeutics of water:* "Cold baths are employed in the treatment of febrile diseases, more particularly typhoid fever. It is important that frictions should be maintained all the time the patient is in the water. Various modifications of the full cold bath are also employed. Ice-water baths are of great service in sunstroke or thermic fever, and cold water may be injected into the bowel when the skin is cold but the central temperature high. Large injections of cold water are also useful in dysentery. Ice bags are sometimes applied to various parts of the body for the purpose of controlling inflammatory action and also for the hemostatic effect of the cold. Warm baths are employed to soothe pain, alleviate muscular and mental fatigue, promote sleep, and relieve spasmodic conditions and internal congestion. Hot baths and the hot pack are useful in renal disease and uremia, and in commencing colds, on account of the free diaphoresis they induce. Localized hot baths aid in the same way as general ones, but are less pronounced in their effects. In various painful affections of the eye much relief may be afforded by the application of hot water on cotton pledgets frequently renewed, or by allowing the water to drop continuously on the eye. Internally water is of great service in keeping the urine diluted, and its free use tends to prevent the formation of gallstones, as well as of gravel or urinary calculi. A glass or two of water swallowed upon rising often has the effect of causing an evacuation of the bowels. Tepid water, sometimes with the addition of mustard, is very commonly used as an emetic." (Wilcox's *Materia Medica.)*

7. *Two cardiac stimulants:* Alcohol, dose 1 ounce of whiskey; aromatic spirit of ammonia, dose 30 minims.

Two cardiac sedatives: Aconite, dose 10 minims of the tincture; diluted hydrocyanic acid, dose 1 minim of a recent preparation.

8. *Dover's Powder* consists of 10 parts of ipecac, 10 parts of powdered opium, and 80 parts of sugar of milk. Dose gr. vijss. It is an expectorant, and diaphoretic; often, an early dose may avert a threatened cold; it is also of sedative action, and is useful in cases of irritative cough.

9. Nux vomica. *Official alkaloid:* Strychnine, dose gr. 1/60 of the sulphate. *Physiological action:* It excites the digestive secretions, increases the appetite, increases peristalsis, and improves the digestion; it is a vasoconstrictor, it raises blood pressure, and is a cardiac stimulant; it is also a respiratory stimulant; hearing and sight are rendered more acute. *Therapeutic indications:* As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, alcoholism, and urinary incontinence.

10. *"Electricity* is employed in medicine to restore functional activity to peripheral nerves and muscles when conduction has not been completely cut off by some irreparable lesion; to promote general nutrition; to arouse the nerve-centers in states of depression; to combat various sensory disturbances which are of a functional character or which depend upon minor lesions of the peripheral nerves or their centers; to effect the rapid passage of drugs through the unbroken skin (cataphoresis); to bring about the coagulation of blood in aneurysmal sacs; to favor the absorption of inflammatory or degenerative products; and in the form of the galvanocautery, to excise or destroy hypertrophied tissues or morbid growths." (Stevens' *Modern Materia Medica.)*

"General applications of high frequency currents are indicated in rheumatism, rheumatoid arthritis, gout, diabetes, anemia and general debility. Local applications are employed with success in some disease of the skin and mucous membranes—such as pruritus, psoriasis, lupus, acne, eczema, obstinate ulcers, alopecia areata, etc." *(Essentials of Medical Electricity.)*

(To be continued.)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†
Alabama*	W. H. Sanders, Montgomery	Montgomery
Arizona*	J. W. Thomas, Phoenix	Phoenix
Arkansas	F. T. Murphy, Brinkley	Little Rock . . Nov. 11
California*	C. B. Pinkham, 929 Butler Building, San Francisco	Sacramento . . . Jan. 13
Colorado	David A. Strickler, Empire Building, Denver	Denver . . . . . Jan. 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven . . Nov. 11
Delaware	J. H. Wilson, Dover	Dover . . . . . Dec. 9
Dist. of Col'ba	Geo. C. Ober, Washington	Washington . . Jan. 13
Florida*	J. D. Pinkham, Jacksonville	Jacksonville . Nov. 12
Georgia	C. T. Nolan, Marietta	Atlanta
Idaho*	O. J. Allen, Bellevue	Boi e
Illinois	A. Sawyer, Springfield	Chicago . . . . . Jan. . .
Indiana	W. T. Gott, Crawfordsville	Indianapolis . Jan. 13
Iowa	G. H. Sumner, Des Moines	Des Moines . . Jan. 6
Kansas	H. A. Dykes, Lebanon	Topeka . . . . Feb. 10
Kentucky	J. N. McCormack, Bowling Green	Louisville . . . Dec. 11
Louisiana	A. B. Brown, Cusach's Bldg., New Orleans	New Orleans
Maine	P. W. Saerle, Portland	Portland . . . . Nov. 11
Maryland	J. McP. Scott, Hagerstown	Baltimore . . . Dec. 9
Massachusetts*	W. P. Bowers, State House, Boston	Boston . . . . . Nov. 11
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor . . . June 9
Minnesota	T. McDavitt, St. Paul	Minneapolis . . . Jan. 6
Mississippi	S. H. McLean, Jackson	Jackson . . . . . May 12
Missouri	J. A. B. Adcock, Jefferson City	Jan.
Montana*	Wm. C. Roddell, Helena	Helena . . . . . April 7
Nebraska	C. P. Fall, Beatrice	Lincoln . . . . Nov. 12
Nevada	S. L. Lee, Carson City	Carson City . . Nov. 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord . . . . . Jan. 6
New Jersey	H. G. Norton, Trenton	Trenton . . . . . June 16
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe . . . . Jan. 12
New York	H. H. Horner, Univ. of State of New York, Albany	New York . } Albany . . . } Jan. 27 Syracuse . . . } Buffalo . . . }
N. Carolina	B. K. Hays, Oxford	Ralcigh . . . . . June 9
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks . Jan. 6
Ohio	Geo. H. Matson, Columbus	Columbus . . . Dec. 9
Oklahoma	J. W. Duke, Guthrie	Muskogee
Oregon	B. E. Miller, Portland	Portland . . . . Jan. 1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia } Harrisburg . } Dec. . . Pittsburgh . . }
Rhode Island	G. T. Swarts, Providence	Providence . . . Jan. 6
S. Carolina	H. E. Boozer, Columbia	Columbia . . . . June 1
S. Dakota	L. G. Hill, Watertown	Pierre
Tennessee	A. B. DeLoach, Memphis	Memphis . . } Nashville . . } May . . Knoxville . . }
Texas	W. L. Crosthwaite, Waco	Houston . . . . Nov. 11
Utah	R. W. Fisher, Salt Lake City	Salt Lake City Jan. 8
Vermont	W. Scott Nay, Underhill	Montpelier . . Jan. 13
Virginia	Herbert Old, Norfolk	Richmond . . . Dec. 16
Washington*	F. P. Witter, Spokane	Spokane . . . . Jan. 6
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg . Nov. 10
Wisconsin	J. M. Beffel, Milwaukee	Madison . . . . Jan. 13
Wyoming	J. B. Tyrrell, Laramie	Cheyenne

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Virginia State Board of Medical Examiners.—Of 101 applicants who took the full examiantion at the June meeting, 77 passed, 21 failed, and 3 were incomplete or withdrew. Nineteen non-graduates took the partial examination, of whom 15 passed, 2 failed, and 2 withdrew.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

INTERNATIONAL CLINICS. By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTLE, A.M., M.D. Vol. III. Twenty-third Series. 1913. Cloth; price $2.00; illustrated; 303 pages. J. P. Lippincott Company, Philadelphia and London.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Vol. XXV. Twenty-fifth Session, held at Old Point Comfort, Va., December 17, 18, and 19, 1912. Edited by W. D. HAGGARD, M.D. Cloth; illustrated; 615 pages. Published by the Association.

LEHRBUCH DER HAUT UND GESCHLECHTSLEIDEN. By Dr. S. JESSNER. Vol. II, part 2. Paper; price 2 marks; illustrated. Curt Kabitzsch, Würzburg.

OUTLINES FOR CASE TAKING. By GEORGE DOCK, A.M., M.D. Cloth; price 25 cents; 44 pages. George Wahr, Ann Arbor, Mich.

PROTEIN SPLIT PRODUCTS. By VICTOR C. VAUGHAN, M.D., LL.D.; VICTOR C. VAUGHAN, Jr., M.D., A.B., and J. WALTER VAUGHAN, M.D., A.B. Cloth; illustrated; 476 pages. Lea & Febiger, Philadelphia and New York.

ESSENTIALS OF PATHOLOGICAL CHEMISTRY. By VICTOR C. MYERS, M.A., Ph.D., and MORRIS S. FINE, Ph.D. Cloth; price $1.25; illustrated; 137 pages. *The Post-Graduate Medical Journal*, New York.

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA and on the NATIONAL FORMULARY for the Calendar Year Ending December 31, 1911. By MURRAY GALT MOTTER and MARTIN I. WILBERT. Paper; 683 pages. Government Printing Office, Washington.

YEAR BOOK OF THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK. P. Brynberg Porter, A.M., M.D., Editor, June, 1913. Cloth; 176 pages.

THE MICROTOMIST'S VADE-MECUM. By ARTHUR BOLLES LEE. Seventh Edition. Price $4.00; cloth; 526 pages. P. Blakiston's Son & Company, Philadelphia.

DIE UNTERSUCHUNG DER LUFTWEGE. By Dr. P. H. GERBER. Paper; price 2 marks; illustrated; 45 pages. Curt Kabitzsch, Würzburg.

BELLEVUE AND ALLIED HOSPITALS, CITY OF NEW YORK. Eleventh Annual Report, January 1, 1912, to December 31, 1912. Paper; illustrated; 154 pages. Compliments of the Board of Trustees.

REPORT OF THE TRUSTEES OF BELLEVUE AND ALLIED HOSPITALS for Three Months Ending March 31, 1913. Paper; 22 pages.

THE PRACTICAL MEDICINE SERIES. Vol. VI. General Medicine. Edited by FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, A.M., M.D. Series 1913. Cloth; price $1.50; illustrated; 356 pages. The Year Book Publishers, Chicago.

PRINCIPES D'ANACOUSIE. By Professeur M. C. GARIEL. Paper; price 6 fr. 50; 267 pages; illustrated. A. Maloine, Paris.

OBSTETRICS. A Manual for Students and Practitioners. By W. P. MANTON, M.D. Second Edition, Revised and Enlarged. 292 pages; illustrated; cloth; price $1.00 net. Lea & Febiger, Philadelphia and New York, 1913.

NERVENKRANKHEITEN. By Dr. LEO JACOBSOHN. Paper; illustrated; 488 pages; price 19 marks. August Hirschwald, Berlin.

CLINICAL ELECTROCARDIOGRAPHY. By THOMAS LEWIS, M.D., D.Sc., F.R.C.P. Cloth; Illustrated; 120 pages. Shaw and Sons, London; Taylor Instrument Companies, Rochester, N. Y.

MORTALITY STATISTICS, 1910. Eleventh Annual Report. Prepared Under the Supervision of CRESSY L. WILBUR, M.D. Cloth, 611 pages. Government Printing Office, Washington.

SURGERY OF THE VASCULAR SYSTEM. By BERTRAM M. BERNHEIM, A.B., M.D. Illustrated; cloth; price $3.00; 104 pages. J. B. Lippincott Company, Philadelphia and London.

TREATMENT OF INTERNAL DISEASES. By Prof. NORBERT ORTNER. Second Edition in English. Price $5.00; cloth, 643 pages. J. B. Lippincott Company, Philadelphia and London.

GOULD AND PYLE'S POCKET CYCLOPEDIA OF MEDICINE AND SURGERY. Second Edition; revised, enlarged, and edited by R. J. E. SCOTT, M.A., B.C.L., M.D. Leath.; price $1.00 net. P. Blakiston's Son and Company, Philadelphia.

Miscellany.

The Egg as an Emblem of Heredity.—In an entertaining article on proverbs and eggs (it must be admitted that sometimes the age of the latter strongly suggests the antiquity of the former) a writer in the *British Medical Journal*, September 27, 1913, discourses on the egg as the emblem of heredity. A little-known proverb bridges over the gulf between the egg in embryology and the egg in diet: "An egg will be in three bellies in twenty-four hours." The hen's is one and the eater's is another, but, the author asks, who will guess the third? There is a Greek proverb, "A bad crow lays a bad egg," which represents the popular idea of morbid heredity, but neither eugenics nor Mendelism bears it out altogether, for an apparently good crow sometimes lays a bad egg, and an undoubtedly bad crow occasionally lays a good one. There is, however, here as in so many other cases, a proverb which seems to offer only a qualified approval of the statement that a bad crow lays a bad egg. It is this: "Many a good cow hath but a bad calf." So it often is with proverbs, and the reason is not far to seek, the proverb-maker wishing to give the proverb-user something to suit all contingencies. The Latin equivalent is *heroum filii noxae*, and Ray says "Aelius Spartanus in the life of Severus shows, by many examples, that men famous for learning, virtue, valor, or success, have, for the most part, either left behind them no children or such as that it had been more for their honor and the interest of human affairs that they had died childless." One might add many more instances out of modern history. Edward the first, a wise and valiant prince, left Edward the second; Edward the black prince, Richard the second; Henry the fifth, a valiant and successful king, Henry the sixth, a very unfortunate prince, though otherwise a good man. And yet there are not lacking in history instances to the contrary, as, among the French, Charles Martel, Pipin, and Charlemain in continual succession. Joseph Scaliger the son was, in point of scholarship, no whit inferior to Julius the father. There are, however, many contradictions in the matter of heredity, and some of the greatest men would never have been in the world at all if their parents had been successfully segregated or skilfully asexualized on modern principles. It is a tangle of tangles, and one is tempted to put Mendelian results into a new and up-to-date proverb to the effect that "it is hard to tell who a man's father was till you see what his son is going to be," or, perhaps, "you know not the hen till you have the chick's egg."

The Diagnosis of a Monstrosity.—W. T. Bertrand tells the story of a young man who started to practise medicine in a village of Indiana in the days when medical practice acts were not as stringent as they are at the present time. It could not be ascertained that any institution had conferred upon him the degree of M.D. He was soon called in to attend an obstetrical case. He made his examination, called the husband to one side, and said: "I hate to convey this information to you, but your wife is giving birth to a monstrosity. There are no bones in the head; it has but one eye, and its nose is where the other eye should be." It is needless to state that a genuine practitioner, who was then summoned, found a breech presentation and soon delivered a healthy boy.—"Stories of Doctors, etc."

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Original Articles.

NEUROVASCULAR GANGRENE.*

By M. D. BLOOMFIELD, M.D.,

PHILADELPHIA, PA.

Classified under the head of vasomotor trophic neuroses is a group of ailments presenting a symptom-complex indicating disturbed vasomotility and trophic alterations, so closely resembling each other, if not identical, that to differentiate specifically is well-nigh impossible. The more I consider these ailments the more am I inclined to believe that they are simply manifestations of the various stages of one specific malady. For instance, a careful review of the histories and the clinical picture of the cases I exhibit this evening will, I doubt not, convey an impression of the identity of this disease. It forcibly occurs to me that what so often is considered a distinct disease entity is in reality only a "stage," a manifestation of the phenomenon first thoroughly elaborated by Raynaud. It is claimed, for instance, that erythromelalgia should be considered a specific affection, and truly it seems so to me, likewise intermittent claudication, thromboangeitis obliterans, endarteritis obliterans; but upon a closer inspection and consideration of the symptomatology in each separate classification you will observe that they in no way differ from Raynaud's phenomenon, the clinical and pathological picture being identical. The only distinction I can make is that these "specific affections" are simply the undeveloped stages of Raynaud's phenomenon. They no more run their full course than any other malady does. During the past five years I have personally observed and studied thirty cases of this phenomenon, and what at first in some cases appeared to be purely erythromelalgia after the lapse of five years presented the typical symptoms of Raynaud's phenomenon, eventually terminating in the characteristic gangrene of the member, and finally in amputation with fatality in most cases.

"Everything concerning spontaneous gangrene is in a state of distressing uncertainty," says M. Victor Francois of Mons, in 1832, in a work[1] which has justly become classical. To this classical monograph, in this spacious gap of years, little has been added to advance our knowledge in this particular direction. To M. Francois we must assign honorable rank in bringing to light his theory well supported by facts and statistics that vascular obstruction is the cause of spontaneous gangrene, though this fact was advanced prior to his time.

Quesnay[2] in 1739 advanced the theory that it was the extinction of the organic action of the arteries, to which his confrères soon added venereal and scorbutic toxins.

*Read before the North Branch of the Philadelphia County Medical Society.

Hebreard[3] in 1817 and Avissard[4] in 1819 advanced the idea very convincingly that ossification of the arteries and concretions in the vessels were responsible for the occurrence of the gangrene.

Dupuytren and M. Roche subsequently developed a new train of thought, assigning arteritis as its cause, even advancing this as responsible for the inflammatory fever of P. Frank and the angioneurotic fever of Pinel.

M. Lagroux[5] laid particular stress on arterial concretions. Soon Virchow expounded his theory of solid bodies being transported to a distance by the blood current—the theory of embolism and thrombosis—which today, without contradiction, stands preeminent in the pathology of the affection.

To Virchow must be given the credit of being the original and correct interpreter of the pathogenesis, the true mechanism of obstruction and its resultant gangrene.

M. Godin[6] in 1836 advanced his theory that obliteration of the venous circulation was responsible for gangrene.

M. Bourgeois[7] of Etamps sought to establish typhoid fever as a cause of dry gangrene.

Virchow,[8] who has had a wealth of pathological material, admits that even in the most pronounced cases of gangrene he has been unable to find a true assignable pathology.

Zambaco and Charles Racle[9] established beyond doubt the capital point that gangrene, such as observed in Raynaud's phenomenon, can occur without alterations of the vessels.

Raynaud's phenomenon was first reported in 1862,[10] under the heading, "local asphyxia and symmetrical gangrene of the extremities." The earliest age at which this malady has appeared was in a patient who suffered his first attack at three months; the oldest was in a woman of 77. I have observed it in a man of 85 years.

The disease on this continent is most prevalent amongst Hebrews. Of my thirty patients twenty-eight were Hebrews. The average age at which this disease occurs is about thirty years. Males, in my experience, are more frequently affected. A history pointing to a neuropathic proclivity was elicited in all my cases, as well as exposure to severe weather: all but one recalled having suffered from some infectious disease; rheumatic family ancestry was common in most; lues was denied by all. All were married and had procreated large families except two ages, 12 and 19; they were all of hard working and industrious temperament and abstemious in habits.

The occupation seems to deserve some consideration. Most patients pursued an occupation which necessitated long hours of standing, or work requiring pressure by the feet, or were exposed to the severities of all weathers. Naturally such industries interfere with the venous circulation. An

addiction to ergot or any drug was conspicuously absent; all had smoked tobacco, but not excessively.

Before I detail the findings in this disease, in order that we may appreciate the mechanism of this pernicious malady, let us briefly consider a few anatomical-physiological factors. The nerves which innervate the arteries and to a lesser extent the veins, penetrate their outer coats in order to reach the media. These nerves have their origin in the sympathetic system. The muscular tissue of the walls of the finer arterioles are controlled by vasoconstrictor and vasodilator fibers. The dilating quality predominates in the vasomotor nerves which are found in the muscular coat. The constrictor type of nerves are found in the skin. The dilator nerves exert their influence locally and are of reflex origin; the constrictors may act either locally or over an extensive area.

Buerger, who has most recently exhaustively studied the pathological findings in the limbs amputated by him, has given us an excellent description of what he feels is a distinct clinical disease, but unfortunately his same findings were present in cases of symmetrical gangrene, the true Raynaud's disease. Throughout all the diseased vessels there is seen a strong effort on the part of nature to heal and produce compensatory collateral circulation. The vessels naturally show the changes incident to the severity and duration of the disease. In the very early stages there is occasionally seen small foci adherent to the inner coat. These are composed of giant cells.

At times I wonder whether microbic infection does not enter strongly as a causative agent. Considering the widespread distribution of this affection through the system, the fact that it may set in abruptly, especially as is seen in Cases III and IV, in a lad of 14 and a middle-aged man of 45, after cutting the nail of the large toe, agonizing pains, with elevation of temperature ensuing several hours after, followed by gangrene of the toe, with slow involvement of the remaining digits of the same foot, accompanied by a lymphangitis. Case XIV, operated on at Jefferson Hospital by Dr. Nassau, more than fully substantiates and warrants the opinion of microbic infection. Occupations which necessitate exposure to cold or damp and the industrial, that is those concerned in the manufacture of articles where poisons enter into its manufacture as lead (Cassirer[11]) predispose to the disease. Brasch cites the case of a boy who developed this disease after receiving an injury (circular saw). Hess has seen this malady in several bricklayers, whose occupation led to frequent injury to the fingers. Dehio (Cassirer) cites the case of a patient who developed this affection after being frightened by an attempt at rape. Cassirer states that this disease has often been observed after an attack of malaria. It has also occurred as a complication in typhus, enteric fever, grippe, erysipelas, and some observers have closely linked this disease with lues. A neuropathic proclivity no doubt strongly predisposes a patient to this affection.

This disease may manifest itself in three forms, viz., as (1) regional ischemia (Weiss[12]), (2) regional cyanosis, and (3) regional hyperemia.

The attack may be so slight as to pass off without the slightest cognizance by the patient. Occasionally, as in Case IV, it exhibits as its initial manifestations, severe cramps and stiffness. The history is usually typical. Beginning with a neuropathic family history, the description of an unhealthy occupation, the occurrence of some infectious disease in the recent past, it usually continues with the complaint of insomnia, a peculiar pain, a burning sensation in the toe or toes, occasionally the heels; not infrequently in the malleolus is a deep smarting, stinging sensation, deeply underneath, which is not painful to the touch. The foot is as cold as ice and usually you will see the patient on the warmest day having a thick flannel wrapped around the painful limb. To outward appearances he looks well nourished; his manner seldom betrays the state of discomfort he is in, for it is almost singular to mention that all my patients were in a sort of jolly state of mind. Occasionally when changing his physician he attempts to side track the next physician by telling him he thinks he stubbed his toe some time ago and merely wants a salve to heal the small sore. When you see the patient in his own home he usually is found reclining in bed fully dressed, except collarless, most of the time unshaven, for here a peculiar mental state of carelessness comes over the patient, who until a short time ago was perhaps a little overparticular in his appearance. Most of the patients are seen to smoke excessively, and when you caution them as to the danger of continuing this habit, they do not accept the advice kindly, reasoning to themselves the apparent foolishness of this correction, for as they have often expressed themselves, "how can smoking ever go down far enough to hurt my toe?" On examining the toes you will observe they are as white as a dead member. When the foot is hanging down you soon observe the pale color disappears and is replaced by a deep purplish blue. When local asphyxia is fully established a bluish black color replaces the pale color. I have often observed an actual play of colors occurring over the entire affected limb, especially when the patient changed position of leg. There is also observed a decrease in temperature (Cassirer having noted the temperature fall as low as 20° C. (68° F.).) At times I have been almost forced to believe that microbic infection should be considered as a causative agent. Considering the widespread distribution of this disease through the whole body, the fact that it may set in abruptly, as in three patients who had been in excellent health, until an injury was accidentally inflicted while cutting a toe nail, from which moment agonizing pains, temperature elevation, and slowly developing gangrene of the toe and remaining digits extending through the lymphatics of the affected extremity, showed that there must have been some infection.

Morrow, Raymond, Porter, White, and West cite numerous cases reported by themselves and others, where, after exposure and injury or some infectious disease, this malady had abruptly set it, in some cases with the physical and constitutional signs of a severe infection. All of my patients showed a high percentage of indican.

Whether this gangrene is preceded by a neuritis or whether the lumen of the veins and arteries becomes occluded by thrombi is extremely difficult to determine. Indeed, we have reports of cases where the entire lower limb was mummified, yet the lumen of the veins and arteries remained unobstructed. The only pathology observed was a peripheral neuritis, though distant to the point affected. Postmortem reports are extremely rare, because of the reluctance of the family to permit an autopsy and because the mortality is so low—at least that traceable directly to this disease. Recent thrombi may

involve extensive portions of arteries and veins, but Buerger does not feel that this condition is necessarily secondary to gangrene, for he has found this condition even when no gangrene was demonstrable. The affected area is usually swollen. This swelling occasionally disappears and not infrequently the patient will inform you that the previous day actually was "his own," he felt so well. There will be times when you will leave the patient in a most joyful state of mind, for he is temporarily free from discomfort, but when you see him the following day he is tired, haggard looking, has not slept except for occasional minute naps. In advanced cases the patients seldom sleep in bed. They usually remain in a chair by the window and sit for hours and days without ever going to bed. Sometimes the pain comes in attacks which may last for a few minutes; but I have seen these painful crises last several weeks, no medicinal or mechanical measure exhibited being able to relieve the suffering. On examining the toe carefully you may see a small vesicle or ulcer, or simply what looks like a little serum exuding from the margin of the nail. When an ulcer is present you can make up your mind it will be months before that will heal, if it ever does. This ulcer gradually develops a gangrenous character, which is almost characteristic of the disease. It is limited to a small area around the affected phalanx. The opposite extremity at the same time may show the same signs of beginning trouble, but this is not frequent during the first few weeks of this disease. At times, besides the gangrenous spot on the phalanx, the tip of the nose, the lobe of the ear, the head of the penis, as seen in Case V, the tip of the tongue, or even the nipple may become affected. The pain in this affection is characteristic. Raynaud says, "I have known persons otherwise quiet and patient, to howl with pain, their bodies bent and contracted as they sit in bed. These unfortunate subjects appear to pass their entire time in seeking a position which will afford some relief." Most cases have secretory disturbances, usually of the hyperhidrosis type. Cassirer has observed atrophy of the muscles affecting the gangrenous digits or limb. Symptoms referrable to the visual apparatus are of no import except for the tired look, the sleepy eyes. Raynaud observed some ophthalmoscopic changes in the eye grounds, but these I have never been able to confirm. Weiss also observed a peculiar contraction of the central artery, but this has not been confirmed by any other observers so far as I can ascertain. The urine of all my patients showed a plus indoxyl-potassium sulphate content. Raynaud frequently observed a paroxysmal hemoglobinuria. Some observers have reported a paroxysmal albuminuria and milituria. Uric acid is always in excess. Regarding the other viscera, I could find no change clinically as in two post-mortem examinations, the only evidence of a pathological nature being the arteriosclerosis. The symptoms herein enumerated are of an intermittent character. They may last for several weeks, the intensity of the symptoms gradually disappearing, leaving the moistened sloughtened digits dry occasionally hanging as if ready to drop off. Hirschfeld has seen the symptoms with all their intensity persist until death closed the scene of suffering. You will not infrequently observe cases in which only the vasomotor phenomena persist, where gangrene never manifests itself. Occasionally this affection complicates tabes or syringomyelia, as observed by Schlesinger. I have seen several patients suffering from embolism or thrombosis of the internal capsule who had associated with their hemiplegia a typical Raynaud's phenomenon. Most patients usually become hysterical or neurasthenic in a short time.

Solis Cohen[13] has seen changes in the mucous membranes in which the vascular supply manifested the changes of hyperemia, ischemia, etc. Gangrene may occur with or without vasomotor disturbances. Cassirer, it appears to me, has felt that infection, intoxication, and exposure to cold play a great rôle in the pathogenesis of this affection. Leprosy and beriberi have at times been mistaken for Raynaud's phenomenon.

The diagnosis is not difficult. Acroparesthesia, erythromelalgia, scleroderma (very rarely), intermittent claudication, thromboangeitis obliterans seem to me to be only the illy defined transitional stages of this phenomenon. Senile gangrene and the gangrene of diabetes mellitus occasionally will worry one, but the clinical history and course of the disease, the urine, the condition of the other viscera will assist in clearing the case. I believe that this disease shortens life, but in itself is not fatal. The cases usually succumb to a pneumonia or to infective lymphangitis resulting from amputation.

Treatment.—In winter when these patients suffer most, a change of climate would be of great benefit. I have tried almost every known remedy, the injection of fibrolysin, the washing out of the affected vessels with normal saline solution, quinine, ergotin, strychnine, electricity, hydriatic measures, mechanical elevation, hot-air apparatus, galvanization, cauterization, high-frequency currents, ointments of every description, Bier's hyperemia, rest in bed, postural treatment, exercise, cocaine as advised by Herz, mineral salts, but I must confess that to no one remedy could I ascribe any curative powers. I believe that this is a surgical malady, though, of course, the patient should be given a fair opportunity to receive conservative medical treatment. I have particularly been impressed with the freedom from suffering which the patients enjoyed while discussing their case, and upon this observation I have tried to have the family and especially friends engage as much of the patient's time as possible, and this has proved a wonderful temporarily relieving measure. Most patients are free from pain only when their minds are engaged. This is no doubt the reason that suffering is greatest during the night. J. Booth Miller[14] emphatically states that it is useless to delay when gangrene is clearly defined. He advocates amputation well above the affected area. My observations have taught me that conservation of limb should be the secondary consideration, preservation of life the primary one. Every step should be taken to prevent involvement of the other extremities. Building up the system with tonics, milk, and eggs is beneficial. Erb has found that smoking not only aggravates this disease, but he goes so far as to state that this may be the exciting cause, in some of his cases. Narcotics and coal tar products should never be given for they never do any good and only diminish the resistance power.

Case I.—William Callanan, 35 years of age, Irish-American ancestry. Served in the United States Army during the Spanish-American War. Was exposed to the severest weathers and the trials of camp life. Contracted malaria and has never been well since then. He does not recall any previous diseases, excepting measles. Was honorably discharged from the army. Upon reaching his home town, Bryn Mawr, he found his gait was

somewhat impaired. He limped a little, but paid no particular attention to this, thinking it was merely due to exhaustion. Rested at home for several weeks, but limping grew worse, and soon patient noticed he had pain every time he attempted to walk. He also had shooting pains through his body, but thought this was also due perhaps to a rheumatic complication. When he came to see me he was most surprised when I asked him how long he had noticed a small dark ulcerating spot on his large right toe. He had never observed this, but further inquiry elicited the fact that ever since his return home he noticed that his both feet were as cold as ice. I applied soothing antiseptic ointments to this necrotic spot on his toe, but no attempt at healing took place. I advised him to report to me at the Nervous Clinic at the Jefferson Hospital, where his condition was more thoroughly studied, and all agreed to the diagnosis of endarteritis obliterans. He finally was transferred to the surgical ward under Prof. J. Chalmers DaCosta's care, where another attempt was made by rest and medicinal treatment to check the rapidly progressive gangrene. When I saw him one week after his admission to the wards he had been having a daily temperature ranging between 101° and 104 F., and was very profoundly septic. Amputation was advised. Patient refused and returned home, and when seen at his home later by Dr. Righter he had a temperature of 104.8 . In a few days, by stimulation, etc., we were able to reduce the temperature, and had him transferred to Delancey Hospital, where Dr. Righter, together with Dr. Morrison, amputated both extremities—first the right and two weeks later the left leg. The patient is at present in excellent health and feels better than ever before. It will interest you, I am certain, when I tell you that various diagnoses had been advanced by several physicians who had treated him in the early stages of his disease. Rheumatism, intermittent claudication, malarial osteomyelitis were some of the diagnoses advanced prior to his coming under our care. I am sorry that the plasmodia of malaria were not looked for during his stay at the hospital, for I am very much inclined to believe from his history of having had cold, fever, and sweat sometimes coming on every other day that he had had the typical estivoautumnal type of malarial fever. I am also very much inclined to believe that exposure to cold and malaria were the exciting causative agents in producing his disease.

Case II.—M. Mogulefsky, Russian Hebrew, grocer, previously was a newspaper carrier. He also was exposed to the severest weathers. Had to carry heavy bundles of papers on his back, through the thick snows over rough country roads. His trouble began with pain over the mid-ankle joint. I saw patient four months after the onset of his disease when he came to me after having been treated at St. Joseph's Hospital. He presented a small discolored area, over the midankle joint, in the center of which could be seen a small vesicle, from which oozed a yellowish colored fluid. His right knee joint also pained him. He was of nervous temperament, good habits. On examining the right leg a cord-like structure, extending from the popliteal space to the middle of the leg, could be felt. His inguinal glands were swollen, he had burning stabbing pains over the internal malleolus, and tenderness over the femoral vessels. On putting his foot on the ground, it became red, swollen, and extremely painful. His pains were greatest at night and nothing would relieve him. The opposite leg was not involved in any way. Six months after onset the right leg was operated on by Dr. LaPlace, who removed it as far as six inches below the popliteal space. The stump refused to heal and two months later a second operation was done and amputation completed above knee joint. One year later his left leg began to give him the same trouble as had the right, and sixteen months after amputation of right leg, left was removed. He now looks a picture of health.

Case III.—Kollscher, young man, age 22, contracted Neisserian infection at 19. Two weeks later began to experience pain in his left ankle joint, which was treated for gonorrheal rheumatism. Improvement was soon experienced, but he never felt quite well in that joint following his acute attack of pain and fever. One year after exposure he came under the care of Dr. Horwitz and Dr. Loux, complaining of pain in both ankle joints, followed by a burning and stabbing sensation shooting through the inner side of both feet. This pain was intense. His feet would swell two or three times during the day. When in a reclining posture they were of a reddish blotched color, but on placing his feet on the floor they became purplish blue and the pain was agonizing. He has remained in this state of torture for the last three years and has traveled from physician to physician seeking relief.

Case IV.—Friedman, age 54, always enjoyed good health. Had what was diagnosed as typhoid fever when 24. His occupation is that of a canvasser which exposes him to all sort of conditions of weather. Last year, for the first time he experienced pain in his popliteal space, right leg; the pain extended down back of the calf muscles, and on attempting to walk he would limp quite perceptibly and would tire after walking one half square. One month after onset of this pain he could not walk at all, for the pain became intense. The left ankle joint now began to become swollen, red and painful. He increased his daily smoking to twelve packages of cigarettes daily, but surprisingly he felt no other effect except what he termed his only relief. There were hyperesthetic areas all over the posterior surface of right leg and over both malleoli of left. The pulsations in all vessels exposed could be elicited. He received constant medical care for three months, at the end of which time he was sufficiently improved to leave the house, and he insisted on resuming his occupation of canvassing. This he continued for nine months, when the old trouble occurred with greater severity, and now, though there is no visible gangrene, I am certain it is only a question of a short time before this will set in, for there is now beginning to exude from the margin of the right large toe a yellowish straw colored serum.

Case V.—Glassman, sewing machine manufacturer, consulted his family physician for ingrown toenail which he claimed was annoying him considerably. It interfered with his walking and pained so much at night that he insisted on having it removed. Five hours after Dr. Weinburg removed this, and as I understand, under the strictest of antiseptic precautions, the entire foot became blue, the toe grew about five times its original size, fever and prostration were present. I saw the patient during the height of this attack, and after several weeks of hard work I finally was able to get him some comfort. The inner margin of toe shows an ulceration which thus far has resisted all attempts at healing and the large toe of the opposite foot is now giving him considerable pain, is swollen, reddish blue in color, and causes him to have a distinct limp when walking. He tires easily, sleeps little through the night, although he claims that the pain is not great enough to keep him awake. However he is not free from it for a moment even.

Case VI.—Wolf, boy 12 years of age, developed the same condition as the above case and had to have his right toe amputated for gangrene following two weeks after extraction of what he thought was an ingrown toenail. Now the toe of the left leg presents the same condition as that described in case above.

Case VII.—Friedman was exposed to severe winters in Russia and remembers having frozen both feet. Ten years later began to experience pain in his middle toe of right foot, which he thinks he struck against a stone. Has a small ulcerated area at the inner margin. This has resisted all attempts to heal. His foot is red and the inguinal glands are enlarged. He suffers excruciating pains at intervals. Has taken considerable medication to relieve his pain but to no avail. Seen by Dr. Bachrach about two months after onset. Was placed at rest and heat applied. Is feeling considerably improved at present writing.

Case VIII.—Katz, ladies' tailor, age 32. This is the third summer in which he has experienced pain and swelling over right ankle joint. Now the popliteal space of right leg is very tender. He cannot put his leg down, for the whole extremity swells up, becomes fire red. Over the outer margin of nail, second toe, right foot, is seen a small spot which is blackish in color, the other toes are glassy looking. When he puts his foot to the floor these pale deadlooking toes become purplish red in color, accompanied by severe pain. He smokes considerably and tells me that his left leg was frozen in Russia about twelve years ago. Every winter, however, since having frozen his left leg, he has experienced difficulty in walking for several weeks. He has always complained of cold feet since his exposure. Dr. Stembler's case.

Case IX.—Sosslofsky, under care of Dr. Miller, at Polyclinic. Consulted me November 8, 1912. Both feet had all their toes amputated except for the third and first toe of left foot. These are now becoming gangrenous. First the left foot became affected, swollen, bluish, and painful. Soon followed by small bleb over middle phalanx of right foot. This soon ulcerated, resisted all treatment. Other toes of foot became involved. Had pain all over course of femoral vessels and distribution. Amputation was done, removing all the toes. Two years later right foot became involved. Condition at present: remaining terminal and middle phalanges soon will be removed.

Case X.—Gershuny, 81, architect. As a carpenter, many years ago, remembers having frozen his right leg. Two

years ago noticed a small black spot on the mid outer surface of second right toe. This did not pain him, but to heal it some one advised him to apply moist tobacco leaves. After applying this for several days the skin of this toe came off, leaving a weeping, painful ulcerated area which seemed to be deep down to the bone. This toe refused to heal. The ulcer extended, involving the entire phalanx. He accidentally hurt the inner margin of foot, making a slight abrasion. This never healed. Thirteen months after onset the entire right foot and popliteal space of right leg began to hurt him considerably. The foot became swollen at times. Felt hot as fire. Suffered agonizing pains over entire right leg and foot; gangrene extended around previous ulcerated phalanx, and the remaining digits of left foot became swollen and reddish blue. Sleepless nights and exhaustion weakened him considerably. Dr. Deaver advised amputation of left foot. Patient refused and died from septic thrombosis affecting his right lung.

Case XI.—Malamut, restaurateur. Remembers having had his toes of left foot frozen, about ten years ago. Consulted Dr. Babcock and later Dr. Hammond for a small ulcer on the outer margin of his right large toe, which he states he had already had for several months and which refused to heal despite everything he applied. When I saw him his left leg was swollen. Lymph glands along leg were likewise enlarged and tender. I lost sight of him for a year, after which time he consulted me again. This small ulcer on the outer margin of the left toe was still present, without any appreciable difference in size, etc., except now that his toe pained him considerably. Pulsations over both tibials were absent. He continued under my care for several weeks, but noticing no improvement he drifted from me and up to this time I have not seen him.

Case XII.—Cohen, operator, age 55. Like all the others was the father of a family of six. Seen by Dr. Deaver and later by Dr. Babcock, both agreeing that amputation should be done high above the knee-joint. History runs like that of the previous case. He remembers having had what from his description I believe was malarial fever (a fever which lasted two years, coming on every four or five weeks and lasting five days). His right leg was amputated at the Jefferson Hospital by Dr. Gibbon. I saw him one year later, when the left leg became similarly affected. I advised his readmission to the hospital. He died three days after amputation of left leg, from pneumonia and pyemia.

Case XIII.—Bainbridge, grocer. Operated on at the Jefferson by Dr. Gibbon. He gave a history of having had both feet frozen when a child. Three years before his admission to Jefferson he had experienced pains along entire left leg, and in fact the entire left side of body when walking. Deep breathing would cause him sticking pains over left side of chest. Had a small ulcerated discharging area over inner and outer surface of the second left toe. He applied tobacco leaves on the advice of a good friend. Ever since applying these leaves he has suffered excruciating pains in both feet. The toes of both feet are glassy looking. He does not walk, for the pain is too intense as soon as he places his feet upon the ground; both feet become swollen and deep reddish blue as soon as they are placed on the floor. The left foot was operated on by Dr. Gibbon. The last I heard of this patient was that he had died from sores over his entire right foot.

Case XIV.—Rubinson, brush maker, age 18. Has sore throat every year which requires opening up of tonsils. Also recalls having had his legs almost frozen off when a small boy in Russia. Seen by Dr. Franklin, at which time he had pain over the internal malleolus of left tibia, pain over all the toes of the right foot. Is extremely neurasthenic. Thus far all measures to relieve his pains have been of no avail. He received a slight wound over tibia, about center of leg, which took about three months to heal, though this was not painful. The vasomotor phenomenon in this case was typically that of other cases herein described.

Case XV.—Treeberg, shoemaker. Had a fever which lasted six weeks, when he was 18 years old, about 25 years ago. About three years ago the heel of his right foot ached him so badly that he could not stand upon it. Occasionally the toes of his right foot would become pale, as if dead, and when placing his hand on his right foot it appeared as if the foot were frozen. The toes of the left foot were swollen at times and occasionally appeared bluish black. When he would attempt to walk a few yards his knees would sink in as if he had walked miles. The pain in the right heel continued for about six months, when one morning he woke up feeling as if nothing ever troubled him and since then he has been fortunately free from pain, but the toes of both feet are cold as ice and frequently exhibit a display of colors.

Case XVI.—Rosenfield, 54, Hebrew teacher. Had a fever which lasted several weeks when he was about 19 years of age. Felt in good health ever since, but has always suffered from cold feet. When he came under my observation he was bed-ridden. Right foot was swollen and a small gangrenous patch appeared over inner surface of third toe. This was extremely painful, and seldom has the patient been free from pain since the onset of this gangrenous patch. He thinks this ulcer came on suddenly. I advised amputation of both feet in this case. Patient refused and three months later both legs were operated on at the Medico-Chirurgical Hospital, the patient succumbing two weeks after amputation.

Conclusions.—This, I believe, is a surgical disease. From the history of the various cases discussed and exhibited you will observe that at first they assumed the character of the various stages of this phenomenon, which some observers would diagnose as intermittent claudication, thrombo angeitis obliterans, endarteritis obliterans, etc., but as time elapsed, they eventually developed their true termination into gangrene and in 90 per cent. of the cases ended fatally. I believe if amputation were done early suffering would diminish appreciably, exhaustion be prevented and a greater degree of safety to the life of the patient and a better chance of recovery. Never wait for lines of demarcation. When they come it is too late to amputate. Do not give coal tar products to relieve pain. Mental diversion and heat, with plenty of nourishment, are the best means thus far at our command from a medical standpoint. Lastly, to quote from Raynaud (in this paragraph my colleagues will have gained the whole truth advanced long before any of us here this evening were born): "To moderate the pains, to prevent the use of unsuitable measures and doubtful remedies, such ought to be in the majority of cases the part played by the physician. Nature will do the rest. We shall be sufficiently satisfied, although we cannot immediately relieve our patients, if we can still encourage them with the hope of a probable and approaching recovery and should this point be the only one which clearly results from the work just completed, I should not regret the pains which I have bestowed upon it."

The case of Callanan is extremely interesting. It typifies in more than one respect the psychological makeup of these patients. He, like all the others, possessed a splendid degree of intelligence. Fully conscious of the severity of his disease and its probable consequence and fully realizing the uncertainty of cure from medical measures, he, most singular to state, like most of the others sought to find a cause and its probable elimination. He felt that to find the true exciting cause would be the only hope. However, in this connection, I must freely admit that he unfortunately possessed the fullest requirements for the development of this disease. Any one of the three causes mentioned in his history, viz., exposure to severe weather, sleeping on damp ground, the infection with the plasmodia of malaria, any one of these agents might have been sufficient in themselves to produce this terrible affliction. In reviewing his early and recent history, the history elicited prior to his development of gangrene, we learn that he was a graceful dancer, possessed of perfect features and bodily grace, admired for his military carriage in all sorts of exercise, his friends and family were shocked when upon his return from the army, he limped, looked pale and haggard, and soon after began to develop this malignant disease. The am-

putated limbs showed the typical pathological picture of obstruction of smaller veins and arteries, several large and deep holes in both feet, toes sloughing off. He is at present striving to earn a livelihood for his family of three children by selling cigars from a little stand and this has given to him quite some mental cheer. Up to the present time he has not fully learned how to use his artificial legs.

My views as to the etiological factors, viz., exposure to cold, trauma, and malaria are well supported by the observations made by different observers in various parts at home and abroad. The literature contains numerous cases where after slight trauma to a digit or phalanx this malady soon set in.

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THE NEUROSES AND PSYCHONEUROSES OF CHILDREN: THEIR MODE OF DEVELOPMENT AND TREATMENT.*

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The matters and affections to be treated in this paper are those that have no other than a mental disturbance for their pathological basis. In these the pathologist, bacteriologist, and chemist cannot show anything but immaturity of the child's brain. Therefore among the many subjects to be omitted in this paper will be chorea and epilepsy, which are frequently described as neuroses.

The most frequent manifestation of juvenile mental disturbance is a motor expression of a spasmodic character. The most common of these will be described, and they will serve as a model as to how the various neuroses and psychoneuroses are developed.

A large number of the motor neuroses of children are those of facial grimace. It may occur among those that are well cared for, as well as those that are neglected. The children as a rule are bright and well thought of. They have no nightmares, and there is no history of fright.

Thus, two cases in the Mt. Sinai Hospital Dispensary Service (Nos. 105 and 846), aged six and a half years and nine years respectively, were above the other children of their age in school, and were quite precocious in their mental development. These children, on account of their cleverness and aptitude, are allowed a greater amount of leeway than their less well endowed comrades, and are allowed to manage themselves to a great extent. So they are left to their own devices on the street, where they run wild, and requiring less time for study, they remain in the street for a longer time. Being brighter, they take the lead in street play, and try to outdo everyone with whom they come in contact. So it is readily seen that they become excessively active in their bodies, as well as being mentally active from natural endowment. On the other hand, at home the parents take great pride in the erudition of the youngsters, and speak to them as to an older person, take them into the family councils, and, in short, treat them as adults. The gravity of the home atmosphere intuitively compels the child to assume a superior attitude, to deserve all of this consideration, and give thought to the weighty problems of the adult. The little personage sits up, is quiet as befits an older individual, and, in short, the child is compelled to assume the unnatural position of a person of mature years in conformity with the atmosphere with which he is being surrounded.

But the child remains a child. Its accustomed activity in the street, as well as the motor preponderance of the child's nervous system, assert themselves, so that the constrained attitude at home is too great for the immature mentality to balance, and the motor inhibition is unconsciously overcome and is exhibited in the most prominent part of the body, the face. The efforts at mental concentration are shown by facial twitch, and even as the child is conversing he is showing repression of his wonted motor activity. Thus the mouth is drawn to one side of the face or the other, or it is alternately pursed up or relaxed, and at times the motions are even transmitted to the trunk.

The management of these cases is very trying. The parents do not realize that the children are so wild on the street, and do not realize how harmful it is to tax their minds to too great an extent at home. They always feel that it is no effort for the particular boy or girl, because, as they say, they are so clever. The problem is so to arrange the daily life of the child that it will not preponderate too greatly in one direction. In the street the company of an older person will curb its overactivity by mere propinquity, and at the same time that person can direct its play to more quiet and even more utilitarian paths. In this way the child's confidence is gained, and instead of the unrestrained riotous play, quiet walks are in order and the body is spared the exertion of the overactivity. At home the conditions are made normal as for a child, the parents being told that the little patient will have time enough to be old, so let it be young now. Treat the child as any other Jack or Jill, and leave out the seductive sugary "my boy" or "my girl" with which the parents ensnare these children. Another great fault is that these children read too much; most of the literature is not at all necessary for their mental development, and often unsuitable for their age and powers of appreciation. So they get distorted views of things they read or hear discussed, and consequently use up energy trying to grasp all they read. Besides, the parents are continually exhibiting the wonderful studiousness of the children, so that they try even

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harder to read more and more, with inroads on sleep and rest, thus again taxing their already overtaxed bodies and nervous systems. The loss of sleep is serious, for that is one thing that a child needs in large amounts, so that the nervous system can recuperate from the day's work. So, from all viewpoints, the child-wonder is the greatest menace to himself on account of the liberties which are taken with him.

Of course, any poor state of bodily health should be guarded against. A daily tepid bath of long duration is very beneficial. The method of treating them by disagreeable drugs and cold baths to shock is absolutely barbarous, besides being harmful.

This very well demonstrates a disturbance, the manifestations of which are due to faulty environment. This environment being created by family and friends, they have to be trained so that the environment is changed, and in this way the child's condition will be cured by itself in short order. But until the parents and friends realize that the mistake is theirs and that they are the cause of the child's illness, until then will the child remain sick.

An annoying neurosis in the child is a bilateral tic of the eyes. It is not a blepharospasm, but a rapid closing and opening of the eyes, as if the child were peeping at something. It usually occurs in children between the ages of five and twelve, who, as a rule, are well nourished and in good health otherwise. They very rarely show any degree of refractive error. The child just blinks as if it were in a strong light, but there is not any of the retraction as when one is exposed to great glare. The child is worse when it is being looked at, and the condition can very often be brought about by the child being made conscious that it is being examined for that particular symptom, and thus a simple request by the examiner will very often bring it out. But all the time the closure of the eyes impresses one that they are being closed in a slightly volitional manner, as if the patient were seeing something. On investigation the only thing that can be found as a basis for this condition is some dream trauma. Thus in the case of a little girl nine and a half years of age (Mt. Sinai, case No. 502) who had been suffering with this affection for about three months the only thing which could be found as a cause was an oft-repeated dream (dreams are repeated with great sameness in children). She saw thieves in her bedroom who were doing most unmentionable things—things that could not be spoken of or looked at. So in the dream she fearfully looked at these apparitions of thieves and their doings, but as she did this she realized their impropriety besides their fearfulness, and quickly closed her eyes to shut out the sight. But her curiosity overcame her fear, and again she opened her eyes, to be followed by the closing from the same causes. During the day there was a rehashing of this dream and a realization that it was improper for general discussion, so she withheld her dream experiences from her mother and playmates, but still she enjoyed those dreams and surreptitiously looked at them in her day imaginings, and repeated the sleeping performance of shutting them out when realizing their horrible nature. But the act of closing her eyes attracted attention from the family and playmates, and thus she became a distinctive personage who was closing and blinking her eyes, and therefore she automatically kept on closing and blinking them from this atavistic posing that was thrust upon her by this attention. The cause of the blinking soon was forgotten, but the blinking remained, due to an entirely new cause, without any remembrance of the dream, and it was only by a complete analysis of the dream-state that that etiological factor was brought out, and as soon as this was taken as a therapeutic basis the cure was complete.

In these particular cases the correction is moral to a degree. The child is reminded that she has seen this dream quite often, and is no doubt well acquainted with it, and by this time she should realize that it was only a dream and not real. Also that she should tell her mother about her dream and ask any information about it; for if she had, her mother no doubt would have told her that thieves come to the house to steal and not to do the various things that other little girls say that thieves do.

For the material therapeutic measures, daily cold baths are very good These cases recur, and the cause is the same—that is, recurrence of the dream—but the examiner can very quickly overcome this by directing the child's attention to the old dream.

This illustrates the mildest grade of neurosis from mental causes due to environments which have not been supervised by older people, for children, with their unlimited and untrained imaginations, interchange the most bizarre talks on the most unrelated subjects, which soon become very real to them.

There is also a form of unilateral tic of the eyes in children that is due to imitation of some teacher's or older person's tic convulsif. This has to be explained to the patient: that the cause that is present in the teacher is not present in them; that they are merely imitating.

All of these analyses have to be given with the aid of the patient, even where the examiner is positive of the cause of some particular complex, but cannot suggest it to the patient, as the patient may have forgotten how he or she came to do this particular thing and deny any such connection. So the patient is questioned, and tells of her own accord whom she imitates, and thus she reasons how the affection was caused, and the physician can reason backwards with her for re-educational purposes. In all of these cases it is very important to educate the parents, as nowhere else is it so patent that parents have suffered from lack of training for their particular rôle. One is impressed with the conviction that, though Spencer was not married, he very well knew how few people had a right to marry, considered from the viewpoint of how they had been trained for the upbringing of children.

Of the more complex psychoneuroses, the one that is most frequently encountered is a motor expression of mental disturbance that is characterized by general spasmodic movements of the entire body. These have been described as "habit spasm" or "habit," or "convulsive tic," as a peculiar form of paramyoclonus multiplex, and as pseudoparamyoclonus multiplex.

The chief symptom of this affection is an irregular jerking of various parts of the body, either all at once or one after the other; the intensity varies according to the states of excitement. At home and in the company of other people the patient is busy with the most useless movements of associated groups of muscles. There is none of the progression in the motions as is seen in chorea, but they are of a sudden and of a spasmodic character. There are frequently also movements of the face

and eyelids. Many of the cases make audible and inspiratory noises, either of the nature of a low-sounding sniffle or a loud laryngeal groan. Some hiccough very loudly. In some of the cases the spasms may be so violent that the child is thrown from the bed, and is unable to walk, though a few minutes afterward the patient may be walking about as if nothing were the matter with it. One of my Beth Israel Dispensary cases was of the most aggravated form—the mother had to sit on it to keep it in bed. I wished to demonstrate her before this society, and on the way to the place of meeting the girl had to be carried in the arms of the father, and often she was thrown from his arms by the spasms, and they were followed by hundreds of people in the streets who were attracted by this convulsive burden. But as soon as she came into the rooms of the society every sign of her malady vanished, so that my colleagues were doubtful of the child's having any sickness at all, and they had to take my word for it. It was two years before I cured the girl permanently. This distinguishes this affection from chorea, where, no matter what the influence, we can always obtain typical choreiform movements.

In the Mt. Sinai Hospital Dispensary I had fifteen such cases in the past four years; in the Beth Israel there were two. Their ages ranged from 5 to 12 years; thus, there were five of 9 years of age, ten of 6 years of age, and three of 11 years of age, and three of 12 years of age. From their histories it would seem that the greater number began at the age of 8 and 9 years, but every year of childhood is represented in the series. Seven were males and ten were females. The onset, as a rule, is sudden, and generally accompanied with a varied amount of excitement.

The above cited case followed promotion of several classes in school at one time. When the girl came home from school she had some malaise and stiffness, shouted that she could not breathe, and threw herself around in bed at such a rate that she had to be held down. Psychiatrically, she showed fear of being in the dark; she thought she saw strange men in her room, and imagined men and thieves in various parts of the apartment. She had to absent herself from school for about two years, until she was completely analyzed and re-educated. All the time the girl was made to realize that she was put ahead in school because she deserved it, and not because anyone wanted to get rid of her, and the reason she came home and felt the way she did was because of the excitement of going from one classroom to another and not because she ran up the dark stairs, and that thieves and men are quite omnipresent, and that it was none of the business of a little girl to try and fathom the purposes of thieves who came for material profit, and not to pay attention to the nonsense of children. All of this has to be carefully worked out with the aid of the child. Nothing is told to the child unless it tells the facts by itself. Any suggestion may become a new fact in the psychosis of the patient, and there is quite enough to treat without engendering any further mental disturbance.

Another patient in the Beth Israel Hospital was sent in from a neighboring school, with her whole body going through the most violent spasmodic evolutions, which had come on after the teacher had spoken sternly to the patient and perhaps had threatened her with punishment. In this case I did what I do not approve of—that is, I gave the girl a few strong shocks with the faradic current, so that the physical pain should overshadow the mental distress. This, with a few doses of bromide, was sufficient to prevent further display of these corporeal pyrotechnics. I doubt that she was really cured of the condition that allowed of any such reaction, but the case has not returned, and apparently has remained cured.

Another case came on after excision of the tonsils, which had been followed by a fright at home during the night. All of the cases give dream complexes resulting in child fear. Most of the cases are results of encounters with the dream actuality in the waking state, which is reproduced in dreams. Some of these dreams are also caused by tales, either by older people or among the young people themselves. These patients also become run down, anemic, irritable, are sleepless, and are great cares for the mother, as well as the physician. They do not play with other children, inasmuch as they are accounted ill. They are fearful of the dark, and so will not go down into the street where the hallways or stairways are not sufficiently lighted. The parents in these cases are either too kind to the children, or, becoming tired and disgusted, are too rough—one extreme or the other being naturally very bad. What the children need is kindly interest and investigation of what is causing their bodily manifestation of mental fear. Misinformation of punishment, things occurring in the dark, the actions of thieves, who thieves actually are, ghosts, and all the other conglomerate terrors of darkness and sleep have to be investigated *for each particular patient*, and corrected. Anemia has to be corrected, the patient must be made to go out into the fresh air, and environmental influence must be overcome as far as possible. If possible, the child should be taken from home, but in public practice this is not easy, for hospitals do not care for these cases, the country homes less so, and we have but poor co-operation from the various eleemosynary activities for the treatment of these unfortunates. Thus again we have an affection due to poor environment combined with faulty guidance.

Enuresis in children is of two varieties—one occurring at any time during the twenty-four hours, and found mostly in the very young and in defectives. When it occurs in the child it is usually in one that is from three to five years of age, and if the child is of normal make-up it is due to neglect and also to repression, from the fear of letting its wants be known. The caretaker allows the child's bladder to be filled to the point of overdistention until the child cannot hold its urine any longer and has to void it. If this is kept up for a sufficient length of time the child becomes habituated to wetting itself, and keeps on doing so. Then it is punished for its supposed carelessness, and thus its attention is directed to its urinary organs, over the control of which it becomes apprehensive at first and careless later, so that it loses the necessary confidence in itself for the full control of the bladder and behaves like a neglected child. The child becomes depressed, soon runs down in health, and becomes anemic. The cure requires close attention to the regular emptying of the bladder, and thorough cleanliness of the parts, with plenty of bland powdering. Change of the caretaker will in most cases be sufficient for the cure. It is important to impress on the little patient that all parts of the body are made for some particular use, and it should be put to such proper use in the proper time.

That proper use for one part of the body is as good for that part as proper use of any other part of the body is good for that part; as, for example, eating is good for the stomach. All this to overcome the shame which has been attached to the urogenital attention.

The other form of enuresis is that which occurs in older children, and is characterized in that the urination takes place only when the patient goes to bed and after he has fallen asleep. Most of these cases occur in boys. In the Mt. Sinai series there are four such cases, and one case in my statistics is from Dr. M. Schulman. In the Beth Israel Hospital, which has a larger service, there are a still greater number of cases, but with a very small percentage of girls. These patients are well able to hold the urine during their waking hours, and from fear they are most scrupulous in emptying the bladder before retiring; but no matter how soon they are awakened the bed is found wet. As a rule these patients are very healthy and good specimens of children, and all of my cases happened to be very bright ones.

Here, then, we have a condition where in the conscious state there is complete and excellent control of the bladder, but as soon as consciousness is removed, *no matter with what apparent emptiness of that organ,* there is voiding of its contents, showing that this must be from the smallest amount of urine, and cannot be from overflow, but from forcible detrusion. So we must look for some mechanism that is effective during sleep, which is held in abeyance while the patient is awake. This can only be from some psychic disturbance which is repressed during the conscious state, but which comes into play during sleep, due to the removal of the conscious censor, and this stimulates the lower spinal centers with forcible expulsion of bladder contents. It would seem as if the bladder is continually being contracted as soon as sleep ensues, because the bed is being wet continuously during the entire sleeping state. All these cases as a rule have had enuresis from earliest childhood, so that the emptying of the bladder has become automatic; when the child grows older it controls it by main force while awake, but during sleep this control being removed, the bladder automatically reverts to its old habits. When we realize that the emptying of the bladder is accomplished by impulse from the higher centers to the sympathetic and pelvic autonomic centers, it is patent that the quoted mechanism must be the one at work. The newer teaching of the causation of the neuroses from a sexual basis makes it attractive to try and connect this form of enuresis with something sexual, especially considering the close proximity of the ejaculatory center to the bladder centers. But I have not been able to establish this, either by dream analyses or by direct psychoanalysis. So all the cases represent a habituated hyperirritability and overstimulation of the vegetative centers, as there is no relaxation of the sphincters, as has always been supposed, but a steady contracture of the smooth musculature of the body of the bladder. Of course it is possible that a dream state of a satisfying nature (these do not disturb the sleeper) might be responsible for the bladder discharge, but as noted, this was not established. Also the persistent contracture of the bladder might be the result of a summation of stimuli carried over from the conscious state, but confirmation of this was not feasible.

Remembering the various points made in the study of these cases, we have figured our treatment accordingly. We give large doses of bromides before retiring, both for allaying the subconscious dream states which may give the stimulation of the lower spinal centers, and also for the same effect on the lower spinal centers themselves. Besides, daily tepid baths are very useful in lowering nervous irritability. Some patients take more kindly to a cold pack in which the patient is allowed to remain for about half an hour and thus it becomes tepid from the warmth of the body. Sometimes we have to reinforce the bromides with antipyrine. The treatment has to be kept up for a long time—three or four months and even five months is necessary for permanently overcoming the annoyance.

Allied to the last neurosis, is pavor nocturnus; the child either crying out in its sleep, or wakes up in fear and cries out in terror. In both forms there may be a complete amnesia of the night's occurrences when the child wakes up in the morning. In those cases that do wake up and also in the ones that speak when they cry out, it is at once seen that a dream is at the basis of the trouble. These conditions have been considered as being secondary to nasal or pharyngeal obstructions, especially the class of patients that only cry out in their sleep. That nasal and pharyngeal obstruction may cause a deep stuporous sleep from carbon dioxide poisoning is not denied; but that it will cause a psychic disturbance is not quite so reasonable, especially since many of my cases have had the attention of nose and throat surgeons with no amelioration. So we must look for other causes for the production of this malady. Thus a little lad of seven (Mt. Sinai No. 123, 1908 series) began to get his sleep terrors during the night after he had seen a man meet with a bad accident during the preceding day. Another boy, 8½ (Mt. Sinai, No. 1419), had been frightened during the day by being left alone in the house and he reenacted his fear in his sleep. A girl of 9 (Mt. Sinai, 794) dreams that a man is harming her, the individual being pictured as forcing his way into her bed and with all the other concomitants of such an occurrence that an imaginative child of that sex will bring out. Of course this dream is added to by the imagination of the child during the waking state and re-enacted in the following night's dreams. So in all the cases there is a psychic disturbance which is responsible for the dream gratification or dream fear—that is, the child sees or experiences while dreaming the things she might want to see, or fear to see while awake. The natural curiosity of the child is such that it gets great gratification even from things it fears, and the greater the fear the greater the resulting pleasure, even as it brings on terror. No doubt nasopharyngeal obstructions keep the child from awakening, but it is not responsible for its dreams nor for the fear induced by these dreams.

For this we must turn for the cause of all mental action, the reaction to environment by the psyche as far as it is developed. Many adults have as much obstruction, but no one would blame the condition of any dream disturbance or mental perturbation to insufficient pulmonary aeration. The older person when he dreams of these things may wake up, but only in unbalanced individuals will they attract attention. In the child the terror is easily shown because it has not become habituated to repressing superficial emotions. These children as a rule are irritable, neurotic, and present as many

fears and aberrations during the day as they do in sleep during the night. And even if adenoids, etc., do modify the symptoms, we must not think that they can be cured by storming the nasopharynx. Investigation of the psychic contents of the child-mind and analysis of its abnormal parts will allow of its resynthesis into normality by one who has larger experience than the child. Until the mental re-education is completed it is well to give a dose of bromide before retiring, or several doses, and of course the physician must remember that the body must be attended to as well as the mind. Here again we have a condition due in a great measure to poor environment and faulty guidance.

One of the most confused conditions seen in early childhood is the appearance of a flaccid condition in the presence of an injury to a limb or a joint, or an inflammation of the same. The cause of this seemed obscure to me since the history as a rule was that of pain and a rigidity of the parts involved, before the apparent palsy occurred. The next day, however, the same parts hung limp and flaccid as if the child had anterior poliomyelitis; in fact, it has to be differentiated from this in every case. The absence from fever cannot be taken into account, as fever may occur in the most simple condition of childhood. The electrical reactions are normal, showing none of the hyperirritability to the galvanic current. (Many clinicians say that they are unable to get electrical reactions in children; this is for want of patience only; they are as reliable in early childhood as in later life.) And in a day or two and often after only a good hot mustard bath the condition passes away. This no doubt represents many of the cases of abortive poliomyelitis. I have seen two such cases recently, one from Dr. W. Pincus and the other from Dr. M. Rosenbluth, and in both crepitation was ascertainable in the knee-joint, which also was tender to touch and passive motion. How this occurs is easily explained; when one considers the undeveloped state of the association systems in the child's central nervous system, it can be readily seen that continual irritation of the centripetal neuron gives the necessary neuron stimulation shown by the reflex rigidity. This in the well developed has more than the merely primary neurons for elaboration and distribution of this inflow of irritations. That is, there are more neurons to do the work in older individuals than in children, but in the child the motor neuron having to bear the brunt of continued stimulation becomes exhausted and gives way.

An analogous condition is the strabismus of early childhood, which demonstrates that this is the mode of the production of these pseudopalsies; these are well known to be due to refractive errors. In older persons, asthenopic symptoms are seldom if ever manifested by muscle palsy, though by careful examination, muscular insufficiency is frequently demonstrated in the eye musculature.

In the child the constant reflex irritation of the eye muscles, which have not their association systems fully developed, give the neurons constant stimulation, resulting in their exhaustion, so that they are unable to receive or send out nerve impulses with resulting palsy of the muscle that these nerves supply and the eye rotates in or out, according to whether there is hypermetropia or myopia. That this is an association neuron defect is shown by the fact that, as soon as the good eye is closed, the supposed bad eye rotates in all directions in following an object, so that it must be the commissural systems between two sets of ocular nuclei which are at fault and not the neurons whose axons immediately supply the muscles. So it is the immature state of the juvenile nervous system which is responsible for this inability to overcome stress from peripheral conditions, and the palsies, temporary in the passing trouma of inflammation of bone or joint, are more or less permanent in the conditions where the error remains. That the eye condition is of the association neuron, is shown by the fact that the rotating eye assumes a correct position when the good eye is taken from the field of vision, and also the cure of the condition when refraction is corrected by the proper glasses, if the condition has not lasted too long.

The most fixed and common neurosis of childhood is that of defective speech, represented by stammering and stuttering. The usual description of this affection is that of a local nervous disturbance of the musculature of the various parts concerned in the formation of correct speech. This affection is universal in its distribution, and occurs in all social levels, and in all races. Heredity and being in the environment of other stammerers has frequently been taken as a cause for stammering and stuttering. Indeed, R. Denhardt* emphasizes heredity as a factor in its causation.

This same author also insists upon the psychic factor in the causation of speech defect. The history given by the patients or their parents is that the trouble was first noticed when the child began to go to school. Since I have become interested in the history of the onset of this particular trouble I am convinced that many if not most of the children faltered in their speech before school age, but it was not observed until the demands of the school made it noticeable as a genuine defect. So it seemed to me that if I could get at the cause of stammering in the three or four year old child it might throw light on the eitology of stammering in older individuals. Lately I have been fortunate to get a clearer history in these very early cases.

In the very young child halting speech comes on suddenly. In some cases it is not continuous during the whole day; in some cases it is. Investigation of the children who stammered intermittently showed that every period of stammering was associated with an act of masturbation. For example, No. 977, Mt. Sinai, age 2½ years, does not speak well for periods during the day. This follows an episode where the child sits in the chair from which it refuses to be taken, and where it is noticed that it rubs its thighs together and then it falls backwards, becomes pale, and seems as if in a faint; after which she allows herself to be moved; but as soon as she is removed she runs from the mother and hides in a corner as if in shame or fear, and when she attempts to speak she stammers for about a half hour after such occurrence. More or less similar histories are to be elicited in more than half of this kind of cases. Of course the cases are not as common as those of older children, but this I think is due to the neglect of the parents in bringing them to notice. The treatment of these cases is universally successful, being cleanliness and good powdering of the genitals and a week of dosing with bromides. Watchfulness is essential, so that the habit with its concomitant speech defect shall not become permanent. And no matter whether the history is obtainable or not, every child who stam-

*Denhardt, Rudolph: "Was ist Stottern," Leipzig, Ernest Keils.

mers between the ages of 2 and 5, yields to this form of treatment.

So here we have a distinct form of typical stammering, the development of which is open and before our eyes, and may we not reason that a similar cause may be at the root of the trouble in older cases? In one-third of the Mt. Sinai cases for the last four years the trouble came on suddenly. Some nervous strain of an acute nature must have been the cause. Thus one came on after a narrow escape from an accident; two others came on suddenly at school; so, as in the masturbating child, acute nervous tension is induced and the breaking point comes when the apprehension is greatest; that is, when or with their being spoken to at some critical moment. The momentary stammer, with its accompanying blush and arrest of attention when the patient stammers on attempting to speak, makes the subject stop and take notice. The stammerer becomes aware that something is wrong with his or her speech, and feels different from those who do not stammer. This feeling of difference from the normal causes the apprehension and gives the halting in the speech when addressed. That this is so is demonstrated by the fact that the stammerer can declaim to himself or herself solus, when the same effort would bring out the defect if the subject were aware that some one were listening; thus we have an acuteness of onset and apprehension as the two great factors in stammering. The third symptom of the stammerer is the mental state induced by the fact that one is a stammerer.

In the child there is retiring from playmates and an introspective feeling of being different from other individuals; not of superiority, but the wish to be like every one else. Not having the larger outer world to occupy its attention as the child who has the normal amount of play and friends, it draws on its limited imagination and creates a little world of its own, into which no outside influences enter. The little patient loses interest in various things that should interest it. It becomes more shy and retiring than ever and has no confidence in itself when it is drawn out from its shell, because it has not had an opportunity to gain such confidence, having kept away from playmates and people who ordinarily would form its world and cause its development by interchange of various amenities. And when attempts are made to bring it out, or give it amusement, there is the expression of apprehension —faltering speech. In other words, we have a defect due to some acute stress or strain, and secondarily an apprehension psychosis.

So, with this in mind, we can face the treatment of stammering from a rational viewpoint: (1) If an acute case, find the cause and correct it by re-education or hygiene. (2) If a fully established case, treat with any well-tried method, the easiest being one of the melody cures. (3) At the same time treat the mental state of the patient so that there should be a more speedy cure and, what is more important, a permanent one.

The excellence of the melody method is that instantaneously the child is shown that it can speak as well as any of its comrades. One does not need any elaborate system of notes or apparatus. The patient is made to speak sentences in a singsong manner, each syllable having the value of a note; the odd syllable being pronounced as a low note and the even syllable as a higher note.

If the patient had enough confidence in himself he would not need the services of a physician with this method at hand, but the patient has not the confidence, from the fact of being a stammerer, and so the training has to be done for him by the physician who at the same time hammers the cure home permanently by analysis and reeducation. Of course, many technical details present themselves, but in the main this form of treatment has given me the most excellent results for the last eight years.

Conclusions.—A child with a psychoneurosis is an anomaly. And when we consider the limited sphere of the child, we wonder how it can develop psychic disturbance. But no matter how circumscribed the view, it is patent that there is a continual inflow of impressions from the smallest of surroundings. And this being continual it no doubt tires the cerebrum whose elaborative functions are as yet but in an indifferent and early state of development. Hence, some impressions are lost, and necessarily are missing in making up various psychic complexes in their entirety, and so the child receives its impressions which go to form its ideas in a broken-up state.

This being so, the ideas must be incomplete, incoordinate, and therefore often unreasonable. So it is no wonder that the child shows aberrations, as it is reacting to the incomplete perceptions and apperceptions—just as in an older person who forms an opinion on incomplete facts. So, if the child shows a departure from the normal in its mentality it must be ascertained whether there is no departure from the normal in the central nervous system, no matter what the cause. Secondly, the nature of its surroundings; and thirdly, the efficiency of its training. We have ruled the first item from the limits of this paper and the conditions that we have treated are, with one exception, due to some ill-balance in the surroundings or training.

It is conceivable that there is dissatisfaction with surroundings, or that there is a desire for better environment, or that there is an inability for adaptation to the particular place in which the person has been placed by birth or accident. Since this cannot as a rule be changed, it becomes necessary to train the individual for better adjustment to whatever position he finds himself, both for comfort and material advantage. This has been what the human has always done, trained himself and his offspring to meet certain conditions, and by taking advantage of past experiences of himself and ancestors he has assumed his kingly position as the head of the animal kingdom. So it all peters down to the state of the psyche in its reaction to surroundings. And how greatly surroundings affect individuals can in a degree be seen from a comparative standpoint from the animal experiments of Thorndike.* He shows that, according to environment, or some modification in the character of the environment, the habits of the animal can be predetermined, so that by simple means of dressure the most complicated habits become a part of the animal.

So, in children, training or education, call it whatever you please, can be so applied that they will become habituated, as in the animal, to the greatest amount of good to self in the particular environment in which it finds itself, and, if there is a malreaction, by tracing the modes of its production and retraining the child from a normal viewpoint will place it in proper accord with its surroundings.

In the adult the phenomena of maladjustment to

*Thorndike, E. L.: "Animal Intelligence," *Psychological Review Monographs*, 1898, Vol. II, No. 4.

surroundings are so varied by the magnitude of his experiences that it requires the most exact psychiatric studies to bring them to the surface. But in the child, whose sphere of action is limited, it is easy to lay bare the psychological content of any given experiences, and by the early training of minds, that from one cause or another have not been trained to adjust themselves to their proper environment, or to rise above it, we can prevent more grave maladjustment in later life, thus bringing in prophylaxis, which should be the main aim of the psychiatrist, as it is of the physician.

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NOTES ON LARYNGEAL CASES.*

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In all parts of the body the diseases which possess the greatest interest are those presenting some difficulty in diagnosis, and this seems to be especially true in diseases of the larynx. The neoplasms, swellings, thickenings, and ulceration occurring in this vicinity present so many confusing manifestations that a definite diagnosis can usually be made only after the patient has been under observation for some time. Butlin, writing on this subject, said that there were three classes of cases. Those on which any one can make a diagnosis; those on which only the better instructed and more experienced make it and others do not; and the third class in which the conditions are so obscure that no one can make the diagnosis unless the larynx is opened, and even then it may be difficult to make sure of the nature of the disease.

Early thickenings and swellings in the interior of the larynx have caused me the most perplexity, and I sometimes think that the more cases I see the more difficulty I experience. Believing that my confrères may have had similar experiences, I venture to present these mingled notes of the interesting parts of many cases. It has been my privilege to watch, from their incipient stage, the course of two neoplasms on the vocal cords, whose appearance, growth, and subsequent history have been so entirely different that they have done a great deal toward helping me to an early diagnosis and the course to be followed in such difficult cases.

A man forty years of age, while suffering from a serious cold, spent about four weeks cooking peanut oil. The fumes were very irritating to his upper respiratory tract and he soon became hoarse. He gave up his employment, but as the hoarseness persisted, he sought medical advice. On examination the right cord appeared quite normal. The superior surface of the left presented three small, separate, flat papules on its anterior third. They had a dull red appearance and looked as though they were a part of the cord pushed up. The anterior papule was the largest and occupied the superior margin of the cord. The other two occupied the center of the upper surface of the cord, one placed behind the other. The color of the tissue between these papules and the rest of the cord had a natural white appearance. There were no other local appearances or symptoms to aid in a diagnosis. The father had died of carcinoma of the stomach and a brother and sister of tuberculosis. The family history did not render any further aid to a definite conclusion; a Wassermann test proved negative. The condition on the cord was fully recognized as being unusual, but the uncertainty of the nature of the papules was so great that I explained the situation fully to the patient and advised him that he should use astringents in the larynx and carefully watch the case. This was agreed to and no change was noted for about a month. The anterior papule at this time became larger and was removed for microscopic examination. The piece examined was very small, but two pathologists independently reported it to be an epithelioma. Having in mind some previous experience when the diagnosis of the microscope did not coincide with the clinical appearance and history of the case, I recommended that the case should be more carefully watched for the development of confirmatory clinical appearances. Several of my associates agreed to this course and also to see the case from time to time. For two months no change was noticeable, but during the third month the anterior papule began to reappear and extend posteriorly, soon coalescing with the other two papules. This seemed sufficient confirmatory evidence of the microscope diagnosis and an immediate thyrotomy and removal of the vocal cord was urged. The patient, however, was in such splendid health and his throat giving him so little trouble that it was impossible to make him view his condition seriously and submit to an operation. He wandered from doctor to doctor for the next six weeks, getting various opinions, which were in the majority against his laryngeal condition being malignant.

When I saw him again the mass on the cord was considerably larger, the surface had a fine granular gray appearance and the hoarseness was more pronounced. After a great effort I succeeded in getting his consent to an operation, which was successfully performed, and there has been no recurrence up to the present, four months after the operation.

The second case was in a man of sixty-three years of age, with a good personal and family history. The laryngeal growth when first seen was about the size of a small French pea, sitting on the superior surface of the anterior third of the cord, but did not seem part of it, there being no thickening at the base and all surrounding tissue being white and normal in appearance. The growth was removed and submitted to microscopic examination. Two competent pathologists were consulted and one pronounced it a papilloma and the other was doubtful, but favored its being malignant. Again I decided to watch the case further, as no clinical appearances led me to think it an epithelioma. During the following eight years the case was constantly under my observation and four times I removed the growth by the introlaryngeal method. The average time of a recurrence was eighteen months, and after its reappearance it grew slowly and always in the same location, and at no time was there any extension of the growth at the base.

Numerous pathologists examined the tumor after each removal and were about equally divided in their reports on its being innocent or malignant. In view of this and the excellent condition of the vocal cords and larynx, I held to the course of noninterference externally. This happy state of affairs continued until the latter part of the ninth year, when an accident occurred which changed the whole aspect of the case. To wash down a capsule, the patient swallowed, as he supposed, about an ounce of water; it was, however, ninety-five per cent. alcohol.

The following morning the laryngeal growth

*Read before the American Laryng. Rhin. & Otol. Society, May, 1913.

was a cherry red, also the mucous membrane of the larynx and trachea, as far as could be seen. Bronchopneumonia followed, which nearly ended the patient's life. The cherry red color of the growth continued for a month, with no increase in size. A week later the color became a deeper red, the growth being slightly larger and edematous in appearance. Two weeks later the base of the growth began to extend anteriorly and soon reached the commissure and blossomed on top, almost over night, like a cauliflower. The clinical appearance was that of a rapidly growing epithelioma, and although a microscopic examination seemed unnecessary, a piece was removed and submitted to a number of pathologists, who unanimously pronounced it a malignant growth. This was removed by an external operation through the thyroid cartilage, and the patient is alive and with no recurrence up to the present time, one year and seven months since the operation.

The change in the clinical appearance and history after the irritation of the alcohol brings up the old question as to the possibility of an innocent growth changing to a malignant one. This case would provide plenty of material for argument on this question. The early appearance and history of the neoplasms in these two cases and in others more advanced, have impressed me with the belief that a competent observer can distinguish at an early stage between the malignant and innocent growth. The former appears as part of the tissue of the region in which it occurs and may seem to grow from under and push up the tissue above, or grow into the surrounding tissue. A papilloma, on the contrary, sits on the surface of the tissue and does not seem to form part of it.

Malignant growths when removed in whole or part return quickly and almost at once begin to extend at their base; even when not disturbed their first change is usually at the base. Innocent tumors do not return quickly when removed, neither do they spread from the original base as long as their innocent character is maintained. Furthermore, I have found that it is quite safe to defer a major external operation until the clinical appearances and history confirm the microscopic diagnosis of malignancy.

Thyrotomy for early cases of laryngeal epithelioma is yearly increasing in popularity, and any advance in technique or better prognosis is anxiously awaited by all. No intention is here made of giving in detail my cases of thyrotomy, but only a brief expression of some of my views, especially those on the management of the tracheotomy. At another time I intend to present in detail all my cases of thyrotomy. The practice of using a tracheotomy tube during the operation for thyrotomy has been generally followed, but there has been quite a difference of opinion as to what should be done with the tube after the operation. A few have taken it out immediately and allowed the wound to granulate, while others have left the tube in from one to five days. Some operators introduce a tube a week or ten days before the operation and let it remain in the trachea two or three weeks after.

My belief for a long time has been that whatever danger or difficulty was attached to an operation for thyrotomy, was due to the presence and irritation of a tube. During the past winter I have performed thyrotomy in three cases, two for the removal of epithelioma of the vocal cord and a third for a more extensive involvement of the anterior part of the larynx. In one case a tube was used during the operation and removed the following day, in the other the ordinary tracheotomy tube was not used, but a long soft piece of rubber tubing was substituted, and removed as soon as the operation was completed.

Two cases have been treated after this method and their success was so satisfactory that some notes of it are related in this paper. When the trachea was exposed it was carefully pulled forward by a fine tenacium placed on either side. A small opening was made in the trachea and a long soft rubber tube introduced. The chloroform was administered through this and packing put in above the tube to catch the blood and mucus and prevent it running down the trachea, the same as we treat the ordinary tracheotomy tube. As soon as the operation was finished the tube was removed from the trachea and the wound was closed with stitches, excepting a small superficial drain at its lower part. In dealing with the larynx all tissues were treated gently and with as little traumatism as possible. The thyroid wings anteriorly were pared on either side with a sharp and heavy knife. These cartilages should never be crushed with heavy forceps as small bits of detached cartilage will remain and become necrossed, causing trouble for months afterward. Every small vessel should be tied or twisted so as to leave a perfectly dry surface. No adrenalin is necessary, and is apt to cause secondary hemorrhage. When the work on the larynx was concluded the entire external wound was closed and two small superficial gauze drains left in place, but no packing in the larynx. This patient raised a little blood for a few hours after the operation but had absolutely no cough at any time and no tracheal or bronchial discharge. The external wound healed almost by first intention and a rapid and wonderful recovery was made.

This is the second case in which I have operated without the usual tracheotomy tube and by closing the external wound completely. Tracheitis, bronchitis, and bronchopneumonia, which has so constantly followed this operation is, in my opinion, due to the use of a tracheal tube and its retention afterward, also to unnecessary traumatism and prolonged operation. In my future early and limited cases I do not expect any occasion to arise for the use of the usual tracheal tube and shall treat the operation as one wherein we may expect a primary union, with the usual satisfactory results. Granulations in the anterior part of the interior of the larynx always follow this operation and it takes from two to three months for them to become organized tissue. This new tissue helps to strengthen the larynx and should not be subjected to much cauterization.

A fourth case of thyrotomy for carcinoma of the cord occurred in my practice about two years ago. This case has proved very interesting as an entirely new cord of cicatricial tissue has replaced the one removed and is about an eighth of an inch wide, has its full length, and is white in color and placed exactly opposite the other cord. The voice is really excellent at times but as a good part of the thyroid cartilage was removed the vocal sounds cannot be sustained for any length of time.

When the posterior fourth of the cord is healthy, or even a small part of it, I leave a piece attached to the arytenoid cartilage as it gives an increased point of strength and makes the voice much stronger after recovery. One of my cases did not

come under observation until the entire anterior part of the larynx was infiltrated with malignant disease and although all of the larynx, excepting the arytenoid cartilages, was removed the patient spoke very well and could be heard ten feet away when the tracheal wound was closed.

Since the direct method of operation on the larynx has come into use, there is a great falling off in the number of men who are able to do skillful work by the indirect method. I do not believe that at any time every specialist was very adept in laryngeal operations and only a few could promise a removal with absolute certainty. The direct method has opened this field to a great number of men as it does not require the skill and patience necessary for the indirect method. In my experience after carefully trying the new method I unhesitatingly favor the indirect method. It is not only easier for the skillful operator but also easier for the patient, causing less traumatism and a much more exact operation can be done. The kind of instruments for use for the indirect method need a careful selection and in my opinion the MacKenzie laryngeal forceps should not be employed as they are too large, obstruct the view, and do not allow of exact manipulation. Fine snares and some of the new instruments are much better. Patients differ very much in the distance from the teeth to the larynx, also in the curve of the pharynx and larynx, all of which are factors to be considered. Specialists who do much of this work must be provided with instruments of various lengths and curves to accomplish a successful and skillful operation.

Two recent laryngeal cases have been selected as showing some of the difficulties which we may encounter. The first case on laryngeal examination showed a small triangular tag of red tissue below the left cord and well forward in the anterior commissure. It was only apparent on phonation, when it momentarily flashed into view to be lost immediately after. In addition to the difficult location, the patient had a long back and a large chest and abdomen which prevented the operator from getting a satisfactory position. He was easily nauseated and so nervous he could not hold his tongue long enough for an examination. This picture of difficulties did not look promising and he had already been treated by a specialist for five months and various attempts made to remove the growth. To produce anesthesia, 20 per cent. cocaine was employed, sprayed gently with a hand atomizer on the soft palate, pharyngeal wall, root of tongue, and epiglottis. With a laryngeal syringe the solution was dropped into the upper part of the esophagus, larynx, and upper part of the trachea. The mucous membrane in these sensitive cases should never be touched with the usual cotton on an applicator, as it disturbs the reflexes more readily than the method I have described.

A few drops of cocaine in the upper part of the esophagus is of great assistance when there is a tendency to gaging and nausea. Properly employed 20 per cent. cocaine solution will quiet any rebellious larynx for operative procedure. To meet the difficulties of a patient's nervousness, I have trained my operating nurse, so that standing behind the patient she can hold the tongue with complete success.

The instrument employed for removing the growth was one of Pfau's own models of his new universal laryngeal forceps, with a dull cutting bite, bent from the shank toward the growth. Its movements could constantly be watched and when the patient phonated and the growth momentarily came into view, it was seized and promptly removed. Any of the older laryngeal forceps would have obstructed the view of the operating field and could never have caught the growth without a great deal of unnecessary traumatism.

The examination of the second case showed a small triangular papilloma at the junction of the anterior and middle third of the cord but on its under surface, and bobbing into view only on phonation. An unsuccessful effort had already been made to remove it before consulting me. A long thick uvula and epiglottis tipping backward obstructed the laryngeal view. Partial removal of the uvula and a black silk thread passed through the base of the epiglottis, pulling it forward, solved our troubles.

The various shapes and sizes of the epiglottis are frequently a difficulty in laryngeal cases and can usually be treated as described. Snares are recommended for the removal of large and medium size growths. Dull cutting instruments for small growths. Never try to take a piece off a small growth, except for examination, but wait until you can seize the entire mass.

My concluding notes will be on an interesting condition which of late came under my notice and which for want of a better term I have called "laryngeal snoring." During the past winter a gentleman consulted me for peculiar attacks of breathing while asleep. His history was as follows: For about five years he had snored at night making the usual noises. Three years ago his wife noticed that while snoring his breathing would gradually become slow and shallow and continue so all night, with an occasional snort and blow which brought temporary relief. After about a year all these symptoms became exaggerated, the respirations more labored and shallow, and the face gradually became blue. After an hour of this breathing the patient became completely cyanosed, stopped breathing, threw up his hands like a drowning man, and had a general muscular convulsion. When this took place there was a loud violent expulsion of air from the larynx and trachea and respiration was reestablished. The patient was not wakened by this but continued as though asleep and soon began the noisy respiration again and continued until another attack, and so on until seven or eight occurred during the night. Latterly the attacks were so severe that his family feared he would die of suffocation, and his health began to fail from the carbonic acid poisoning from which he suffered every night. On examination the larynx was found high in the pharynx and the uvula and soft palate normal in size but hanging a little lower than usual. The mucous membrane of the uvula, soft palate, and larynx was edematous and covered with white creases, resembling the hands of a washwoman or one who had soaked the hands in hot water or had had them in a poultice. I concluded this wrinkling of the mucous membrane was due to smoking as it is not unusual in heavy smokers. This patient, however, did not smoke and some other cause had to be found to account for such a condition. Thinking over the case it occurred to me that while the patient slept the uvula dropped low in the pharynx and was sucked in and out of the larynx until complete occlusion was produced. A violent expiration then expelled the uvula from the larynx and temporarily reestablished respiration. Acting on this

theory the uvula was removed and no attacks have occurred since the day of the operation.

The possibility of laryngeal snoring was so forcibly brought to my attention by this case that I have since diagnosed several less severe but similar cases.

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METHODS IN JOINT DIAGNOSIS.*

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The subject of this paper is methods in diagnosis rather than diagnosis itself. For the purposes of a short paper it has been necessary to limit the subject thus and I shall deal principally with lesions which are the results of injury.

Examinations of joints are made in two different ways; first without apparatus and second with apparatus. Another method must be briefly considered, namely, diagnosis by means of drugs, and I shall stop in this connection only to say that the principal instance of making a diagnosis in this manner is, as will doubtless occur to you at once, the use of salicylates in suspected cases of rheumatism. My impression is that it is a frequent practice to employ insufficient quantities of these drugs. Doses large enough to cause mild toxic effects are necessary to clear up the diagnosis or to effect a cure. "The true rheumatic can tolerate 150 to 350 grains of the sodium salt before toxic symptoms occur, whereas in other forms of arthritis the same occur with smaller doses." Thus in a series of experimental cases in gonococcic arthritis the average dose necessary to produce toxic symptoms was 131 grains. In true rheumatism the fever, pain, and swelling disappear after salicylates in two or three days, whereas in other forms of arthritis, while the temperature may fall to normal, there is no change in the swollen joints. True, the pain may be less, but this is due to poisoning of the sensorium, for when the effects of the drug wear off the pain is as acute as before.

The physical examination of joints should be made, as far as possible, when they are in a state of rest and when the neighboring muscles and tendons are thoroughly relaxed. For instance, a knee should be examined when the leg is lying in an extended position, if possible with the whole limb supported by bed or chairs. It may not be amiss for me to urge the importance of a thorough exposure of the joint before the examination is begun. How often do we see a physician examining a knee joint with the patient's trousers and drawers rolled up tightly so that but an incomplete exposure of the joint is permitted and at the same time the tight garments produce a deceptive change in the contour by pressure. A correct method—and no other can be justified—demands not only the exposure of the affected joint but in each and every case the exposure of its opposite fellow as well, for the sake of comparison. It is also worth while to remember to examine all aspects of the joint, not only that nearest the observer. Thus, much can be learned at times by passing the fingers into the popliteal space or into the axilla. It will not be harmful if we hark back to student days and recall how we learned that physical diagnosis employs inspection, palpation, percussion, and auscultation. These methods serve us in the examination of diseased joints as well as in diseases of the chest.

Inspection.—When inspecting a joint we look for change of contour, either swelling or atrophy, redness, ecchymosis, glazed tense skin, wounds, sweating, limitation of motion, and deformity. In nearly all of these conditions one is likely to be deceived if they are present in but slight degree if we do not take the trouble to compare the affected joint with its healthy fellow. The spindle-shaped *swelling* of a tuberculosis joint with its atrophy of the muscles above and below gives a very different picture of swelling from that of a simple chronic synovitis. The *redness* of acute articular rheumatism differs from the redness of a beginning purulent infection in remaining more circumscribed and practically always being accompanied by similar conditions in other joints. An interesting differential point in *ecchymosis* about a joint is the time of its appearance after injury. If the hemorrhage is entirely within the joint capsule as in dislocations it will require two days or longer before the skin is discolored; but if the ecchymosis is from a fracture in the neighborhood or contusion it will appear within a few hours. The profuse sweating of rheumatic joints is quite characteristic and is useful as a diagnostic point. The interesting question in the case of wounds near joints is whether or not the capsule is penetrated. The endothelium lining joint cavities is notoriously prone to become infected where other structures might escape and an infected joint is always a serious matter. The limitation of motion which is observed by inspection is of the active sort and the natural method of examining for it is to have the patient seek to use it for ordinary purposes — the lower extremity by walking, the upper by lifting or carrying, when possible. Passive motion is elicited by the hand of the examiner and brings us to the palpation of joints as a method of diagnosis.

Palpation.—Here the practised hand is necessary and should be assisted by frequent recourse to comparison with the healthy joint opposite, whenever this is possible. The sense of touch reveals the following conditions, viz., presence of an excess of fluid in the joint, spasm of the neighboring muscles, grating or crepitus on motion of the joint, tenderness, heat, pitting, the amount of mobility in all directions, both normal and abnormal. Palpation will determine also the presence or absence of fracture near the joint or separated epiphysis.

Muscular *spasm* in joint disease more or less completely fixes the joint in one position and is a symptom of extreme significance. While considering this symptom of spasm it will be well to remember the difference between the false and true varieties. On moving an affected joint a nervous patient may stiffen the surrounding muscles in his fear of pain, but when reassured and gently dealt with will be able to relax and permit the joint a degree of normal movement. On the other hand the immobilization of the joint by the rigid muscles may be quite beyond the patient's volition, disappearing only under general anesthesia. This is true spasm and as such is a valuable diagnostic aid and of grave significance. During sleep this true spasm may relax a little and allow enough motion in the joint to cause the eroded and tender cartilages to rub each other and thus cause pain which awakes

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the patient with a cry. Thus are explained the so-called starting pains of certain forms of arthritis, particularly tuberculous. To elicit spasm the limb is grasped above and below the joint while gentle attempts are made to move it. In true spasm the joint will be apparently immovable, as though truly ankylosed. Spasm is usually the first symptom to appear in a tuberculous arthritis and is the last to disappear if recovery ensues. Accompanied by its partner, muscular atrophy, it goes far towards justifying a diagnosis of tuberculosis. In no case is accuracy more important than in the determination of wasting above and below the joint. It is necessary at this point to anticipate mention of the use of apparatus by calling your attention to the importance of the use of the tape-measure in eliciting the symptom of atrophy.

Fluctuation about a joint is one thing if due to fluid in the subcutaneous fascia and an entirely different matter if the fluid be confined within the joint capsule. Distended bursae in the neighborhood of joints are met with often and confuse the diagnostician at times. If the fluid be subcutaneous it will probably be either serous or purulent. If serous there will be pitting on pressure and probably no great amount of tenderness and no fluctuation; if purulent there will be redness and tenderness, besides the pitting and fluctuation if an abscess is present. In both of these cases the motion of the joint will not be markedly interfered with. If, however, the fluid be within the joint the symptoms will be seen to differ if their details are carefully worked out. In this case if there is considerable swelling and it is due to fluid in the joint, fluctuation may be elicited in the classical manner by feeling with the tips of the fingers of one hand while tapping at a distant point over the swelling with the fingers of the other hand. In attempting to elicit the symptom of fluctuation in this manner in any location where muscular tissue is present, it should not be forgotten that the space between the sending and receiving fingers should be along the muscle fibers and not across them. When percussing across a bunch of muscle fiber one is apt to be deceived by a false sense of fluctuation.

To elicit *grating* or *crepitus* of the joint surfaces upon each other when moved it is necessary to grasp the joint in the hand. A refinement of diagnosis has been attempted in this connection by use of the stethoscope but the sense of touch is apparently quite as satisfactory either in the case of an old syphilitic joint or in a badly disorganized Charcot joint when spasm is absent. Grating can seldom be elicited in tuberculous joints because, though the condition of the articular surfaces might well be such as to cause crepitation on motion, yet muscular spasm will have immobilized the joint, thus preventing the sensation. The symptom is often of no apparent significance.

Tenderness is an interesting symptom when present about a joint. In acute articular rheumatism it is greatest at the area of redness and here it is extreme. In the case of a beginning tuberculous invasion it can often be elicited at some special point in the bone, for in about sixty per cent. of tuberculous joints the process begins in a focus in the bone near the joint, while the remaining forty per cent. commence in the synovial membrane. Here the tenderness is more general. In the case of joint effusions following injuries, careful palpation with one finger tip will often find a tender spot over a torn ligament. In the majority of cases of traumatic synovitis there is a starting point of ruptured ligament or capsule. From this point the synovitis spreads all over the capsular surface and so long as such a spot of local tenderness reveals the unhealed tear in the torn ligament the joint must be considered diseased and the treatment continued even though effusion and other symptoms have disappeared.

It is not always necessary to touch the joint to elicit the symptom of tenderness. Which one of us is there who has not seen a patient with acute gouty or rheumatic arthritis wince or cry out when a finger is pointed at his inflamed joint?

Local *heat* about the inflamed joints as elsewhere is of great diagnostic importance and to determine its presence the back of the fingers are found to be more sensitive in determining slight changes than are the palmar surfaces. The palpating fingers are shifted gently from the surface of the joint to other places on the limb in order to compare their respective temperatures.

Passive mobility is a symptom the determination of whose character is not to be omitted in the examination of any diseased joint. The limb is grasped below the joint and steadied above while movements are made as far as conditions will permit. These passive motions are made gently and slowly first in the normal directions of flexion extension and rotation. Spasm may check the slightest attempt at motion or may be so slight as to permit it to a very extreme degree. A dislocated joint always suffers great limitation of motion and in fact all of the important diseases to which joints are subject are causes of restricted movement with one striking exception, namely, swollen, flabby, disorganized joints of tabetic patients—the so-called Charcot joint, which has also been called the caricature of an arthritis. If the joint be fixed or if passive mobility be limited, the attempt must be made to ascertain to what this is due. If caused by a disturbed position of the bones from fracture or dislocation or by bony outgrowths the movement of the joint may be suddenly checked at some point in its range. When the fixation is due to changes in the soft parts, joint motion may cease less abruptly, and when it has reached its apparent limit may be carried yet a little farther by added force on the part of the examiner. The diagnosis between these two forms of ankylosis, viz., that due to misplaced bone and that due to abnormal soft parts, will at times require the use of a general anesthetic, preferably nitrous oxid.

Abnormal mobility, that is to say, mobility of a joint in directions which should be checked by the surrounding ligaments, must be tested for. Charcot joints as well as the ricketty joints of children or adolescents or the flail joints following anterior poliomyelitis, or again a fracture of the humerus at its lower end, all may present the symptom of abnormal mobility. That is, instead of motion being limited to flexion and extension, for instance, a greater or less degree of lateral motion is permitted.

In the diagnosis of joint diseases without apparatus there remains one method closely allied to palpation, of occasional service, and that is

Percussion, not of the affected joint, but striking the end of the extended extremity with the hand of the examiner. The principal use of this procedure is in the case of a suspected fracture near a joint. For instance, in the case of a fractured phalanx, a percussing tap against the tip end of the extended

digit will elicit sharp pain at the site of fracture and help to differentiate it from a sprain or contusion, and this method is of use in the case of an injury at the hip joint, knee, elbow or shoulder.

Auscultation.—One does not usually think of auscultation as a method to be applied in the diagnosis of joint diseases, although Garrod in the *Lancet* of last year maintains that he is able to detect significant sounds with the stethoscope in cases of arthritis before other signs are manifest upon physical examination. The coarse or grating noises, which may sometimes even be heard at a distance, are due to the grating of rough articular surfaces which may be more delicately examined by the sense of touch. There is an interesting use for auscultation, however, which should be mentioned here. A fractured clavicle is often confused with shoulder joint injuries. When it is suspected the stethoscope is placed over its outer end and pressed firmly against it. If now the inner end of the bone be tapped with the end of the examiner's finger, or with a percussing hammer, the sound will be distinctly borne along the clavicle if the bone be intact. If it be fractured, however, the sound of the blows will be almost inaudible. Comparison with the sound side will be of much assistance. This is a very useful sign.

Those methods of diagnosis in joint diseases which require the use of apparatus will include procedures at the bedside and those in the laboratory. Time does not permit us to dwell upon laboratory methods at any length, but it is proper to remember at this time the value to the examiner of a differential *blood count* where the question is one of the presence of suppuration in a joint; of bacterial *cultures* of aspirated fluid for the determination of varieties of infection; of the examination of a *urethral smear* or complement fixation test where a gonorrheal arthritis is suspected; of a Wassermann test for syphilis of the joints, and of the *tuberculin* test. The preferable method in the latter case is that of von Pirquet as applied to the skin. This test is applicable only in the case of young children for, as you are aware, a positive reaction to tuberculin in adults may mean nothing more than the presence of a tubercular focus anywhere in the body which may have been long since cured. For lack of time I must omit mention of details of *x*-ray examination.

Tape Measure.—The most generally useful artificial aid to the diagnostician is perhaps the tape measure. In the case of injuries to joints it is not only proper to test for slight degrees of enlargement of the joint by measuring its circumference as compared with that of the unaffected side but also for comparative measurement of the enlargement at different times. The tape feasure will also determine accurately as will nothing else changes in length of a limb in fracture or dislocation. When thus used for longitudinal measurements a pencil mark is made over the bony prominences on both sides above and below the site of injury as points of departure.

In the lower extremity the anterior-superior iliac spines and the malleoli; in the upper extremity the acromion processes and the knuckles are made use of as landmarks. The conical shape of portions of the limbs cause a difference in circumference at points but a little distance apart, hence it is important to select precisely corresponding parts on both well and affected sides for measuring their circumferences.

Calipers.—At times measurement with a pair of calipers is the only way in which we can determine spreading of the ankle joint or undue distance apart of the condyles of the humerus or femur. Now and then circumstances will demand an exploratory incision into a joint to determine the presence of foreign bodies, etc., but this subject is one for a paper by itself.

Aspirating needle.—Of more frequent necessity is the aspirating needle. With proper surgical cleanliness there need seldom be hesitation in using a rather coarse hypodermic needle such as is used in intramuscular injections in order to determine the nature of the fluid where effusion into joints is present. If a gonorrheal infection of a joint is among the possibilities the patient should be required to pass some urine into a tumbler and the presence of shreds or pus in the specimen will assist in clearing up the diagnosis.

Anesthetics.—Where the examination of a diseased joint is painful and doubt exists as to the nature of the affection the patient is entitled to the aid of a general anesthetic. In such cases the judgment of the examiner must decide which one to use. I have come to depend more and more upon nitrous oxide gas as a means to relax spasm and prevent pain, especially in injuries about joints. Often a great light is thus suddenly shed upon the problem.

Methods in the Case of Special Joints.—Each class of joints has its special clinical aspects. For instance, in diseases of the shoulder the formation of adhesions and stiffness are especially frequent. In affections of the knee effusion is often the noticeable feature, while in diseases of wrist or ankle pain seems to stand out prominently.

In examining the *knee* for effusion one is apt to be deceived by the usual test for floating of the patella unless he is careful to press upon it directly in the center. I have seen cases where an unusually long patellar ligament allowed the lower edge of the patella to ride up so that when tapped or pressed it would give a deceptive sense of floating although there was no excess of fluid in the joint. The frequency of a dislocated semilunar cartilage in knee cases makes it necessary to examine intelligently for the existence of such a lesion. Often the upper end of the tibia is difficult to find though this is the landmark for the disks and its edge should be carefully palpated in order to determine whether the coronary ligaments which hold the disks in place have been torn. In order to find the upper surface of the tibia and thus locate the coronary ligaments and semilunar cartilages of the knee I have devised the following method: the patient sits quite relaxed with the foot of the affected side resting upon the opposite knee. The weight of the limb causes rotation of the knee and a marked depression appears at its inner anterior aspect. This pit can usually be both seen and felt and its location is marked upon the skin with a pencil. When the knee is again extended the pencil mark may be carried transversely around the knee and will show the site of the edges of the disks.

If effusion into the knee joint is apparent and fever, redness, tenderness, pain or other circumstances make it proper to determine its character, aspiration is performed preferably by puncturing with the needle at right angles to the surface just outside the outer edge of the patella at its middle when the leg is extended. Examination for joint mice seldom succeeds in demonstrating their pres-

ence to the diagnostician. Mice hide from the cat. By grasping the leg and flexing and extending often with the leg rotated, the body may at times be felt about the patella or along the edge of the disks, or the joint be made to lock, but as a rule the diagnosis is presumed from the history of sudden and painful locking and verified by operation. If a tender line along either coronary ligament coexist with inability to extend the leg fully as a result of injury, one is pretty sure to find a dislocated semilunar cartilage—usually the internal one.

When pain is complained of in the knee with no physical signs of a lesion there, one should examine the region about the hip for the cause. Not only is the pain of a hip inflammation often referred to the knee but I have seen a patient who, as a result of a trolley accident, had torn his thigh adductors at their origin, suffered long-continued pain in his knee and was treated for weeks for synovitis of that joint when it was sound.

In the case of the *shoulder,* if the head of the humerus is in its socket, then, and only then, can the hand of that side grasp the opposite shoulder. This fact justifies the common test when luxation of the humerus is suspected.

Many of the stiff, lame or painful shoulders are caused by a subacromial bursitis and the tender spot just beneath the acromion process reveals its presence even though the sac be not enough distended, as it sometimes is, to cause a noticeable swelling under the deltoid. Abduction of the arm pushes the bursa under the process so that tenderness disappears in this position of the arm.

The movement of the scapula upon the chest wall is so great that even when the humerus is firmly ankylosed to it, there is a surprising amount of movement of the arm. When examining movements of the shoulder, one hand should remain in touch with the lower angle of the scapula as the arm is raised and lowered from the side.

The head of the humerus can be felt to rotate by the finger tips, palm uppermost, in the axilla, and in suspected cases of fracture of the neck of the bone this is a method of examination of the first importance.

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IS STERILIZATION DESTINED TO BE A SOCIAL MENACE?

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It is hardly necessary to state that I am thoroughly in sympathy with the employment of sterilization in social therapeutics. I was one of the pioneers in promulgating the theory and practice of sterilization of the socially unfit, and have had no occasion to change my views as to its value. It is a truism, however, that any therapeutic resource which is beneficially potent is also capable of harm. This is quite as true in social therapeutics as in the ordinary kind. It is the purpose of this brief paper to discuss some of the possible evils of sterilization.

Sterilization a Possible Menace to the State.—The laity is already becoming familiar with the technique, safety, and effects of sterilizaton upon the sexual function, and is aware that infertility, not impotency, results from it. The consequence is that, more often than the profession at large is aware, laymen are appealing to the surgeon for sterilization as a means of evading the responsibility of the procreation of children. That the surgeon will in future be still oftener appealed to is inevitable. The assumption of the responsibility of procreating and rearing children demands a certain degree of self-abnegation and self-sacrifice which many of both sexes gladly avoid. The fact that sterilization in either sex does not impair sexual power is likely to appeal very strongly to the average man.

The desire to avoid the physiological results of the sexual act is necessarily stronger out of wedlock than within it. Not only will sterilization appeal to the male sex but also to the female, perhaps in some instances more strongly, because of the fact that the burden of responsibility and care of bearing and rearing children falls most heavily on the female.. Especially will it appeal to the female because she herself need not submit to the knife in order to accomplish the desired result.

The Economic Phase of Sterilization.—The foregoing considerations are inextricably commingled with economic conditions. The increased cost of living, which means increased obstacles to matrimony, bears particularly on the expense of rearing a family. Economic conditions are likely to grow worse instead of better. The proportion of marriages will necessarily decrease. Sterilization obviously is an answer to some of the problems which confront society in reference to the expense incidental to rearing a family.

A very important phase of the economic problem that confronts people of marriageable age is necessarily the probability of children. Under present conditions the average wage earner is compelled to remain a celibate on account of the disproportion between wages and the amount necessary to maintain a family. It is possible that sterilization may increase the proportion of marriages among wage earners.

The Moral Aspect of Sterilization.—While it may be an open question whether sterilization will increase the proportion of marriages, there can hardly be any doubt as to its demoralizing effect, according to present ethical and moral standards of sex relations. Under present conditions a rapidly increasing class of wage earners is commanded by society to remain sex neuters. This is especially true of the female wage earner.

The sex function alone of all the functions of the body is commanded by ethical considerations and moral law to remain dormant. As a matter of fact, however, it does not and will not remain dormant.

Society has not yet arrived at the stage of development which would enable it to openly face this issue. Society merely shuts its eyes and goes on mouthing impractical and hypocritic ethical and moral inhibitions of biological law.

If the practice of sterilization ever becomes at all general, society eventually may be compelled to admit that inhibition of sexual immorality has depended more upon the danger of paying the physiological penalty, especially on the part of the female, than upon any moral or ethical influence *per se.* Remove the danger of pregnancy and we take the lid off.

Sterilization as a Substitute for the Abortionist.—However much the fact may be deplored; however strenuously we may legislate and preach against abortion, the practitioner of this illegal operation is, under present moral and economic con-

ditions, a popular and unavoidable social institution.

The substitution of the term "curettement" for the term "criminal abortion" has merely served to conceal the fire and to make the custom more widespread among supposedly decent physicians. Sterilization may prove to be a social factor which will greatly limit the practice of abortion.

Sterilization and the Church.—The church, which has always exercised a supervision over the right of the human being to procreate or not to procreate, will soon, in my opinion, have a very important problem on its hands, and will have to join with the State in the endeavor to regulate the practice of sterilization.

Whatever religious views one may hold upon the subject, and whatever social theories one may entertain, it must be admitted that the individual right to determine whether or not he or she shall have children, and when, and how many shall be procreated, is at least an open question.

The large family is an ideal proposition in the abstract, but in the concrete, in the light of present economic conditions, there are those who believe that not to be born at all is better than a life of misery and degradation, and that a few children, properly reared, should be the ideal of the family rather than a large number of children who can by no possibility be brought up as healthy and useful citizens. That woman should be sacrificed, as she often is, to the "Rooseveltian" idea of a large family has never been quite so clear to me as it seems to be to some.

Church and State unite in condemning all methods of prevention of conception. Will not both, if consistent, be compelled to "sit up and take notice" when sterilization of "the fit" becomes popularized?

Relation of Sterilization to Illegitimacy.—Should sterilization supplant the abortionist as a social institution, it will be a saving factor for certain of the unborn.

Society's attitude toward the abortionist is about as inconsistent as any social folly that could be mentioned. The woman who bears an illegitimate child becomes a social pariah. She is downtrodden by man and despised of woman. Her child is branded as a bastard before it is born, and again branded directly afterward. The State practically does nothing to save the life of the illegitimate child, or to preserve its health and morality and develop it into a useful citizen.

If the bastard child were the arbiter of its own destiny, it never would be born.

A demand for the abortionist is created by society itself, and then society penalizes the operation of abortion, rubbing its hands in hypocritic and savage glee whenever a poor starveling who is caught in the act is convicted and sent to the penitentiary as a sop to the Cerberus of ethics and morality. The fact that where one abortionist is punished thousands go unscathed does not weigh in the balance.

Individual Rights versus State Rights.—I will concede, for the sake of argument, the right in general of the individual, male or female, to be sterilized, especially in view of the fact that in the case of the male sterilization need be only temporary.

I will concede, also, that sterilization is a valuable therapeutic resource in certain diseases, and a valuable preventive of the transmission of disease and degeneracy to the unborn.

I will further concede that under proper regulation it will be of immense advantage to the State.

I nevertheless hold the opinion that the laws to protect society against the criminal and other unfit classes *by* sterilization must soon logically be followed by laws to protect society *against* sterilization, said laws being in the way of regulation of the operation on "the fit."

As to where the individual right to be sterilized ends and the State's right to prohibit sterilization begins, that is a subject which will require very careful study, wide experience, and considerable time for its elucidation.

The regulation by the State of the surgeon's practice of sterilizing the unfit is a corollary of the foregoing, and probably will be the most practicable way of handling the problem by the State.

The foregoing possibly will be considered by some as a prophecy by a social alarmist. I believe, however, that what I have said comprehends merely the logical results that may be expected to accrue from the inevitable familiarity of the public with sterilization and its results. Possibly it may come with better grace from myself, who always have been a strenuous advocate of sterilization as a factor in social therapeutics, than from others who have not been quite so friendly to this particular method of social self-defense.

32 North State Street.

ANATOMY OF THE UTERINE-PELVIC SUPPORT.*

By JOHN W. WINSTON,

NORFOLK, VA.

The uterus, which is not a fixed organ, lies within the pelvic cavity, and is held in position by folds of peritoneum and certain bands of unstriated muscle. The uterus is divided into an upper portion called the body and a lower called the cervix. These two portions are divided by a constriction known as the isthmus, and it is also known to be the weak portion of the uterus for it is here that pathological flexions take place. In the virgin this point is midway between the two extremities, but in the woman who has borne a child it lies near the junction of the middle and lower thirds. This gives one important reason for the greater frequency of flexions in those who have borne children. The upper portion is not only longer but is heavier and its support is relaxed. The direction of the uterine axis is not fixed but varies with fullness of the bladder and rectum. Its long axis is the same as that of the body, but when the bladder is empty it may incline forward to the extent of 15° or 20°.

The position of the internal os is at the level of the isthmus, and, as stated, in the virgin is at the middle of the uterus. Attention may be called to the fact that in labor it is only the cervical portion of the uterus that undergoes dilatation and stretching. Above this point there is only contraction and below only dilatation. It is, therefore, very evident how important is the subinvolution of the lower half of the uterus, especially when one remembers that the attachment of the uterosacral ligaments is at the upper and back portion of the cervix. The lengthening of the extravaginal cervix takes place from below upward and the longer it becomes the more relaxation it allows of the uterosacral ligaments. A tear of the intravaginal cervix has little effect upon the uterine support, but as soon as a tear extends to the extravaginal portion of the posterior wall it allows a relaxation of the uterosacral ligaments. The vaginal walls constitute one of the

*Read before the Norfolk County Medical Society.

main factors in holding the uterus down in the pelvic cavity and any relaxation or stretching of these walls, especially the posterior, allows the cervical portion to move upward and is most important in causing relaxation of the uterosacral ligaments. It is very evident, then, that shortening of the uterosacrals alone cannot restore to a normal condition unless the whole fault comes from stretching of these ligaments alone. At first sight it appears that shortening the posterior vaginal wall would pull the uterus backward as the posterior attachment is higher than the anterior, but what it does is to put tension on the uterosacrals and tension of these ligaments pulls the lower back half of the uterus its way and the fundus must go forward.

The uterus is held in its position by so-called ligaments, peritoneal and muscular. The peritoneal are six in number, two anterior, two posterior, and two lateral. The two anterior are the uterovesical ligaments, and while they are only very slightly supporting, their attachment at the front of the isthmus affords a point on which the axis of the uterus hinges.

The posterior ligaments are still less supporting, as they sweep over the cul-de-sac of Douglas and reach the uterus at the inferior edge of the extravaginal portion of the cervix. Together with the uterosacrals, they assist in pulling the lower pole of the uterus upwards and backwards. The lateral ligaments are generally classed as two, but there are really four, two being peritoneal and two of unstriped muscle fibers. The lateral peritoneal or broad ligaments are attached to the sides of the uterus enclosing the uterine vessels between them and pass outward, spreading out like a bat's wing to become attached to the pelvic walls, the upper portion enfolds the fallopian tubes and passes out to the pelvic wall to be attached to the obturator fascia, that part from the end of the tube to pelvic wall is called the infundibulopelvic ligaments and it is here that one can best take up the slack in the broad ligaments.

The lower part of the broad ligament is adherent to the levator ani and rectovesical fascia. The external part lies against the obturator fascia and between the divergence of this ligament there is fat-bearing cellular tissue. The upper and lateral portions of the broad ligaments are direct continuations of the peritoneum covering the lateral walls of the false pelvis and lateral abdominal walls. Any relaxation of the above peritoneum will cause relaxation here and this shows how relaxed abdominal walls and general visceroptosis lead to displacement of the uterus. Any tear of the levator ani, its fascia, or the obturator fascia relaxes the points of fixation and therefore the broad ligament. The broad ligaments together with the uteroplevic ligaments constitute the main support of the uterus. The uteropelvic ligaments are bands of unstriped muscle fibers stretching from the side of the uterus and vagina, where they ensheath the uterovaginal vessels and nerves, to the side of the pelvis, narrowing to a band that is inserted into the obturator fascia. The importance of these ligaments together with the fat-bearing cellular tissue beneath the broad ligament are often overlooked as they bear much of the uterine strain and support the broad ligaments. In shortening the infundibulopelvic ligaments the broad ligaments should always be opened and the uteropelvic ligament strengthened, as failure to do this may spoil the operation. The uterosacral ligaments are two flat bands of unstriped muscle tissue, extending from the highest and posterior portion of the cervix uteri, where they are more or less continuous with the uterine fibers of the uterorectal peritoneal folds, to the side of the sacrum opposite the lower border of the sacroiliac synchondrosis; they run one on each side of the rectum, where they are connected with its muscular coat. They serve to hold the uterus up and tilt it forward; when stretched they allow posterior displacements and procidentia. They also serve to hold the posterior vagina wall tense.

The round or uteroinguinal ligament is a cord of unstriped muscle fibers attached to the side of the uterus just below the opening of the fallopian tubes. It is about five inches in length and passes downwards, outwards, and forwards just beneath the anterior layer of the broad ligament, entering the inguinal canal at the internal ring. In the canal it derives from the abdominal wall striated muscle fibers, and gets other fibers independently. It gives off some fibers that become attached to the external ring and some to the pubic spine; finally it breaks up into a number of fasciculi, which become lost among the interlobular connective tissue of the labial margin. The round ligament serves in normal cases to hold the uterine fundus forward, but as it is on a lower level than its origin from the uterus, it cannot pull the uterus upward. This fact shows that in backward displacements of the uterus, with some procidentia, the shortening of these ligaments alone is not the ideal operation, and will not give entire success. These ligaments hug the bladder and have a tendency to prevent overdistension. The fact that they derive many fibers within the inguinal canal suggests that shortening of the ligaments extraperitoneally is not as well as when done from within the abdominal cavity. We should do the operation for shortening the round ligaments only, when there is a posterior flexion and absolutely no procidentia. A post-displacement is almost an impossibility without some procidentia.

The transversalis fascia, which lies between the transversalis muscle and the peritoneum, passes down into the pelvis covering the internal iliac muscle as the iliac fascia, and as it passes over the brim of the pelvis it becomes the pelvic fascia. At the edge of the obturator foramen it divides into two layers, the outer layer covering the obturator internus muscle and being known as the obturator fascia, while the other passes to base of bladder and side of rectum as the rectovesical fascia. Just in the internal left, by the splitting of the pelvic fascia, arises the levator ani muscle, which also arises from the spine of the ischium and the back of the pubes. The point of origin from the fascia is known as the white line. This muscle separates the pelvis from the ischiorectal fossa and forms the floor of the pelvis.

The fibers of this muscle form a flat plane of considerable strength and pass downwards, backwards, and inwards to their insertion—the most posterior into the tip of the coccyx, those next in order joining the opposite muscles in a median raphe extending from the coccyx to the tendinous center of the perineum—the rest becoming lost upon the side of the rectum, a few fibres running in front of the pre-anal raphe. The outer side of this muscle is covered by the ischiorectal fascia. The anterior and posterior borders of the muscle are free and the fasciæ here become continuous with each other.

The anterior border of the muscle becomes continuous with the side of the vagina as it sweeps around it. While this fascia and muscle do not directly support the uterus, they help to steady the vaginal wall and their continuation, the pelvic fascia, in turn holds fast the fixation of the broad and uteropelvic ligaments. A tear through the levator ani and its covering fascia or through the perineal body allows a relaxation of this fascia and muscle and through them of the broad ligament and uteropelvic ligament. It also causes a relaxation of the vaginal wall and through it a relaxation of the uterosacrals. Thus it is plain what part it may play in uterine displacements. A tear involving this muscle or fascia should be repaired at once or if delayed it should be carefully dug out and its torn ends approximated. Pressure directed against it during labor often tears it, when there is no superficial tear visible and it requires much judgment and skill to detect it. It may be stretched without being torn; in such cases, the slack must be taken up. Any tear to the pelvic floor requires a close study, as the parts must be restored to as near normal as possible.

Until the child's head strikes the pelvic floor its expulsion is carried on without strain to the uterine ligaments, and after it hits the floor the abdominal muscles should be used to their full strength, as this pressure from above takes much strain from the ligaments. A little anesthesia helps to this end, but complete anesthesia does harm. Tears above the intravaginal cervix should always be sutured, as they weaken the uterine support, while those within the intravaginal portion cannot produce this effect. In repairing the levator ani, it must be remembered that its fibers run antero-posteriorly, and bringing them together, as is often done, across the mid-line, alone does not repair the muscle.

On reviewing the anatomy of the pelvis, it appears that the ideal operation for posterior displacement accompanied by procidentia would be a modification of what is known as the Baldy operation—that is, instead of taking the round ligaments directly through the broad ligaments and attaching them to the upper back part of the uterus, they should be carried through at a lower point and attached to the back of the uterus at a point low enough to overcome both the slack in the ligaments and the amount of procidentia present. When the round ligaments are carried through the broad ligaments high up, they pull outwards, forwards, and downwards, but when put through at level lower than that at which they enter the inguinal canal, they are made to pull outwards, forwards, and upwards.

3303 Colonial Avenue.

HIGH EOSINOPHILE PERCENTAGE OF UNEXPLAINED ORIGIN.

By EMIL AMBERG, M.D.

DETROIT, MICHIGAN.

Mr. J. B., policeman, 35 years old, was referred to me November 9, 1912, by Dr. Gorenflo. He had some ear trouble three or four months previously and complained that the air came out of his right ear when he blew his nose. A good sized perforation was found in the anterior lower quadrant. On the following day he complained that he had not slept well in the night and that he had a thumping pain in his ear. Temperature 98.8°. On the 11th he said that he had had a bloody discharge during the night. Temperature was 98.8°. On the 12th, at 3 P.M., his temperature was 98.6° (mouth). There was no discharge visible. He said that he was nervous during the night, but that he had no pain. There was tenderness on pressure over the mastoid antrum. On the 13th the tenderness still existed and he complained of a sickening numb pain in the right temple. On the 16th the tenderness persisted and the head still felt bad. On the 17th he was admitted to Harper Hospital. He complained of pain in his right ear.

Blood examination showed:

	On the 18th:	On the 19th:	On the 25th.
Polymorphonuclears	48.0	49.7	52
Large lymphocytes	5.5	4.3	3.5
Small lymphocytes	35.0	32.0	34.5
Eosinophiles	10.5	14.0	10.0
Hemoglobin	85	...	...
No increase.	Signed, Carstens.	Signed, Sill.	Signed, D.

The *x*-ray examination revealed cloudiness in the right mastoid. The bacteriological report of the discharge, November 20, 1913, showed *Staphylococcus albus*. The laboratory report of November 21, 1912, says that no parasitic eggs could be found in the stool. Castor oil had been given previously. The urine examination (22d) gives specific gravity 10, acid, no albumin, no sugar, occasional leucocytes and epithelial cells.

The mastoid was opened on the 22d at noon. (Bacteriological report from the mastoid says: The cultures show no growths.) The patient complained of dizziness when he lifted his head after the operation. At 4:30 he had a chill lasting 15 minutes. The temperature revealed nothing unusual, except that it was mostly subnormal, rarely reaching 99.8°—once, the highest, on the 24th at noon, 100.4°.

A second report on the stool on Nov. 27 says: "No parasitic ova found."

The result of a blood examination on November 25 is shown in the chart.

December 2 patient was discharged from the hospital for office treatment. On February 15 he reported as follows: He went to work again February 1. February 4, 1913, on a very cold night he was in the open air. When he returned in the morning the right ear seemed to be very sore. When he put a hot water bottle on the whole ear felt as if frostbitten. That night when he left his bed he felt dizzy. The next day he vomited, and was dizzy even when sitting quiet. Dizziness lasted until the first part of May.

Examination February 15, 1913.—Patient hears voice in right ear with noise apparatus in left ear. Vienna fork and A′ fork heard in right ear by air and bone conduct. After turning (in revolving chair for labyrinthine tests) to right, nystagmus to left for 25 seconds. After turning to left, nystagmus for about 24 seconds to right. There is small rotary nystagmus on looking to left, also to right. Now his appetite is bad; while he worked inside it was good. He feels light, "just as if getting out of a sick bed." He has a sensation "like buzzing in both fingers." Ear dry.

The attending physician notified me that there developed an inequality of the pupils. After receiving from Dr. Gorenflo iodide of potassium since the middle of April the condition cleared up.

Dr. Varney reported June 6 that the Wassermann test was negative.

Remarks.—An explanation for this high percentage of eosinophiles has so far not been found by us. The patient follows his occupation.

MEDICAL RECORD.

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THE DEVELOPMENT OF NEW REFLEXES AND INHIBITIONS.

FEW physiologists of the past fifty years have opened up richer territories of investigation than has Pavlov, of St. Petersburg. His studies of the mechanism of the secretion of the digestive juices, which have formed the foundation for later work on the hormones, constitute one of the most important chapters in modern physiology. But he has not confined his attention solely to the problems of digestion. The psychic aspects of this process naturally led to the investigation of some of the most fundamental functions of the central nervous system. The results of these studies were communicated at the recent International Congress of Physiologists held at Groningen, and are published in the *British Medical Journal*, October 18, 1913.

At the outset the point is emphasized that all real advances in the study of the higher cerebral functions must come not from psychology, but from physiology. All previous studies of the localization of these functions represented merely the pioneer explorations of a region of which vast areas were yet to be discovered. Certain chance observations made during the course of experiments on the secretion of saliva in dogs, led Pavlov to pursue a new line of investigation. He found that in addition to evoking certain established reflexes governing the secretion of saliva, it is possible to cause the development and organization of new reflexes. Thus the introduction into the dog's mouth of food, or of a few drops of dilute acid excites reflexly a flow of saliva. If coincident with each application of the mouth stimulus there is also applied a cutaneous stimulus, such as heat, pain, or electricity at some definite part of the body, and if the experiment is repeated a number of times, there is reached a stage when the cutaneous stimulus alone is sufficient to evoke the secretion of saliva. This new reflex is termed a "conditional" reflex in contradistinction to the "unconditional" or customary reflex. The strongest electrical stimuli applied to the skin may thus be made to give rise to a feeding reaction instead of to the usual reaction of pain or of fright. Pinching, burning, or cutting the skin will evoke the symptoms of the keenest appetite. It is possible in a similar manner to cause the organization of a large number of new or "conditional" reflexes. This is a discovery of unique and vast importance in physiology. It shows that a reflex is not necessarily a stereotyped and inborn characteristic of the nervous system, but may be developed as an adaptation to changing phases of the environment.

Whereas painful stimuli applied to the skin may set up a conditional salivary reflex, it has been found that noxious stimuli applied to bone cannot be made to arouse such a reflex. This phenomenon is explained on the supposition that the cerebral center concerned with the stimulation of bone is physiologically stronger than the center connected with the feeding reflex. There are a number of conditions that tend to inhibit the conditional reflexes. Spontaneous inhibition occurs when the animal becomes drowsy and falls asleep. External inhibition may be the result of stimuli arising from without or from other parts of the nervous system. Internal inhibition occurs when, in a fully formed reflex, the conditional stimulus is occasionally not followed by the particular unconditional stimulus, as feeding or the administration of an acid, in which case the conditional stimulus is converted into an inhibition.

Certain unexpected phenomena which may eventually throw considerably light upon the physiology of sleep and hypnosis were unearthed in the course of these experiments. It was found that if the conditional stimulus preceded the unconditional stimulus by half a minute or one or more minutes the response was retarded. By varying the time relations between the conditional and unconditional stimuli a stage was reached when the animal entered into a cataleptic condition, and finally fell into a deep sleep from which it could be aroused with difficulty. This phenomenon indicates a widespread internal inhibition that may be closely analogous to the manifestations of sleep and hypnosis.

A conception of broader significance, however, than the formation of new reflexes is that of the organization of the central nervous system in the elaboration and control of all reflexes. Pavlov adopts the term "analyzers" to connote specialized parts of the central nervous system, each of which includes the peripheral endorgan, the nerve fiber belonging to it, and its termination in the cerebral cells. A separate analyzer is apparently developed for every specific stimulus in the outer world. The significance of the analyzers resides in the fact, that, as so well expressed by Pavlov, "a living animal responds by activity to only particular phenomena of the external world, so that it must analyze these and pick out from them certain special components." Frequent repetition of a conditional reflex results in a specialization and restriction of the stimulus. This change corresponds to the development of a more delicate and sensitive analyzer. If a mechanical stimulus of a definite area of the skin be used as a means of developing a conditional feeding reflex, extirpation of a certain part of the cerebrum will abolish this reflex. But the latter may be obtained on stimulating other areas of the skin. If the inactive area of skin is stimulated simultaneously with one of the active areas, there results a stronger inhibition of the reflex than would be obtained by stimulating one of the active areas alone. Moreover, this stimulation of the inactive area leads quickly to drowsiness and sleep.

Without detailing all of the interesting results obtained by Pavlov in laying bare some of the most complicated and elusive mechanisms of the mental function, it may suffice to emphasize the extreme importance of his discovery of the feasibility of developing new reflexes and inhibitions. This work is of fundamental importance in both physiology and psychology. It bids fair to mark an epoch in the history of these sciences.

ENDEMIC TROPICAL DYSENTERY.

Since we have embarked upon a career of expansion which requires a considerable number of our public servants to pass the greater part of their time in the tropics, the subject of endemic dysentery has acquired a renewed interest. With the possible exception of malaria, entamebic dysentery is the most widespread tropical disease. It has been estimated that no later than 1904, 50 per cent. of the invalidism among our officials and soldiers in the Philippines was due to this cause. This high rate of morbidity has stimulated research until our knowledge concerning the essential nature of the disease has been very materially increased. It was formerly believed quite generally that tropical dysentery was due to *Amœba coli*, and under this generic term were rather indiscriminately grouped a large number of protozoan organisms which are now known to be practically harmless.

In order to clear up some of the still mooted points of this subject, Walker and Sellards* secured the consent of a number of convicts in the Bilibid prison at Manila to be used as subjects for experimentation. In all, 60 feedings were administered to these men with the different species of *Amœba* and *Entamœba* which have been supposedly implicated in the production of the disease. Aside from the fact that these experiments differed from those hitherto performed in that they were conducted upon men instead of upon animals, they also have especial value because the conditions were such that perfect control could be exercised. Furthermore in every instance the species of ameboid organisms fed to the subjects and recovered from them was accurately determined. As a result of this investigation they conclude that the ordinary cultivable amebas which are usually found in the water supplies of the tropics are nonpathogenic. Likewise the hitherto suspected *Entamœba coli*, although resembling the true cause of dysentery in so far as it is also a strict or obligatory parasite and refuses to grow on culture media, is nevertheless absolutely unconcerned in the production of tropical dysentery. The specific cause of the disease was found in every instance to be *Entamœba histolytica*. Although it has been so far impossible to cultivate this organism, its microscopical characteristics are so pronounced that by observation of a comparatively simple technique a differential diagnosis can be accurately made between it and all other forms of ameba. The actively motile forms encountered in the stools of persons suffering from the clinical symptoms of the disease are exceedingly non-resistant, dying and disintegrating within a few hours after being passed in the feces. The encysted form is highly resistant. It is this form of the organism which is the greatest source of danger, as it is found abundantly in the stools of persons who are not suffering from dysentery at all. Consequently it is the latent and chronic forms of the disease which are chiefly responsible for its spread.

The incubation period was found to be long. In four cases which Walker and Sellards produced experimentally by feeding, the organism was recovered from the feces 20, 95, 87, and 57 days respectively before the disease appeared. This fact holds the key to the prophylactic treatment. An examination of the stools of all persons residing in regions where amebic dysentery is endemic would, if made no more frequently than once a month, result in the finding of the parasite in ample time to initiate successfully the ipecac treatment and dispose of the organism before the disease itself had made any headway. Thus each individual has it within his power to institute a personal prophylaxis which is effective so far as he himself is concerned. These are in brief the conclusions of Walker and Sillards whose monograph on tropical dysentery is the most important contribution to our knowledge of the subject since the classic researches of Schaudinn.

*Ernest Linwood Walker and Andrew Watson Sellards: Experimental Entamœbic Dysentery, *The Philippine Journal of Science, B. Tropical Medicine*, August, 1913.

THE LIVER IN RELATION TO TUBERCULOSIS AND CIRRHOSIS.

In 1907 Stoerk reported that he had succeeded in producing cirrhosis of the liver in guinea-pigs, which he had inoculated with tuberculosis. He concluded from his investigation that in cirrhosis of the liver in human beings tuberculosis plays an etiological rôle. If this were the case the systematic examination of the liver in a large number of cases of individuals who had succumbed to tuberculosis would show, at any rate, the beginnings of a cirrhotic process. Vice versa, autopsies on individuals in whom a pronounced cirrhosis of the liver was present would show old tuberculous foci in other parts of the body. A careful investigation of this nature was conducted by F. H. Lorentz (*Zeitschrift für Tuberkulose*, June, 1913), who made detailed macroscopic and microscopic examinations of the liver in 100 persons dead of tuberculosis in the Westend Hospital in Charlottenburg.

Gross examination of the liver showed in the majority of cases a normal or friable consistency. A hardening or an occasional cirrhotic change in this organ is so uncommon as to suggest that there is no causal relationship between tuberculosis and hepatic cirrhosis. In only a small percentage of cases are tubercles seen in the liver. In the average case the liver in relation to the entire body is too large and too heavy to suggest any cirrhotic process. In the great majority of the author's cases the liver showed upon microscopic examination the results of tuberculous infection. There was an inflammatory infiltration of the interacinous tissue, and there were numerous small and minute tu-

berculous granulations. The observation is made by Lorentz that even in the least florid cases of tuberculosis, the bacilli reach the liver in large number but are rapidly destroyed in this organ. The liver is regarded therefore as an agent that exercises a powerful destructive influence upon the tubercle bacilli that gain access to the general circulation. In spite of the inflammatory process revealed in the interacinous tissue, and in spite of the distinct evidence of stasis in the liver, the acini themselves show no evidence of change or impairment.

According to statistical analysis, therefore, the association of cirrhosis of the liver with tuberculosis is quite infrequent. When these conditions do occur together the relation is one of coincidence, both conditions separately being rather of common occurrence. Moreover, tuberculosis may arise as a manifestation secondary or terminal to cirrhosis of the liver.

Cures at Lourdes.

In recent years, according to the *Münchener medizinische Wochenschrift*, September 30, medical men have been taking an increasing interest in this subject. If we remember correctly, the late T. Gaillard Thomas reported a so-called Lourdes cure which he was quite unable to account for, to wit, the resolution of an intractable case of pelvic cellulitis in which the pelvic organs formed one continuous mass. Despite his authority, it is not likely that his remarks were taken seriously by his colleagues, because it is very simple to believe that mistakes in diagnosis must now and then occur. Recently a circular letter was sent to 1,000 physicians in respect to Lourdes cures. The answers varied notably. Despite a large degree of scepticism, conscientious practitioners have been found who admit frankly the cure of actual disease. A list of prominent practitioners is on record as upholding the existence of a superterrestrial agency in some of these cures. Several university professors have gone on record with attests to this effect—for example, Duret of Lille. "Suggestion" in the minds of men like himself may be quite left out of consideration in some severe cases. Among cases which yield to Lourdes treatment tuberculosis is well represented, including recoveries from lupus. Without going more deeply into the subject at present we may conclude by noting the expressed determination that in future the fullest degree of publicity will be given to all cases of apparent cure occurring at Lourdes.

News of the Week.

The Red Cross.—The American National Red Cross announces the receipt of gifts of $100,000 each from Mr. Jacob H. Schiff and Mr. James A. Scrymser, and of $2,000 from Mrs. Whitelaw Reid. The gift from Mr. Scrymser is to be added to the fund for the purchase of land in Washington on which the Government is to erect a building for the Red Cross as a memorial to the women of the Civil War. Congress has already appropriated the sum of $400,000 to cover the cost of constructing the building, and the Red Cross has offered to raise the $300,000 necessary for the purchase of the land. With the completion of this memorial building the Red Cross will have a permanent home and headquarters where the various departments of the service can be housed. The other two gifts are to be used as endowments for the fund for the town and country nursing service, which is practically new work for the Red Cross.

Convalescent Colony.—The United Hebrew Charities of New York at a recent meeting entertained a proposition to establish an industrial colony where persons who have recovered from tuberculosis may work and earn their living under proper hygienic conditions. It is to be hoped that some practical scheme for carrying out this proposition may soon be effected.

Low Death Rate.—For the week ending October 25, the death rate in New York City was 11.26 per thousand, which represented a total of 1,160 deaths, as compared with a rate of 12.48 and a total of 1,238 deaths for the same week of 1912. There was an increase in the number of deaths from pulmonary tuberculosis which totaled 138 as against 112 for the same period of last year. The Babies Welfare Association reports that during the last three weeks of October the number of deaths of infants under one year of age was 128 less than during the corresponding period of 1912, and estimates that the death rate for babies for this year will be considerably less than 100 per thousand. For the year 1907 the rate was 144.4, and for last year it had dropped to 105.3.

School Medical Inspection.—At a hearing before the Board of Estimate and Apportionment of New York City last week an appeal was made for the insertion in the budget for 1914 of an additional appropriation of $26,000 to provide eight additional nurses and four medical inspectors in the public schools. Dr. Haven Emerson, representing the Academy of Medicine; Dr. S. Josephine Baker, director of the division of child hygiene; Dr. E. H. Lewinski-Corwin, and Mr. Bailey B. Burritt, representing the Association for Improving the Condition of the Poor, appeared in support of the demand. It was stated also that the present staff of dentists in the public schools was inadequate, and the appointment of an additional eleven was urged.

Medical School Appointments.—The following promotions and new appointments in the medical faculty of the New York University and Bellevue Hospital Medical College have been announced: William B. Trimble, professor of dermatology and syphilology; Lewis K. Neff, clinical professor of medicine; William H. Luckett, clinical professor of surgery; George H. Kirby, assistant professor of mental diseases; Ephraim M. Ewing, assistant professor of physiology; Charles Krumwiede, lecturer on bacteriology; Edward S. McSweene, lecturer on the management of tuberculosis institutions; Arthur G. Keane, clinical lecturer on surgery; Robert P. Wadhams, John F. Nelson, Walter W. Griffin, and George A. Koenig, instructors in surgery; John H. Carroll, John H. Wyckoff, Jr., Mills Sturtevant. Emanuel D. Friedman, and William H. Boese, instructors in medicine; Frederick W. Rice, William E. Bailey, Filip J. Wettervik, Richard T. Atkins, and Alfred Kahn, instructors in otology; and John J. Rothwell and Clement J. Hailperin, instructors in dermatology.

Cornell University Medical College opened on Wednesday, October 1, 1913, with an enrollment as follows: For the degree of M.D., first year,

36; second year, 32; third year, 20; fourth year, 20; special students (work not leading to the degree of M.D.), 5; for the degree of Ph.D., 2; for the degree of M.A., 2; making a total of 117. All students now registered, with the exception of those pursuing the combined seven years' course leading to the degrees of A.B., and M.D., are graduates of Arts or Science, or Doctors of Medicine doing advanced work.

Civil Service Examinations.—The United States Civil Service Commission announces an open competitive examination, for men only, for the purpose of filling a vacancy in the position of chief mine surgeon in the Bureau of Mines, Pittsburgh, Penn., at a salary ranging from $2,400 to $3,600 per annum. The duties of the position are to investigate and report upon health conditions in mines and at mining towns, to outline and direct methods of first aid instructions to miners, to attend mine disasters, and to direct and make pathological and physiological studies concerning the effect upon the human system of poisonous gases, death by shock at mines, and similar subjects. Application for the details of this examination, which will close on December 8, 1913, should be made to the United States Civil Service Commission, Washington, D. C.

The New York State Civil Service Commission announces that the positions of nurse, head nurse, and matron in county tuberculosis hospitals have been included in the competitive class, and that applications will be received by the Commission at any time, and appointments made as necessary. The positions are open to both men and women, over twenty years of age, who have been residents of the State for at least three months. The salaries vary from $40 per month and maintenance to $75 per month and maintenance. No written examinations will be held, but candidates will be rated on their age, education, preliminary training, and experience. Further details may be obtained by addressing the State Civil Service Commission, Albany, N. Y.

Otisville Sanatorium.—Because of the large number of patients applying for treatment at the Otisville Sanatorium for early cases of tuberculosis, the capacity of which is now 600, many have been compelled to wait for a number of weeks before admission, and to remedy this undesirable condition the Department of Health has arranged to receive such waiting patients at the Riverside Sanatorium on North Brothers Island. Two new pavilions on the island have been set aside as reception pavilions for subsequent Otisville patients, who are thus enabled to receive the benefits of treatment as soon as possible after diagnosis of the disease. Vacancies at Otisville will be filled first from patients already under observation at the Riverside Sanatorium.

Diagnosis Clinics for Venereal Disease.—Commissioner Lederle of the New York Department of Health, has recently issued a circular letter stating that the Department of Health of New York City has for some months conducted two diagnosis clinics for venereal diseases, where physicians may send patients for Wassermann tests for syphilis, for the complement deviation test for gonoccocus infection, microscopical examination for *Treponoma pallidum* in fresh specimens and for gonococci. Under no circumstances are the results of these examinations communicated to any one but the physicians sending the case. All the examinations are made free of charge. In order to extend the usefulness of these clinics in combating the spread of venereal diseases, a specially trained physician has been appointed to act as "Medical Adviser" to the patients attending the clinics. Under no circumstances will he treat cases. His duties consist in advising patients as to the nature of the disease, the necessity of proper medical care, the dangers of self-treatment, and the importance of obeying the directions of their physicians. Upon request, the "Medical Adviser" will also instruct the patients regarding the nature of venereal infections, their mode of spread, ordinary course, complications and far-reaching effects and in various questions of sexual hygiene. The establishment of these venereal clinics has been disapproved by some physicians, on the ground that ample facilities for the free treatment of venereal diseases now exist. It is apparent, Commissioner Lederle says, that this objection is based on a complete misunderstanding of the diagnostic functions of the clinic, and the duties of the "Medical Adviser," for the medical advice given will in no way interfere with the legitimate work of private physicians and dispensaries.

Brady Clinic.—Contracts have been awarded for the erection of the James Buchanan Brady, Urological Clinic of the Johns Hopkins Hospital, Baltimore, and work has been begun on the new building, which will, it is estimated, cost $250,000. It will be of brick with marble trimmings, and six stories high, and will be placed on the Monument Street side of the hospital grounds. It is expected that the clinic will be completed by October, 1914, at which time opening exercises with Sir William Osler as the chief speaker will be held.

Missionary Physician Needed.—The Presbyterian Hospital and Dispensary at Tsinanfu, North China, a city of about 100,000, lying 300 miles south of Peking, is in need of the services of a woman physician. Details may be obtained by applying to Mr. Wilbert B. Smith, 600 Lexington avenue, New York.

Nobel Prize.—Prof. Charles Richet of the Faculté de Médecine, Paris, a Member of the Académie de Médecine, and director of the Institut Marey, Paris, has been selected as the recipient of the Nobel Prize in Medicine for 1913. This is a recognition of Prof. Richet's recent work on anaphylaxis.

Hodgkins Prize.—The committee on award of the Hodgkins Prize which was offered by the Smithsonian Institute in connection with the International Congress on Tuberculosis held in Washington in 1908, have finally reported that they agree in recommending that the prize be equally divided between Dr. Guy Hinsdale of Hot Springs, Va., and Dr. S. Adolphus Knopf of New York, for their respective essays on the relation of atmospheric air and tuberculosis. The prize committee consisted of Dr. William H. Welch, chairman; Dr. Simon Flexner, Surgeon-General George Sternberg, and Dr. John F. Fulton. The total amount of the prize is $1,500.

Personals.—Dr. W. P. Cunningham of New York announces his removal to 323 West 14th Street.

Dr. Edward S. Peck of New York has removed to 57 West 58th Street.

Dr. Winfield Scott Hall, dean of the Northwest-

ern University Medical School, Chicago, spoke before the students of the University of Washington, Seattle, on October 20, on social hygiene.

Gifts to Charities.—The United Hospital of Port Chester, N. Y., receives a bequest of $50,000 by the will of the late Mr. William Henry Macy of Harrison, N. Y.

By the will of the late Mr. Frank G. Keeney of New York the Brooklyn City Dispensary, the Brooklyn Home for Consumptives, and the Home for the Blind receive bequests of $2,000 each.

The American Association of Immunologists.—This society was organized on June 15 at Minneapolis, Minn., with forty-one charter members, all of whom have been pupils of Sir Almroth E. Wright of London. The objects of the society are: "To unite the physicians of the United States and Canada who are engaged in the scientific study of immunology and bacterial therapy. To study the problems of immunology, and to promote by its concerted efforts, scientific research in this department. To spread a correct knowledge of vaccine therapy and immunology among general practitioners." The officers temporarily chosen are: *President,* Gerald B. Webb, Colorado Springs, Colo.; *Vice-Prersident,* George W. Ross, Toronto, Canada; *Treasurer,* Willard J. Stone, Toledo, Ohio; *Secretary,* Martin J. Synnott, 34 South Fullerton Avenue, Montclair, N. J.; *Council,* A. Parker Hitchens, Glenolden, Penn.; Oscar Berghausen, Cincinnati, O.; J. E. Robinson, Temple, Texas; Campbell Laidlaw, Ottawa, Canada; Henry L. Ulrich, Minneapolis. The first annual meeting of the Society will be held June 1, 1914, at Atlantic City, N. J.

The New York Society of Anesthetists.—Dr. Geo. W. Crile of Cleveland, Ohio, will address this Society at a meeting at the N. Y. Academy of Medicine, November 20, 1913, on "Anesthesia and Anoci-Association."

Obituary Notes.—Dr. Alexis Marcy Léon of this city died suddenly on November 2. He was born in New York March 25, 1857, and was graduated from the College of Physicians and Surgeons in 1878. He was a member of the County and State Societies and a Fellow of the American Medical Association, a member of the Alumni Association of the City Hospital, and visiting physician to St. Francis' Hospital.

Dr. Alfred J. Pedlar of Alameda, Cal., a graduate of the Cooper Medical College, San Francisco, in 1877, a former member of the California State Legislature and of the Medical Corps of the United States Army, died at his home on October 19, after a long illness, aged 60 years.

Dr. Arthur Fray Niedermeier of Trenton, N. J., a graduate of the Medical Department of the University of Pennsylvania, Philadelphia, in 1900, for many years chief medical examiner and surgeon in New York for the Pennsylvania Railroad, died at the Mercer Hospital, Trenton, on October 23.

Dr. Joseph Augustus Stites of Springfield, N. J., a graduate of the Bellevue Hospital Medical College, New York, in 1875, health officer and medical inspector of Springfield township, and a member of the New Jersey State and Union County Medical Societies, died at his home from apoplexy on October 22, aged 61 years.

Dr. John Kuestner of Philadelphia died of strangulation by food on October 20 at the Pennsylvania Hospital for the Insane. He was graduated from Hahnemann Medical College and Hospital in the class of 1887.

Dr. Samuel A. Martin of Clinton, Pa., died on October 23 as the result of injuries received by the overturning of his automobile. He was graduated from McGill University, Medical Faculty, in the class of 1892.

Dr. Henry A. Mettauer of Macon, Ga., died at the home of relatives in Farmville, Va., on October 22, aged 87 years.

Dr. T. W. Keys of Leroy, Ill., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1879, and a member of the Central Illinois Medical Society, died at his home on October 21, aged 75 years.

Dr. Frederick A. Hall of Hoxie, Kan., a member of the Kansas State and Sheridan County Medical Societies, died at his home suddenly on October 21, aged 60 years.

Dr. Allen L. Wood of Brooklyn, N. Y., a graduate of the Hygeo-Therapeutic College, Bergen Heights, N. J., in 1863, died at the Paul Kimball Hospital, Lakewood, N. J., on October 25, aged 73 years.

Correspondence.

THE ETIOLOGY OF GASTRIC ULCER.

To the Editor of the Medical Record:

Sir:—An editorial comment under the above caption, in the Medical Record for October 25th, introduces a description of one factor in the development of gastric and duodenal ulcer, but it seems to me we may generalize and assume that vascular obstruction due to emboli proceeding from omental vessels would represent only one feature of a condition in which vascular obstruction practically comprehends the entire subject. Statement is made in the editorial article that "the source of such thrombosis or embolism is undetermined."

In 1893 I published a description of proliferative endarteritis occurring in the presence of toxic injury of the walls of terminal arteries. The appendix gives a very typical object lesson. In cases of intrinsic infective appendicitis proliferating endarteritis may occur in all branches of all the terminal arteries, and yet the round or restricted ulcer of the appendix may appear in the field of obstruction of only one of these arteries. In such cases a local hyperleucocytosis seems to take charge of the tissues in the vicinity of other terminal arterial filaments which are involved in the proliferative endarteritis.

In cases of ulcer of the stomach or duodenum we may have a similar process. Whenever any actively developing colony of the colon bacillus is at work, either in acute appendicitis, cholecystitis, or acute colitis, the patient may have hematemesis as a complication, and this represents the bleeding ulcer. There appears to be acute toxic destruction of cells of capillary walls at points at which excretion of colon bacillus toxin is being carried on rapidly from the walls of the stomach or duodenum. When toxic excretion irritates the walls of blood vessels larger than capillaries, belonging to the terminal arterial system, proliferating endarteritis may occur over a rather large area, and yet some one of these areas—which then become anemic—is selected for destruction by saprophytes or by digestive processes. When any one anemic area is attacked in this way in the stomach or duodenum, a phagocyte protection seems to be called out which guards against

destruction of tissues in neighboring areas, although they are being subjected to the same toxic process.

It is probable that different toxins which are being excreted by the mucosa of the stomach and duodenum make demonstration in different ways. For instance, in a case of burn of the skin of only the first degree, perforating ulcer of the stomach or duodenum may appear as a complication. Heat causes proteolytic change in some of the albuminoids of the skin, and the end-result toxins which are then excreted by the mucosa of the pylorus and duodenum may set up proliferating endarteritis at points of excretion. Direct toxic destruction of the protoplasm of capillary wall cells over the areas of excretion of anerobe toxins might at another time cause ulcerative erosion of the "bleeding sponge" type in the same patient.

Ulcers of the stomach and duodenum of all kinds, from the bleeding sponge ulceration, superficial in character, to round perforating ulcer, are to my mind similar to many of the skin diseases, i. e., selective action of the glands of the skin or of the mucous membranes results in toxic irritation of or destruction of cells at the points of excretion of these selected toxins.

The entire field of gastric and duodenal ulcer may not be covered by this theory of the vascular obstructive origin of such processes, but we may at least employ such a theory for a working hypothesis, basing our concept upon the proportion of cases in which microscopic examination demonstrates the presence of proliferating endarteritis or capillary thrombosis of small branches of terminal arteries belonging to any part of the enteron. My first contribution to this subject was made in 1893, and a photomicrograph of a terminal artery involved in toxic proliferating endarteritis may be found upon page 24 of the second edition of "Lectures on Appendicitis," published in 1896. Since that time I have published various notes in reference to the same process and its bearing in explanation for the toxic excretion symptom which is called "ulcer of the stomach and duodenum."

Robert T. Morris, M. D.

616 Madison Avenue.

MALARIA IN THE NEWBORN.

To the Editor of the Medical Record:

Sir:—In view of the desirability of collecting data which may aid in throwing light upon the question of maternal transmission of malaria, the following case is reported so that it may become of record.

A child, Filipino, born January 2, 1913, at the Iwahig Penal Colony in Palawan, on January 7 had a rise in temperature and symptoms which led to the suspicion that it might be infected with malaria. Examination of the blood made on January 9 showed distinct malarial crescents. The mother had suffered from estivoautumnal infection at intervals during her pregnancy. For a number of months prior to December 25 she had been actively treated with daily gram doses of quinine sulphate given in capsules by the mouth.

Victor G. Heiser,

Surgeon U. S. Public Health Service, Director of Health for the Philippine Islands.

Manila, P. I.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

NEW SESSION OF MEDICAL SOCIETIES—MALINGERING—LOCAL GOVERNMENT BOARD REPORTS—FLIES AS CARRIERS OF DISEASE—LECTURES ON TROPICAL DISEASES—OBITUARY.

London, October 17, 1913.

The new session of the Medical Societies has begun, and from the early proceedings and programs promises to be successful. The Royal Society of Medicine was to have had on Monday a demonstration by Dr. Hideyo Noguchi of the Rockefeller Institute, and this was looked forward to with great interest, but unfortunately it had to be postponed on account of indisposition, which prevented the demonstrator's appearance. We trust the hindrance is ephemeral, for it is said he will be able to come on Monday next. On Tuesday the section of surgery met to hear Mr. C. A. Pannett on the selection of the incision for celiotomy, and Mr. Frank Kidd on pyeloradiography.

The clinical section had previously opened with an exhibition in which were numerous cases of interest, *e.g.* a man who had benefitted from salvarsan who was admitted to hospital for diphtheria, but numerous Vincents' organisms found in throat cultures. He was treated by various local measures for a fortnight, the pain in throat increasing, extending to both ears and submaxilliary glands. A swab moistened with glycerine and dipped in salvarsan was then rubbed over the parts affected. It gave no pain and four hours later the throat felt easier. Three more applications were made with the effect of clearing the fauces, abating the adenitis and banishing the organisms. There was no history or evidence of syphilis and Wassermann's reaction was negative. Among other cases were actinomycosis of the cheek benefited by injections of formalin; osteomyelitis in a boy of eight years; osteogenesis imperfecta with multiple fractures in a boy of eleven and one-half years; skiagrams revealed the fractures and an abnormal translucency of the bones; splenic enlargement with oval sepsis and anemia in a man of fifty years, and another in a woman of fifty-five years with arteritis obliterans; Bazin's disease in a woman of thirty-one years; arthritis of the wrist following a wound attended at first by great pain and swelling reaching half way up the arm, but quickly subsiding and leaving the joint swollen, but painless and insensitive to heat or cold. Tactile densation not much affected, though the joint is evidently disorganized, as rough grating shows.

The Medical Society of London held its first meeting of the session on the 13th, when the audited accounts and treasurer's report was presented and approved, the retiring officers vacated their positions and the newly elected ones assumed them. The first ordinary meeting followed when the incoming president, Sir David Ferrier, delivered an address and Dr. E. F. Buzzard read a paper on "Varieties of Facial Spasm and Their Treatment."

The West London Medico-Chi. met on the 3d inst., when Dr. Palmer, the new president, was inducted, and, according to custom, presented the "Keetley" medal to his predecessor, Dr. Shutel, and then delivered an address on the subject of "Malingering," which he considered had of late years increased, especially among the industrial class. For this he held the trend of modern legislation was to no small extent responsible. The Insurance Act had opened the floodgates to the risk on a scale hereto-

fore unknown. The sickness claims of women were amazing; the logical sequence to compulsion was resistance, and it was certain to show itself, in some cases, in malingering, the psychology of which was interesting if complex. Gain was not the only motive; idleness and others might be at work. No doctor was a detective, though he would discourage any fraud he noticed. He would not make an accusation unless he had positive evidence. Cases which might be termed subconscious or unconscious malingering might occur and valetudinarianism was important to remember, for it included genuine invalids and others. True neurasthenics were often great sufferers, and to brand them as malingerers would be cruel. As to prevention Dr. Palmer suggested: (1) The appointment of independent, experienced medical referees. (2) Medical assessors with arbitrators to interpret evidence in courts. (3) Organized lay visitation. (4) Retention in hospital of doubtful cases. (5) Time limit to functional illness. (6) Periodical examinations of suspected cases by independent practitioners. (7) Registration of the benefits of claimants from all sources.

The local government board last week issued its half-yearly return of pauperism. From the mass of figures it appears that there is a further decline in the total number receiving Poor Law relief, but a continuance of the disquieting increase noted for several years in the number of pauper lunatics and idiots. In London unions the decrease of paupers was 0.1 per cent.; in the provinces 1.1 per cent. The number of the insane (paupers) has increased year by year since the numbers of this class were recorded. Since 1872 the increase has mounted to 148 per cent., mostly determined by the increase in the number maintained in the county and borough asylums.

The number of insane and idiot persons in relation to the population has increased from 2.2 per 1,000 in 1872 to 3.4 per 1,000 in the present year.

The board has also issued further reports concerning the carriage of infective material by flies. They comprise papers by Dr. Gussow on "*Empusa Musca* and the Extermination of House Flies"; by Dr. Hindle on "Color Preference of Flies" and the "Range of Flight of *Musca Domestica*," and by Dr. Graham Smith on "Nonlactose Fermenting Bacilli in Flies." The chief medical officer of the board comments on these papers, considering them to have important practical bearings. He admits that the number of flies in summer may be some index of the probability of contamination by microbes where decomposing agents are permitted, but draws attention to the other sources of danger. There is also a paper by Dr. Copeman on the "Hibernation of House Flies." In a search he instituted it is surprising that among a number of hibernating flies caught in likely situations, as generally supposed, he found not a single specimen of *musca domestica*. He thinks it may possibly be because that fly was very slightly prevalent last summer, but further investigation is needed as to the circumstances in which survivors pass the winter and serve to perpetuate the species.

A course of lectures on "Diseases of the Tropics" is being delivered at the Young Men's Christian Association for the benefit of missionaries, students and persons likely to travel in tropical regions. Sir Ronald Ross took the chair at the first lecture, which was given by Dr. D. E. Anderson, who formerly was a worker in Mauritius and is now a lecturer in Mansfield College, Oxford. Sir Ronald congratulated the audience and the people of London that these lectures had been inaugurated and told them that Dr. Anderson had traveled widely and made important observations, and when working in connection with malaria had been one of the first to discover the parasite.

Dr. Fielding Ould said that fifteen years ago he was associated with Sir Ronald Ross in West Africa when there was no systematic study of tropical medicine and they were subject to jeers for urging it. At that time no microscope was used from Sierra Leone to Nigeria, but since then hundreds of lives had been saved by the knowledge acquired.

Dr. Anderson then gave his lecture, which comprised an account of the morbitic organisms which have been shown to be responsible for various diseases.

Sir John Batty Tuke has died in his seventy-eighth year. He graduated M.D., Edin., in 1856, and went to New Zealand, where he had medical charge of Imperial troops and later of Colonial forces. After some six years in the colony he returned to England and obtained the appointment of medical superintendent of the Fife and Kinross Asylum. He had then been engaged in some research work on the brain with Professor Rutherford, and from this time he steadily rose until he became recognized as one of our leading psychologists and a practical physician and specialist on insanity. He was Morisonian lecturer on this subject at the University of Edinburgh in the early seventies. He was in due course a member of the General Medical Council, and from 1900 to 1910 he was M.P. for the joint university seat of Edinburgh and St. Andrews. He received a number of honors, among them D.D. Ed., D.Sc., T.C.D. and F.R.S.Ed.

The death took place last week of Dr. J. H. Fergusson, M.O.H. for London Ferry, Port Medical Officer (Lough Hoyle), late examiner R.C.S.I. and on the conjoint board was F.R.C.S.I. and D.P.H., 1894-6. Also L.R.C.P.Ed. and F.P.S. Glas. He was author of "The Sanitary Service in Rural Districts."

Department Surgeon-General Nathaniel Norris, who died in Sept. 29, in his eighty-third year, qualified in 1854 and entered the army the next year, served in India, Afghanistan, Egypt, etc., retiring in 1885 with three medals and clasps as well as the Khedive's Star.

Dr. Henry John Thorp, whose death occurred on Oct. 3, at eighty-one years, was surgeon on the *Perseverance* during the Crimean war and afterwards at the Royal Dispensary, London, and at one time was V.P. of the Hunterian Society.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CHOLERA—INCUBATION PERIOD OF LEPROSY—PERSONAL.

MANILA, P. I., September 13, 1913

AFTER an absence of several years two cases of cholera again suddenly made their appearance in the city of Manila during the latter part of August. So far there have been no additional cases reported. The first case occurred in the person of a Filipino who worked as a carpenter in one of the local hotels but lived on Calle San Sebastian and was said invariably to have taken his meals and slept at his residence. On Saturday evening, August 23, he left his place of employment, apparently in good health. About noon the next day he was seized

with violent pains in the stomach, which later in the afternoon increased in severity and in addition, marked pains began in the muscles of the calves and forearms. There was no diarrhea. A physician was called, who reported that by evening the case presented many of the clinical symptoms of cholera and the patient was ordered transferred to the San Lazaro cholera hospital. The man was in a moribund condition when he arrived, at about 10 P.M., and died a few minutes later. At the autopsy, which was held on the morning of August 25, the typical pathological lesions of cholera sicca were present. The lower bowel contained a large amount of hard, formed, feces. A liquid rice-water-like fluid was found in the ileum, cultures from which, examined in accordance with the procedure recommended by the Internationale d'Hygiene Publique Conference, resulted in the isolation of the true cholera vibrio.

The next case came under observation on August 25, and occurred in the person of a Filipino who was employed as a cook in a British family in Caloocan, which is a suburb of Manila and a number of miles removed from the first case, and so far as could be ascertained there was no connection between the two cases. This person gave a history of having been ill with diarrhea and cramps in the muscles of the extremities for a period of about a week. He claimed that he was too ill to work and was requested to leave by his employer. It was at this time that he came under the observation of the sanitary authorities and was transferred to San Lazaro Hospital, where a clinical examination showed him to have the typical symptoms of cholera; that is, rice-water stools, cramps in the muscles of the legs, suppression of urine, husky voice, subnormal temperature, and other well-recognized symptoms. Cultures made from his stools, examined in the same manner as mentioned above, resulted positively for the cholera vibrio. This case is recovering and is still under observation in the San Lazaro cholera hospital.

The stools of twenty persons who lived in the same house, who were considered contacts of the first case, were examined. Of these, one proved to be a vibrio carrier and the organism in the laboratory corresponded with the vibrio of Koch in all essential details with the exception that no agglutination took place with cholera serum. Seventeen persons were examined who were considered contacts of the second case, and one vibrio carrier was found among these, the organisms from which acted the same as those from the vibrio carrier of the first contact group.

The nearest known focus of cholera is at Hongkong. Careful inquiry showed that neither of these cases had been out of the city or had come in contact with persons recently from Hongkong.

Since the appearance of these cases a complete house to house inspection has been made many times in all sections of Manila, but so far no additional cases have been found. Laboratory stool examinations for vibrio are made of the bodies of all persons that die in the city, but so far this has resulted negatively. The death rate for the city is decidedly lower than it was last year during the corresponding period, from which it is assumed that few, if any cases of cholera are being overlooked.

On account of the fact that so very little is known of the incubation period of leprosy, the following case of a child aged two years and sixteen days at the time that a positive diagnosis was made may be of interest. This child was born at the Culion leper colony on May 15, 1911. The mother was admitted to the colony on February 10, 1910, aged 34, with the positive diagnosis of leprosy both clinically and microscopically. The father was admitted on August 10, 1908, aged 26, with a clinical diagnosis of tubercular leprosy and microscopically positive. At the time of examination, on June 30, the only clinical symptoms exhibited by the child were a slight reddened area of the cheeks and of the lobes of the ear which to experienced eyes gave the appearance of a mild leprous dermatitis. Microscopical specimens made of scrapings from the cheek and from the septum of the nose resulted positively for the leprosy bacillus.

As the police system in the Philippines gradually improves, it is becoming more and more apparent that there are still a considerable number of cases of leprosy of long standing at large, so that the rapid reduction in the number of new cases of leprosy which had been hoped for after the segregation of the lepers was supposed to have been almost completed can scarcely be expected as yet. During the fiscal year ended June 30, 1913, there were 848 cases admitted to the Culion leper colony. Of these 260 had physical signs and symptoms which showed that they must have been afflicted with the disease for a period of at least two years.

Dr. George G. Davis of Chicago has arrived in the Philippines to take up his duties as associate professor of surgery in the College of Medicine and Surgery of the University of the Philippines.

Dr. Louis Schapiro, who was formerly medical inspector of the Bureau of Health and later Chief of the Bontoc Hospital Division, has resigned and returned to his home in Milwaukee.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 23, 1913.

1. Some Peculiarities of Medical Progress, with Illustrations from Studies of Articular Conditions. H. W. Marshall.
2. An Anatomical and Surgical Study of Pericecal Membranes. M. F. Fallon.
3. The Evolution of Mental Healing. C. F. Painter.

2. **Pericecal Membranes.**—M. F. Fallon emphasizes the fact that the so-called Jackson membrane is a congenital, normal, peritoneal membrane and not a membranous pericolitis. It may be confused with the pericolitis of Virchow. The ascending mesocolon is a less frequent form of attachment of the ascending colon and the accompanying *cecum mobile* in itself is not pathological. Digestion in man requires the retarding of the food current in the first half of the large intestine—the physiological stasis. When this stasis is pathological the causes frequently are faulty habits; and hygienic and dietary, rather than surgical measures, as a rule, are indicated. Pericecal membranes frequently predispose to appendicitis, and afford one explanation for family appendicitis.

3. **The Evolution of Mental Healing.**—C. F. Painter points out that present-day tendencies in psychotherapy are simply the revival in new form of principles and practices which are very ancient. The amulet represents the earliest recorded attempt of primitive man to satisfy his psychic self in the treatment of disease. Closely allied to the use of the amulet was that of talismans. Their virtue was acquired through the observance of certain religious rites and ceremonies at the time that the talismanic characters were imparted to the parchment, bit of wood, or other material employed for the purpose of conveying the talismanic influence. The chief distinction between

the amulet and the talisman seems to have been that the former was provided to meet a particular emergency or exigency, generally to ward off evil, whereas the talisman was something that was carried all the time and exerted a more all-pervading influence both of a positive as well as of a negative character. The belief in demons influenced the treatment of disease, which now became the special function of the exorcists. The period of the Crusades gave rise to the traffic in relics. Pilgrimages were yearly made to the shrines of the saints. The "royal touch" became a special insignia of the divine right of kings. In the sixteenth century magnetism was invoked as a method of healing. The revival movement of the eighteenth and nineteenth centuries signalized the development of psychic influences in the treatment of the sick which reached their culmination in the genesis of Christian Science and the more rational Emmanuel Movement.

New York Medical Journal.

October 25, 1913.

1. The Legal Responsibility of the Surgeon and Practitioner Which the Use of the X-ray Involves. Ellsworth Eliot, Jr.
2. Percussion of the Pulmonary Apices. M. Fishberg.
3. Oral Sepsis and Its Possible Dangers. R. C. Rosenberger.
4. A Clinical Report on the Value of Turtle Tuberculin in the Treatment of Tuberculosis. W. J. Beattie and E. E. Myers.
5. On Testing Urine for Indican. J. Rosenbloom.
6. Intravenous Injections of Theobromine Sodium Salicylate. S. Neuhof.
7. Skin Diseases in School Children. E. Pisko.
8. The Differential Diagnosis of Some Ordinary Eye Diseases. F. Krauss.
9. A Plea for More Intensive Mercurial Medication in Syphilis. M. Zigler.
10. A Note on the Treatment of Fractures near the Wrist Joint, with Especial Reference to Colles' Fracture. A. O. Wilensky.

1. **Legal Responsibility and the X-Rays.**—Ellsworth Eliot, Jr., questions whether the function of the *x*-ray specialist is to be extended to those cases of fracture in which the attending surgeon by methods of diagnosis and reduction, evolved through centuries of observation and investigation, can be reasonably certain that the fragments are in such apposition that satisfactory union may be expected. He believes that this is no more essential than it is to call a special consultant in every case of pneumonia, appendicitis, or strangulated hernia. It is in the spirit of self-protection that, in cases of fracture or dislocation, an *x*-ray is suggested when the surgeon is morally certain that the fragments are in apposition or that the dislocation has been successfully reduced. The fear of litigation in the event of nonunion or other unfortunate result, in no way the fault of the surgeon, is a very strong incentive for generally advising an *x*-ray irrespective of the location of the fracture. The writer believes that these questions must be answered affirmatively and that it is time to establish the principle that the use of the *x*-ray, although in many instances most desirable, yet in many cases is not indispensable to the proper treatment of a fracture. That such a principle should be established is all the more essential in view of the fact that, having become a specialty, the use of the *x*-ray is frequently inaccessible in many cases of fracture. It is a well known fact that on exploration a condition may be found essentially different from that which the *x*-ray seemed to indicate and, similarly, deformities may be either exaggerated or minimized by the manner in which the photograph is secured. Although in many instances a most important and valuable aid in the diagnosis and treatment of fractures, the use of the *x*-ray must not be judged indispensable, and the neglect to advise its use should in no instance constitute a basis for the recovery of damages. Should such a principle prevail the time is not far distant when the prospect of litigation will prevent those most competent from undertaking the care and treatment of cases of this character.

2. **Percussion of the Pulmonary Apices.**—M. Fishberg states that light percussion is sufficient in most cases, especially at the apices. The contrast between the resonance of the air containing tissue and the deadness of the airless spot is striking when light percussion is practised. The sound becomes entirely inaudible when areas of defective resonance are reached. Small disseminated foci of airless tissue can only be found with light percussion; an increase in the force of the stroke in such cases may evoke a normal, or overresonant note If on increasing the force of the stroke the dulness remains one may safely conclude that we deal with an extensive area of airless tissue. In most cases of tuberculosis shrinkage of the apex occurs quite early, and the determination of a narrowing of the resonant area in the supraclavicular and supraspinous fossæ on one side is of eminent value in the diagnosis of early tuberculosis. By mapping out the resonant areas on both sides anteriorly and posteriorly, any disparity appears quite vividly at a glance when the two sides are compared. For practical purposes it is sufficient to percuss the apex in its true anatomical position, which is anteriorly between the heads of the sternocleidomastoid, reaching about 3 or 4 cm. above the clavicle; and posteriorly, close to the spinal column to the height of the vertebra prominens. A shorter apex on one side is of immense significance. The resonance also must be of about the same intensity on both sides; the outline of the mesial borders of the apices can be easily ascertained by careful percussion, and it is expected that both sides should have the same course. Percussion of the supraspinous fossæ proper, over the scapulæ, and anteriorly between the trapezius and the sternocleidomastoid is a vain effort—no pulmonary tissue is located there. During extreme and held inspiration, in the normal lung, the resonance is increased, while during forced expiration the resonance is duller. In infiltrated apices a long and held inspiration gives a duller note on percussion than is found over the opposite, healthy side, and this is often of great value in doubtful cases.

6. **Intravenous Injections of Theobromine Sodium Salicylate.**—S. Neuhof has demonstrated the practicability of intravenous injections of theobromine sodium salicylate. The solution is readily prepared and sterilized, and when properly given produces no reaction. While 20 c.c. of a 5 per cent. solution have been found a convenient standard, this may be modified to suit individual requirements. It seems particularly indicated in uremia, in the anuria of cardiovascular renal diseases, and in some types of primary renal disease when internal administration is impracticable or impossible and quick diuretic action is necessary. It is further suggested that these injections may be of benefit in some types of uremia accompanying eclampsia; in conjunction with other forms of treatment, it may help in starting diuresis.

Journal of the American Medical Association.

October 25, 1913.

1. Some Newer Methods of Reducing the Mortality of Operations on the Pelvic Organs. G. W. Crile.
2. Can Rabbits Be Infected with Syphilis Directly from the Blood of Paretics? Observations on the Recognition of the Virus in the Later Periods of the Disease. W. W. Graves.
3. Cultivation of the Rabies Organism. Anna W. Williams.
4. A Clinical Report of Seven Cases of Hydrophobia: Together with a Case Clinically Similar with Recovery, Following the Injection of Quinine. D. L. Harris.
5. Holding Fractures with Absorbable Material—Ivory Plates and Screws—A New Method. P. B. Magnuson.
6. A Discussion of Various Anesthetics and Methods: Experimental Observations. B. F. McGrath.
7. The Relation of Politics to the State Care of Crippled and Deformed. H. W. Orr.
8. The Orthopedic Surgery of Fifty Years Ago, with Some Reminiscences and Conclusions. N. M. Shaffer.
9. Bacterial Invasion of Blood and Cerebrospinal Fluid by Way of Lymph-Nodes. Findings in Lymph-Nodes Draining the Pelvis. E. E. Southard and M. M. Canavan.
10. Report of the Committee on the Treatment of Puerperal Fever. B. C. Hirst, R. L. Dickinson, and J. B. DeLee.
11. Some New Minnesota Laws on Tuberculosis. P. M. Hall.
12. An Inexpensive Efficient Sputum-Cup. R. M. Alexander.
13. Detachable Scalpel Blade. J. A. Matlack.
14. Fracture of Anterior Superior Spine of Ileum from Indirect Violence. C. Auer.
15. Treatment of Boils. L. Chapman.

1. **Reducing Mortality of Pelvic Operations.**—By G. W. Crile. (See MEDICAL RECORD, July 5, 1913, page 44.)

2. **Syphilitic Infection from the Blood of Paretics.**—W. W. Graves alludes to his former theory of relative tolerance as opposed to that of latency of syphilis and holds that this theory is supported by the results of the modern aids of the laboratory and clinical refinements in the treatment of the disease. Since Schaudinn's discovery the demand has become more and more insistent for the recognition of the luetic virus in every stage of the disease, and he gives an account of his experiments on rabbits with blood inoculations from syphilitics and paretics. From the blood of two paretics the author was able to procure the syphilitic infection in rabbits and reproduce the spirochetes. He concludes that one is justified in affirming that, until confirmatory and additional work can be done, clinical observations and laboratory methods will continue to support the idea that in paretics, tabetics and so-called latent syphilitics the living virus of syphilis is ever present.

3. **Cultivation of the Rabies Virus.**—Anna W. Williams claims priority in the recognition of the developmental cycle of the Negri bodies for which as early as 1906 she had suggested the name "*Neuroryctes hydrophobiæ*." No one has since brought forward clear evidence against her findings and conclusions as to their protozoan nature and some investigators have confirmed these findings. Recently Noguchi's announcement of the cultivation of the parasite of rabies has been made, but the writer notes that unfortunately it leaves one with no more exact knowledge of the cultivation of the rabies organism than one had before. With the idea of the protozoan nature of the Negri bodies in mind, she had herself attempted to cultivate them, but the results have been too unsatisfactory and incomplete for publication. Some suggestions, however, have been obtained, which may be published now. There has been no change of mind needed as to the varieties and arrangements of the Negri bodies as shown in her former paper. The changes are seen more clearly in brains left in the skull of the animal in which the air has been excluded by some method before examination. Some of the larger forms appear in from twenty-four to seventy-two days, according to temperature, with more definite groups of smaller forms, some of which seem to be surrounded with a form of membrane. In street and passage virus brains, many of the large forms seem to become distinctly separated into smaller forms, some within the membrane and some without. By animal inoculations with dilutions, material with these segmental-like forms appears to increase in virulence, but it has not been decided if this is a real gain or not. Experiments were made with the passage of virus from culture to culture by methods similar to that used by the author in making cultures of the dysentery ameba. After each transplant guinea pigs were inoculated and all of them had typical rabies after the inoculation with the fourth culture. By the fifth transplant the material was contaminated and the animals did not become rabic. The author criticises Noguchi as not giving anything new in his announcement of the appearance of coarse pleomorphic chromatoids which can be carried through many generations. All investigators, from Pasteur down, have stated at one time or another that minute and coarse pleomorphic bodies are the cause of rabies and they can be seen by any observer arising in uninoculated mediums, after the tissue has undergone a certain amount of degeneration. The author also criticises Noguchi for indefiniteness of statement as regards the culture generations and questions whether the positive results asserted may not have been due to dilution of the original material rather than to continued growth and division of a specific organism.

5. **Ivory Plates in the Treatment of Fractures.**—P. B. Magnuson describes the use of ivory plates and screws in the open treatment of fractures. He has found by experiments that ivory is gradually absorbed, does not cause softening of surrounding bone, or become loose, as may metal plates, since the bone grows in as the ivory is absorbed. It has also the property of being strong enough to stand any muscular strain affecting the fragments. The author also uses ivory screws and mortises the ivory plates into the surface of the bones in applying them.

9. **Routes of Bacterial Invasion.**—E. E. Southard and M. M. Canavan have studied the routes of bacterial invasion of the body by way of the pelvic lymph-nodes. The cerebrospinal fluid still leads the heart's blood in percentage of positive cultures. Pelvic lymph-nodes lead both blood and cerebrospinal fluid. This is possibly due to the great percentage of pelvic lesions in the author's present series. It is still uncertain whether these findings indicate ante-mortem or post-mortem invasion. An acute or chronic lesion may conceivably help the penetration of organisms from without. If, as seems likely, the invasions are intravital or agonal, then it would appear that the pelvic lymph-nodes are accustomed to harboring many bacteria. Whether this habit of receiving more organisms than other nodes induces any superiority on the part of these nodes in respect to their power of digestion the authors cannot say. If so, a rationale for Fowler's drainage position might be imagined. Such a rationale would be superior to saying that the pelvic peritoneum is a better filter than others or is differently constructed from peritoneum elsewhere. The pelvis, often subject to acute and chronic disease in the insane, appears to supply its lymph-nodes with very numerous bacteria. Some of these are saphrophytes, some doubtless pathogens; they are often found in the cerebrospinal fluid post-mortem, even when absent in the blood. The pelvis compares, under the random conditions studied, with the intestinal tract in its habit of supplying bacteria to regionary lymph-nodes, and perhaps the pelvis surpasses the intestinal tract, since the latter's lymph-nodes happened to be studied during an epidemic of intestinal disease which provided an excess of secondary invaders. The hypothesis of a route of meningeal invasion by way of the blood receives added support from this work, although the possibility of more direct invasion must be considered.

10. **Treatment of Puerperal Fever.**—By B. C. Hirst, R. L. Dickinson, and J. B. DeLee. (See MEDICAL RECORD, July 5, 1913, page 45.)

The Lancet.

October 18, 1913.

1. Some Applications of Antenatal Eugenics in Heredity. D. Berry Hart.
2. The Cerebrospinal Fluid in Health and Disease. Sir David Ferrier.
3. The Relief of the Pain of Laryngeal Tuberculosis. E. D. Davis.
4. Hereditary Optic Neuritis: Eleven Cases in Three Generations. A. S. Worton.
5. A Case of Pellagra. E. M. Johnstone.
6. Two Cases of Cervical Rib with Vascular Symptoms. E. D. Telford.
7. The Treatment of Ankylostomiasis. R. D. Keith.
8. The Treatment of Infections by Means of Fixation Abscesses. Dr. de Lostalot.
9. Hemiplegia Following Syphilis. M. Mackinnon.
10. The Medicine of the Babylonians and Assyrians. M. Jastrow.

2. **Cerebrospinal Fluid in Health and Disease.**—Sir David Ferrier discusses the various aspects of this subject. He notes that hitherto the benefits of lumbar puncture from a therapeutic point of view have been overshadowed by their diagnostic value. Beneficial results as regards the reduction of intracranial pressure have been reported in cases of hydrocephalus, serous meningitis, and cerebral tumors, but these results have not been so marked as to lead to any very general adoption of the method; and in some forms of cerebral tumor the procedure is not free from risk. In many cases of infectious meningitis, other than tuberculous, improvement has re-

sulted from lumbar puncture, and the headaches of chlorosis, migraine, syphillis, and uremia have been relieved, as well as the symptoms of Ménière's disease. The injection of cocaine into the spinal subarachnoid for the purposes of producing paraplegic anesthesia, and the injection of magnesium sulphate in order to allay tetanic spasms, and similar procedures, are well known.

3. **Relief of Pain of Laryngeal Tuberculosis.**—E. D. Davis during a period of a few months injected a solution of two grains of eucaine in one ounce of 80 per cent. alcohol into the internal laryngeal nerves of twelve selected cases to relieve the dysphagia. The method of injection adopted was that described by J. Dundas Grant and is briefly as follows: The patient is in the prone position with the head and neck slightly extended and the chin turned away from the point of injection. To avoid sepsis the skin in the region of the nerve is painted with iodine. The larnyx is pressed out of the mid-line by the thumb and made to project on the side about to be injected. The nerve is marked out by the nail of the index finger, which is placed between the hyoid bone and the thyroid cartilage and immdiately above the superior thyroid tubercle where a tender spot is found. The blunt needle of Schlosser's syringe is now pushed in with a jerk at right angles to the surface and at the middle of the finger nail to a depth of 1½ cm., *i.e.* to the mark on the needle. The needle is carefully moved so as to seek the spot at which the patient complains of pain in the ear. A few drops of the solution of alcohol are injected, and if there is a violent fit of coughing it indicates that the needle has possibly entered the pharynx and is too deep, but this very rarely happens. Finally, the slightly warmed alcoholic solution is injected until the pain in the ear has ceased. About 1 to 2 c.c. is generally sufficient. Of the twelve cases in which this procedure was resorted to not one showed any signs of hemorrhage, injury to the surrounding structures, or other disturbing results—in fact, the proceeding is not much more difficult than the usual hypodermic injection. With the laryngoscope the side of the larynx injected was found to be slightly paler and appeared to be less sensitive when touched with a laryngeal probe. This local anesthesia is probably the cause of the immediate relief experienced in most cases. In two cases both nerves were injected at the same sitting without any untoward symptoms and without the regurgitation of fluid into the larynx during swallowing, but as a general rule it is wiser to allow a few days to elapse before the injection of the second nerve. Of the twelve cases two were unsuccessful, owing to ulceration of the pharynx in one and extensive disease in the other. One patient obtained complete freedom of pain for one month and put on 3½ pounds in weight in a week. This patient died a few months later from diffuse pulmonary tuberculosis, and microscopic sections were made of the internal laryngeal nerves and compared with a section of the same nerves of a healthy subject who had been killed by an accident. The nerve which had been injected twice showed increased fibrous tissue and numerous spaces within the bundles of the nerve fiber. Ulceration of the free upper portion of the epiglottis is treated by amputation with punch forceps. This is not a serious or difficult operation. The effect of the insufflation of powders such as orthoform and anesthesin or morphine is transitory, and depends on the skill of the patient in getting the powder well into the larynx.

4. **Hereditary Optic Neuritis.**—A. S. Worton states that this affection, frequently known as Leber's disease and also by the synonym hereditary optic atrophy, was first clearly described by Theodore Leber in 1871. It is characterized by rapid loss of central vision, usually lasting some considerable time, and followed in a certain proportion of the cases by more or less spontaneous recovery of visual function. Both eyes are affected, as a rule, either simultaneously or within a few days of each other. The loss of central vision is evidenced by a central scotoma usually absolute in character, the peripheral limits of the visual fields remaining normal in extent. Many of the cases regain full normal visual acuity after the attack, but even in these cases some deficiency of the light sense can usually be demonstrated by a comparison of the results obtained from the black and gray (Bjerrum) test types. A few cases, on the other hand, go from bad to worse, and vision may be permanently reduced to hand movements or the merest perception of light. Between these extremes a varying amount of useful vision may be regained by the sufferers, and this amount is probably influenced to some extent by the mode of life both before and during the course of the attack. The condition is essentially one of inheritance and follows the type of a sex-limited disease in so far as males are very much more liable, transmission occurring usually through unaffected females. The diagnosis would depend chiefly on the discovery of similar cases in other members of the family or on tracing backwards through the female side of the genealogical tree. From retrobulbar neuritis it is distinguished by the absence of pain on pressure over the eyeball or on movements of the eyeball. Retrobulbar neuritis is frequently unilateral and runs its course towards recovery in a very much shorter time. The scotoma associated with it is also frequently relative throughout. Tobacco amblyopia is infrequent before the fourth decade of life, the scotoma is usually relative in character, and recovery, as a rule, rapidly occurs when the tobacco is stopped. The ophthalmoscopic appearances during the attack are those simply of a mild neuritis, hyperemia of the discs, fluffiness of the disc margins, and slight perivasculitis. The author reports eleven cases of this condition occurring in three generations of a family.

British Medical Journal.

October 18, 1913.

1. The Investigation of the Higher Nervous Functions. I. Pavlov.
2. "Struma" an Important Factor in Disease of the Eyes. T. Harrison Butler.
3. The Rigidity of Calcified Arteries. A. H. MacCordick.
4. A Second Case of Double Loop Hernia. J. A. C. Macewen.
5. On Certain Non-Official Fats as Ointment Bases. On Soft Paraffin as an Ointment Basis. R. B. Wild.

1. **The Higher Nervous Functions.**—By I. Pavlov.

(See page 850.)

3. **The Rigidity of Calcified Arteries.**—A. H. MacCordick lays down as a general rule that so-called calcified arteries are not of a stony rigidity during life. The calcareous matter in the arterial wall is not present during life in the form of rigid plates. It is there, but in the state that may be compared with unset mortar. The author employs the simile of unset mortar, but apparently this is more than a simile—it is, in fact, an identity. On making inquiries, the author finds that it is generally accepted by chemists that the process of setting of mortar is one of conversion of calcium hydroxide into calcium carbonate by the absorption of carbon dioxide from the air. The reaction of the tissues and body fluids during life is alkaline but becomes acid shortly after death. After death the gas which replaces the blood within the arteries is largely composed of carbon dioxide. When there are large areas of necrosis appearing in the tissues the production of acid is sufficiently abundant to bring about an *intra vitam* setting of the calcareous matter. For instance it is the experience of the gynecologist that a calcified fibroid of the uterus may be found of stony hardness even while in the body. It is the author's experience that in a case of senile gangrene the arteries of the necrosed or gangrenous area are of stony hardness whereas the same arteries higher in their course where the circulation is still maintained are soft and pliable and can be ligatured with ease. In short, the realization of this fact, that in arteries provided with an adequate circulation the calcareous matter, whether it be

in the intima or the media, remains unset, is calculated to fully explain why, after handling pipe-stem radials, there is no thrombosis and gangrene, and it is easy to understand why rigid and tortuous splenic and other mesenteric arteries in the aged arteriosclerotic do not undergo traumatic rupture. During life they are not rigid. It is easy also to understand the occurrence of extensive so-called atheromatous ulceration of the aorta without thrombosis commonly occurring during life. Those ulcers, in short, and the saucerlike plaques with surrounding rupture of the endothelium are post-mortem productions. The calcified areas become in the intima set and rigid before the muscular contraction of the aorta gives way and the tube undergoes dilatation. The result is that a tension upon the endothelium at the edges of the plaque induces rupture of this lining.

5. Fats as Ointment Bases.—R. B. Wild reports the results of his investigations on this subject. In the course of his experiments it became evident that the factors which go to make up the perfect ointment base are still not completely understood. Chemical composition seems to be chiefly of importance in that the glycerine esters of the higher fatty acids and the cholesterin fats are absorbed more readily than the hydrocarbons. It does not, however, follow that all drugs are more easily absorbed from these bases, since we still lack information as to the readiness with which they part from the drugs with which they may be combined; neither do we know what effect the volatility of certain drugs has upon the rate at which the base may give them up to the tissues, or whether a drug dissolved in the base behaves differently from one which is merely mechanically mixed with it. The physical properties alone of the bases do not seem to explain their relative values as ointment bases; the melting points are certainly of the first importance, but some substances which are too hard for ointments have melting points below those of comparatively soft bases. One essential point appears to be that an ointment is better for most purposes when it melts gradually, and this is apparently the reason why a mixture of fats or hydrocarbons (provided that the difference between their melting points is not too great) is better as an ointment base than a single pure fat or hydrocarbon with a sharply defined melting point.

Berliner klinische Wochenschrift.

October 6 and 13, 1913.

Pure Cultures of the Exciters of Smallpox.—According to Fornet the increasing demand for a stable vaccine has led to an official demand for a preservative which must be far more effective than glycerin in moderate and warm temperatures. Since glycerin tends to destroy the admixed germs it will in time attack the specific germ and weaken its virulence unless kept continually in cold storage. Of all other preservatives tested, and they are very numerous, chloroform and antiformin held out some promise but they have been superseded by ether, the idea having originated with Vincent in his work with typhoid vaccine. Very recently several makers of smallpox vaccine have tested ether with very favorable results. Crude lymph was kept alive and virulent. It could be propagated hours and even much longer, thereby sterilizing the lymph for ordinary germs without impairing its virulence, as shown abundantly in animal experiment. Next was asked is the ether lymph stable? The interval is somewhat short to permit a final answer but the outlook is good in this respect. Now is at once suggested the only true manner of keeping lymph stable and that is by repeated cultures. Ether lymph has therefore been tested on all sorts of nutrient media. The earlier attempts were not crowned with success. But when passed through a succession of ordinary media, while no cultures appeared, (only slight clouding at times) it was evident that the lymph was kept alive and virulent. It could be propogated in calves, both fully developed pocks and small so-called "culture pocks" appearing. Attempts were of course made to isolate the germ. The outlook here was naturally unfavorable. No real colonies appeared in the lymph, and all attempts to obtain such, including the most varied stains brought at first no results. The methods by which Flexner succeeded in cultivating the germ of acute poliomyelitis were closely parallel. Finally a combination of stains—hot carbol fuchsin, strong Giemsa, and Zoeffler's stain (Beize) rendered visible extremely minute rounded bodies, having a characteristic grouping. The bodies in themselves vary but slightly from numerous finds of predecessors, but the author claims priority in cultivating and staining the so-called *Microsoma variolæ* (vaccinæ). He thinks Weigert described the same bodies in 1874, Calmette in 1901, Prowazek in 1905, etc., to say nothing of numerous others. Even Koch seems to have described them in 1881. In this list we look in vain for the cytoryctes of Guarnieri, which is reckoned in some quarters as the proven cause of smallpox. The author's work stops short with his positive staining results, and his quasi-cultivation, and apparent elimination of all other germ life. The vast field opened up by such discoveries he leaves to the imagination.

Four Attacks of Puerperal Eclampsia in one Patient.—Holste states that there is but one case on record of three eclamptic labors in one woman, and that as far as he knows but a single four-time case has ever been reported. Even two cases in one subject form a great rarity. The first pregnancy in which eclampsia occurred was in 1910, and was her second gestation, the first having been normal throughout. In the eclamptic case gestation had been normal throughout and there was no evidence of neuropathy. Very near time she developed headache and nephritis, followed at once by three convulsions. Labor was at once induced, six more convulsions following. The case ended favorably for mother and child. The second eclamptic attack occurred in the third pregnancy, appearing in the seventh month as a series of severe convulsions and coma. Stroganoff's treatment met with great success, and there was no return of the symptoms, the urine becoming normal. She was delivered at term without any suggestion of toxemia. Singularly to relate, she had one mild attack in the puerperium. The third case occurred in the fourth pregnancy, the woman breeding very rapidly. It began in the fourth month, as typical eclampsia, with no other evidences of gestation toxemia. The kidneys appeared to be nonparticipating in the attack. The symptoms consisted of numerous severe convulsions and coma. Stroganoff's method was useless on this occasion. The sole resource was to induce abortion, which was done successfully, convulsions ceasing absolutely. When the woman again became pregnant, which was not long afterward, she was at once placed under observation. Albumin never appeared in the urine, nor was there any evidence of other sort to suggest pregnancy toxemia. Then (the author neglects to mention the month, but it should have been very near term) a fulminating attack appeared, which resisted all measures. Pneumonia also supervened and was the actual cause of death. The child, extracted by accouchement forcé, survived. The author regrets that he did not centrifugize the urine in search for former elements. Autopsy showed no hepatic necroses.

Mercurial Vaginitis.—Wolffenstein writes on the dangers of intensive mercurial cures, the use of which seems to have been modified by the introduction of salvarsan. The evil effects are usually seen in ointment and injection cures. The usual clinical expression, as is well known, is ulcero-gangrenosus stomatitis, and it is but little known that an analogous type of vaginitis may replace this or be associated therewith. The author cites two cases from

literature and reports in detail a third personal observation. The patient was a girl of 22, who had noticed a sore spot on the genitals. The physician consulted ordered a mercurial injection cure after he had obtained a positive Wassermann. After a short course of injections she developed stomatitis. The Wassermann reaction had become negative. A vaginal examination made at the time showed no lesions whatever. A second examination eleven days later showed the portio and vaginal walls the seat of multiple lesions representing an ulcero-gangrenous process, the odor being extremely fetid. A great variety of bacteria was present, but no spirochetes. For several days shreds of mucosa came away. Traces of mercury were for a long time present in the urine. After seven weeks patient recovered with considerable narrowing of the vagina. Fever of a low type had prevailed throughout and the constitution reaction was marked.

Münchener medizinische Wochenschrift.

October 14, 1913.

Regeneration of Axis Cylinders in Vitro.—Ingebrigtsen, who has been working at this problem at the Rockefeller Institute, New York City, states that in his opinion conclusions can be drawn from his experiments which favor the probability of regeneration of axis cylinders within the living mammal. He believes the conclusion justified that the regeneration phenomena of the axis cylinders as we know from the regeneration of mammalian nerves *in vivo* are completely parallel with the regeneration of the same *in vitro*, as to both morphological and tinctorial qualities. The axis cylinder phenomena are therefore *sui generis*, and cannot in either case be in part attributed to any outside causes whatever. The cylinders simply grow, Ingebrigtsen maintains, either from other cylinders or from ganglion cells.

Blood Examinations in Chronic Nephritides.—Borchart and Bennigsop, after much research, arrive at the following conclusions: In a chronic nephritis not accompanied by fever or uremia we find a mild degree of hyperglycemia in all such cases as retain sodium chloride or nitrogen respectively, because of the injury to the kidneys. Conversely, if the excretion of these two substances is normal, the excretion of blood sugar is normal. Sodium chloride retention and hyperglycemia have a common causation—both are conditioned by increased reabsorption of sodium chloride or grape sugar respectively in the urinary canaliculi.

Which Is the Active Constituent of Beck's Bismuth Paste?—Rost states that the number of practitioners who employ this resource for the treatment of fistulous tracts is constantly increasing. The universal use of the remedy is only prevented by the fear of bismuth poisoning, cases of which are reported from time to time. Attempts have been made to substitute for the nitrate the less toxic carbonate of bismuth, the latter also being superior for *x*-ray purposes. A striking point, however, in this connection is the negligence displayed in studying the possibilities of the other ingredients of the paste. The latter is believed to act by causing a more intensive granulation in part, of course, by its germicidal proclivities, but examination shows that singly no one of the ingredients possesses either bactericidal or cell proliferant qualities in any marked degree. Recently stimulation of connective tissue fibers rather than of epithelia has been believed to be the leading factor in artificial healing of granulating surfaces. The paste consists of bismuth, vaseline, soft paraffin and wax. Bismuth is not a promoter of connective tissue proliferation. But vaseline, notably "American Vaseline" does possess such powers when injected into granulating tissue, and so does soft paraffin. The greater the purity of the vaseline the less favorable the effect. On the contrary certain very impure greases have the property in an extraordinary degree. Bismuth without vaseline is without merit in these cases, and vaseline alone can close a fistula. Neither lanolin nor lard exercises such a property. A few surgeons have begun to rely on a Beck's bismuth paste "without bismuth." Some substitute a little iodide of potassium. The results of such pastes, the author says, are equal to those obtained by the original formula.

Deutsche medizinische Wochenschrift.

October 9, 1913.

Kyphotic Sciatica.—Hnátek refers to the known influence of sciatica upon the upright posture of the body. As a rule there develops scoliosis, either homologous or heterologous. To explain how sciatica can cause scoliosis is hardly possible, so many meanings being held on this subject. The only point upon which all are agreed is that sooner or later sciatica is almost surely followed by scoliosis of some sort. The type which was first to be reckoned is the kyphosis which follows bilateral sciatica. Yet, singularly to speak, this is one of the most infrequent forms. This kyphosis is not easily recognizable and somewhat resembles that of paralysis agitans. The archlike kyphosis results from bilateral scoliosis. The lowermost vertebræ are forced forward, the femur extended in the hip joint, while the dorsal portion of the vertebral column is also extended. The author abstracts three cases from literature, all of which differed from one another, but all were examples of kyphoscoliosis, thereby establishing a new type for the author in his pure kyphosis. The author's summary of his own case is as follows: Male, aged 38, free from nervous taint, had as a result of overexertion developed a typical rightsided sciatica with kyphosis of 120°. At night in order to obtain relief from pain he had to assume the knee-elbow position. Flexion of the trunk forward gave relief from pain, which seemed to show that a sensitive twig of the sciatic entered the muscles of the back.

Rupture of an Aneurysm of the Aorta into the Superior Vena Cava.—Klein describes the following case: A man aged 42 entered the hospital complaining of palpitation and dyspnea. No history of swelling in the limbs. Within two days his symptoms had become more pronounced—sudden malaise and dyspnea, with edema and cyanosis of the arms and upper portion of the trunk. He had a history of alcoholism and nicotinism. There was a sharp line of demarcation at the typhoid process. Here the veins were extraordinarily prominent and the seat of pulsation. A venous pulse was felt at the right jugular. The condition of the heart and lungs and urine showed departures from the normal, but the abdominal viscera were intact and there was no temperature. The pulse was small and rapid. The tentative diagnosis was aneurysm of the ascending aorta compressing the superior vena cava. Death supervened suddenly, as if the usury upon the latter had ended in rupture. Autopsy as follows: Sacciform aneurysm of the ascending aorta and arch the size of the fist, thrombosed, with a perforation the size of a bean into the superior vena cava, the latter being strongly compressed. Aorta the seat of endarteritis extending into the aorta descendens. The author is able to find but seventeen similar cases, the first reported in 1841 by Thornton. In 1882 Halla published a case with eight more from the literature. Other cases have slowly appeared. Other cases are known in which death occurred before perforation, which could, of course, be classed here. There has been much discussion as to the sound made when perforation was not at once followed by death (for survival has even extended over seven months). Individual reports, however, differ greatly on this point.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SELF SELECTION (*Continued*).

Self Selection Among Women: The practice of insuring women has materially and rapidly increased in recent years. There is an undoubted legitimate field for insurance in this class of lives as it includes many who are quite independent in financial matters. On the other hand, there is a powerful force of adverse selection among women applicants which necessitates unusual care in the medical examinations, and in the medical selection at the home offices. This is exemplified by the following table made up by Hunter (*Transactions of the Actuarial Society of America,* Vol. 7) from the statistics of the British Office's experience to 1893 and brought up to an American standard.

Policy Years	Men	Women	Policy Years Summed	Men	Women
	Per Cent	Per Cent		Per Cent	Per Cent
1	85	131	1	85	131
2	105	152	1- 2	96	142
3	104	144	1- 3	99	143
4	97	124	1- 4	98	137
5	96	112	1- 5	98	132
6	96	116	1- 6	97	129
7	103	106	1- 7	98	125
8-10	111	121	1-10	102	124
11-20	118	104	1-20	109	115
21-30	116	107	1-30	110	114

The table shows that men are better risks than women in the first policy years, but that after the eleventh year the converse holds true. In this experience, however, the distribution of the deaths brought the relatively heavy losses among women in the early years before the companies had received much remuneration in the form of premiums. The excessive mortality in the early years was evidently due to a speculative element and it has been proved since that time that, if adverse selection is eliminated by the work of alert examiners and by adequate restrictions at the home offices, the death rate among insured women will compare favorably with that of men.

Improvement in the business of insuring female lives did not become noticeable until all due considerations were given to the following special characteristics and conditions of women:

1. Medical examiners are apt to experience feelings of sentiment or timidity in approaching women applicants and, on this account, they may fail to ply all the pointed and direct questions which appear in the application blanks or to insist on complete examinations.

2. The natural tendency of women to avoid a discussion of the diseases and ailments peculiar to their sex and the skill with which they can hide the state of their health must be counted upon.

3. It would seem that some women are particularly sensitive to hidden infirmities and defects and often have an overcoming presentment of approaching danger, and that they are impelled by these feelings to insure their lives.

4. The lack of business training with the consequent incomprehension at times of the importance of the terms of a contract and of the importance for all statements appearing therein to be straightforward, complete and unbiased.

5. Women, swerved by their impulses and sentiments, too frequently misrepresent or conceal facts in an unconscious way, and are usually shocked when it is shown to them that they have not acted fairly. This form of unintentional adverse selection is fully as costly and prejudicial to the interests of honest policy holders, however, as when it is intentional.

With these points kept in mind, the real motive prompting the insurance must be determined; and it must furthermore be ascertained that the applicant has means of her own, more than sufficient to pay the premiums. The following table, also compiled by Hunter (*Transactions Actuarial Society of America,* Vol. 12) illustrates plainly the importance of a careful consideration of the question of the person who is to benefit by the insurance and the source from which the premiums are to be paid.

Class	Ratio of Actual to Expected Deaths
	Per Cent
Married women with children, premiums paid out of own income, children beneficiaries	90
Married women with children, husband paying premiums, husband beneficiary	113
Married women, no children, husband paying premiums, husband beneficiary	126

The facts given in the table are significant. In the first class, where there was a legitimate reason for insurance, the mortality was quite favorable, but in the other two classes where the husband was the beneficiary and paid the premiums, it was decidedly unfavorable especially when there were no children. Self-supporting unmarried women, a class not referred to in the table, are notably good risks as a class.

A well regulated company will aid in the conservation of its resources by refusing to insure women unless there is a manifestly insurable interest on the part of the beneficiary. This insurable interest, in the case of a woman, should be founded upon an income depending upon her life and which is either derived by her own exertions in support of the family or from property left in trust for her benefit. When the income of the property reverts to parties outside the insured's family in case of her death, the seeking of insurance is quite justified. The specially undesirable risks are married women without individual income insuring in favor of husbands; young women relying upon others for support, especially when applying for cheap forms of policies; and elderly women insuring in favor of grown-up sons or daughters. A wise discretion in restricting this class of business through proper regulations will result in a satisfactory experience with female risks.

Good Faith of the Applicant.—Where the applicant for life insurance certifies that his health is good according to the best of his knowledge and belief, it is held in Smith *v.* Prudential Insurance Company (N. J.) 43 L. R. A. (N. S.) 431, that a recovery may be had, on the death of the assured, if it appear that he had reason to believe, and did believe, that at the time he was in good health, although it subsequently develops that this was not in fact his condition for his statement was not unqualified, but only to the extent of his knowledge and belief.

Book Reviews.

Industrial Poisoning from Fumes, Gases and Poisons of Manufacturing Processes. By Dr. J. Rambousek, Professor of Factory Hygiene and Chief State Health Officer, Prague. Translated and Edited by Thomas M. Legge, M.D., D.P.H., H.M., Medical Inspector of Factories. Price $3.50 net. New York: Longmans, Green & Co., 1913.

Dr. Rambousek's work seems to the translator to treat the subject of industrial poisons in as novel, comprehensive and systematic a manner as is possible within the compass of a single volume and with this opinion the reviewer heartily agrees. In part one is a description of the industries and processes attended with risk of poisoning with the citation of numerous cases. This section is extremely complete and apparently no poison of the slightest importance has been omitted. In part two is included a discussion of the symptoms, pathology and treatment of the various forms of poisoning while part three is devoted to preventive measures. This arrangement results in a certain amount of repetition which however increases rather than diminishes the value of the book. In the third part also are extracts from the German Imperial Regulations for the conduct of such industries in which the laborers are in danger of being poisoned. In the appendix is a very complete list of references. The book is intended "for all who are, or are obliged to be, or ought to be, interested in industrial poisoning." Such readers will find in this volume all the information they desire. The translation has been excellently done and the spirit of the original is well preserved.

Médecine et Médecins en Éthiopie par le Dr. Merat, médecin particulier du Négus. Price 3 fr. Paris: Vigot Frères, 1912.

Now at a time when the eyes of Europe are turned more and more toward Africa this book written by the chief of the imperial dispensary of the palace of Menelik II has a particular interest. The lack of science and empirical type of treatments, including the extreme use of kousso, are brought home to us. There are chapters on medicine, surgery, and obstetrics among these simple, true, isolated people. They can ignore tuberculosis, cancer and alcoholism on account of their natural lives and live to an old age, inspiring us to say "Beati nimium sui si novint." The book is one of considerable interest.

Handbuch der speziellen Chirurgie des Ohres und der oberen Luftwege. Herausgegeben von Dr. L. Katz, Spezialarzt für Ohres-, Nasen-, und Halskrankheiten in Ludwigshafen a Rh.; Dr. H. Preysing, Prof. der Ohren-, Nasen-, Kehlkopfheilkunde, ord. Mitglied der akad. für prakt. Medizin zu Cöln a. Rh.; und D. F. Blumenfeld, Spezialarzt für Nasen-, Hals-, und Lungenkrankheiten in Wiesbaden. III Band, Lieferung 6. Price 5 marks. Würzburg: Verlag von Curt Kabitzsch, 1913.

The present installment concludes the third volume of this remarkable work. It contains an elaborate and profusely illustrated article on the surgery of the lacrymal passages by Gustav Ritter of Berlin and an article on the surgical treatment of malignant tumors of the upper jaw by B. Heile of Wiesbaden.

Marriage and Genetics. Laws of Human Breeding and Applied Eugenics. By Charles A. L. Reed, M.D., F.C.S. Fellow of the College of Surgeons of America; Member and former President of the American Medical Association; Professor in the University of Cincinnati. Price $1.00. Cincinnati, Ohio, U. S. A.: The Galton Press, 1913.

This book contains much with which all thoughtful persons will agree; at the same time, like most of the modern sex literature, it fails when it tries to combine sentiment and logic. The opening sentence is as follows: "The mating of a young man with a young woman to-day in various Occidental countries generally begins by falling in love." This is as it should be, and as it will continue to be for some time to come. By the time we reach page 156 we have impressed on us "the importance of a careful eugenic inquiry *before* the fatal step of falling in love has been taken." The author leaves us in no doubt as to what this "careful eugenic inquiry" means. But the application of the logic to the sentiment seems to us somewhat difficult. Imagine the bashful youth, *before falling in love*, deliberately inquiring if the young lady of his choice has gonorrhea, or a cartilaginous hymen, or if her grandmother was feeble-minded! And on the other hand it might prove equally embarrassing for the young damsel to ascertain if her swain's generative organs are "over-developed to such an extent as to render sexual intercourse intolerable, if not physically impossible to normal women" (page 151), or if any of his ancestors were degenerate. On page 121 the author urges that "every man who *gives the history* of a gonorrheal attack should be subjected to a rigid physical examination"; quite right, but suppose that the man does not give the history, what then? It is quite possible that the young man may be desirous of hiding this important fact; we have heard of men (and women too) who did not "give the history of a gonorrheal attack" and who yet had the disease. The author faces one-half of this difficulty by saying that "it is important that the genital organs of men should be examined in each instance." On the same page he says, "It should be stated at the very outset that in the absence of positive indications no physical examination of the genital organs ought ever be either attempted or suggested in the case of young women." Why this difference, when the plea at the present day is for equality? Indeed, the author himself seems to appreciate the difficulty, for he says (on page 118): "It should be understood, in the first place, that the necessity for the eugenic examination may apply with just as much force to one sex as to the other. It should be understood, furthermore, that the value of the eugenic examination must necessarily depend upon not only the truthfulness but upon the fulness and frankness of answers to the necessary interrogatories. Every fact, whether pleasant or unpleasant, should be laid openly before the consultant." We fear the eugenic marriage under those conditions is an affair of the dim distant future.

The Surgical Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Volume II. Number 3. June, 1913. Philadelphia and London: W. B. Saunders Company, 1913.

This number includes clinical lectures on cases of ileus, intestinal stasis from adhesions, various plastic operations on tendons, the ear and ankylosis of the jaw; fractures and dislocations of various bones and joints; and a description and application of Albee's operation of bone-grafting for the cure of Pott's disease. Dr. Murphy's method of fixing the uterus in procidentia is described and the description and treatment of a case of acute suppurating prostatitis presented. This issue of Dr. Murphy's "Clinics" is deserving of the same attention and commendation as those previously produced and presents most satisfactorily the clinical teaching of this eminent American surgeon.

Aids to Gynæcology. By S. Jervois Aarons, M.D., Edin., M.R.C.P. Lond. Gynæcologist to Lt. Anthony's Hospital; formerly Registrar and Pathologist to the Hospital for Women, Soho Square; Gynæcological Tutor, Extra Mural School of Medicine, Edinburgh. Fifth Edition; Twelfth Thousand. Price $1.00 net. New York: William Wood & Company, 1913.

This is a new book rather than a new edition of an old book; the chapter on Anatomy alone remaining of the former work. Only the bare essentials of the subject are given, and the volume may claim the distinction of being the smallest compend on Gynæcology in the market.

Text-Book of Anatomy and Physiology for Nurses. By Amy E. Pope, Author, with Anna Caroline Maxwell, of "Practical Nursing," and Instructor in the School of Nursing of the Presbyterian Hospital in the City of New York. With 135 Illustrations. Price $1.75 net. New York and London: G. P. Putnam's Sons, 1913.

The special aim of this new volume on anatomy and physiology for nurses is to provide more physiology than is served up in the text-books now in use. Certainly this work contains more physiology than anatomy, but this result has been obtained by the very simple expedient of omitting almost all the anatomy. We know of no book of this kind with so little anatomy in it. The physiology is about equal in amount to that contained in the recognized text-books for nurses. With regard to the quality of the work, when compared with five other publications of a similar kind the volume in question is certainly inferior to three of these books and is about on a level with the other two. In addition to numerous slips (both in text and foot-notes) which have escaped the author's eye, there are some statements which need correction, for example: "The foramen magnum is the opening through which the nerves and blood-vessels pass into the spinal canal"; "chemical affinity is the agency which causes substances to combine, and which holds them together when combined." The index is inadequate; no mention is made therein of saliva, bile, gastric juice, deglutition, defecation, micturition, etc.

Manual of Obstetrics. By John Osborn Polak, M.Sc., M.D. Professor of Obstetrics and Gynecology in the Long Island College Hospital; Professor of Obstetrics, Dartmouth Medical School; Obstetrician to the College Hospital; Gynecologist to the Jewish Hospital; Consulting Obstetrician to the Methodist Episcopal Hospital; Fellow of American Gynecological Society; New York Obstetrical Society, etc. With Three Color Plates and One Hundred and Nineteen Illustrations in Text. Price $3.00 net. New York and London: D. Appleton and Company, 1913.

The writer of this new book on Obstetrics has had an experience of more than twenty years in teaching his subject; he therefore should know what students and practitioners require. We are not surprised to find that the author has produced an exceedingly good and practical work, and one which is sure to find favor with teachers and learners. The book is small, but comprehensive; it is well printed and well illustrated, and contains everything that the student is likely to look for. Theoretical discussions have been omitted, as a rule; though this feature might have been carried a little further, as much of the embryology and organology in chapter II. could be spared from a book of this size. Many of the illustrations are old friends, but there is a general absence of indication of their source.

A Manual of Surgery for Students and Physicians. By Francis T. Stewart, M.D., Professor of Clinical Surgery, Jefferson Medical College; Surgeon to the Germantown Hospital; Out-Patient Surgeon to the Pennsylvania Hospital. Third edition with 571 Illustrations. Price $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

The present revision differs but little from its predecessors; a few slight additions have been made to some of the chapters, but the book remains essentially the same as the first edition. For the undergraduate the volume may be suitable, but the chances are that his book will be selected for him by his college. The practitioner will require a work that goes much more into details.

The Normal Menstrual Cycle in the Uterine Mucosa. Presented in twenty colored charts, with explanatory text. By Robert Schröder, M.D., University of Rostock. Price 16 marks. Berlin: A. Hirschwald, 1913.

The atlas herewith referred to constitutes another example of the careful consideration which our German colleagues extend to these special fields of anatomy and physiology. By means of twenty carefully executed colored drawings of microscopical preparations, Schröder presents the anatomy of the normal menstrual cycle as it involves the mucous membrane of the uterus, for, as he rightly claims, we can only understand and appreciate the pathological processes after the normal appearances have been studied and depicted in all their details. A great deal of uncertainty still exists as to the problematical line which defines the one from the other and a great many specimens taken during curettage are examined and described as of pathological significance when in reality they are merely phases of normal conditions. This atlas serves as a very valuable basis for the comparison of such specimens and is deserving of the special attention of the American profession.

Skin Diseases in General Practice. Their Recognition and Treatment. By Haldin Davis, M.B., B.Ch., B.A. Oxon., F.R.C.S. Eng., M.R.C.P.; Physician in Charge of the Skin Department, Paddington Green Children's Hospital; Chief Assistant in the Skin Department, St. Bartholomew's Hospital; Assistant Physician to the Hospital for Diseases of the Skin, Blackfriars. Price $3.75. London: Henry Froude, Hodder & Stoughton; New York: Oxford University Press, 1913.

The author of this work has adopted the excellent plan of describing the diseases of the skin according to the different regions of the body. This method has been followed by Sabourand on a larger scale in his "Demalologic Topographique," but no other work in the English language has yet been written along these lines. This plan has many advantages from the didactic viewpoint. Thus in the chapter on the face there is given at the outset a list of all the important skin diseases affecting this region. Then follows a discussion of the general hygiene of the face. After this the various cutaneous diseases of the face are taken up in order. There are similarly chapters on the limbs, on the hands and feet, on the nails, on the pudenda and groins, and on the scalp. In the first part of the book there are separate chapters on diseases due to the common pyrogenic organisms, on eczema, on syphilis, and on diseases giving rise to widespread eruptions. There are also chapters on diseases limited in extent but irregular in distribution, on bullous eruptions, on anomalies of pigmentation, and on some modern methods of treatment. There are a large number of excellent illustrations. The book is an eminently practical one, dealing only with the important diseases of the skin. Considerable attention is paid to treatment and a large number of useful prescriptions are given. The book is admirably printed on a fine quality of paper and is well bound. One can have no hesitation in recommending it to the student and practitioner as an excellent text-book.

Modern Ophthalmology. A Practical Treatise on the Anatomy, Physiology, and Diseases of the Eye. By James Moores Ball, M.D., LL.D., Dean and Professor of Ophthalmology, the American Medical College of St. Louis (Medical Department of National University of Arts and Sciences). Third edition, Revised and Enlarged. Price $7.50 net. Philadelphia: F. A. Davis Company, 1913.

General practitioners and specialists alike will welcome this new edition of Dr. Ball's well-known and appreciated treatise on diseases of the eye. The work has always enjoyed popularity not only because of its completeness, including as it does a full account of the development and anatomy of the eye, and the physiology of vision, as well as the usual matter on the hygiene and diseases of the eye and on refraction, the logical arrangement of its subject matter, and clearness of description, but also an account of the excellent illustrations, including 24 colored plates. This new edition contains a new and useful chapter, by Dr. T. H. Shastid on "The Legal Relations of Ophthalmology," and considerable additions to the chapter on "Refraction." Other chapters also give evidences of careful revision. The volume is rather ponderous, containing over 900 pages in addition to the inset plates on thick paper, and for the sake of the reader's convenience a division of the work into two volumes would have been desirable. However, the book is worth holding, with all its weight, to all who seek for the latest and reliable information on the subject of ocular diseases.

Proceedings of the Mental Hygiene Conference and Exhibit. At the College of the City of New York. Under the joint auspices of the National Committee for Mental Hygiene, and the Committee on Mental Hygiene of the State Charities Aid Association. November 8 to 15, 1912. New York: Committee on Mental Hygiene of the State Charities Aid Association, 1913.

The publication of this report of the recent conference on mental hygiene places in the hands of all those who are interested in this subject a valuable exposition of its many aspects as they were presented in detail before the conference. Among the papers comprising this volume may be mentioned the following: "Unsoundness of Mind, a National Handicap," by Lewellys F. Barker; "Nursing in Mental Disorders," by Adele S. Poston; "Syphilis and Insanity," by George H. Kirby; "Heredity in Relation to Insanity and Eugenics," by A. J. Rosanoff; "Alcohol and Insanity," by E. S. Elwood; "Modern Treatment of Alcoholism," by I. H. Neff; "Mental Diseases in General Practice," by T. Salmon; "Daydreams and Thinking," by Smith Ely Jelliffe; "Immigration and Insanity," by W. Williams, and "Mutual Efficiency," by R. S. Woodworth. These represent a few of the articles in this volume, all of which present in popular form a description of many phases of mental derangement and of their prevention.

A Handbook of the People's Health. A Textbook of Sanitation and Hygiene for the Use of Schools. By Walter Moore Coleman. Illustrated by Retta Carroll and Alfred Seiler, and with photographs. Price 70 cents. New York: The Macmillan Company, 1913.

This is an excellent volume on hygiene, presenting this subject in its more practical relations to daily life. There can be no doubt that school children are more interested in hygiene, the significance of which they can understand from their own experience rather than from a study of their own bodies. It is profusely illustrated with drawings and photographs, the captions of which convey a fair idea of the scope of this book. A few of these illustrations are as follows: sanitary milking; testing for adulterations; showing teeth before and after straightening; oiling a sewer drop; Russion folk dance; a sanitary kitchen; testing the eyesight; night shift in a glass factory (child labor); city children on a trip to the country; and sunshine, nature's disinfectant, the best and cheapest. The author has written a book that will be both instructive and entertaining to school children and even to their elders.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

FIRST DISTRICT BRANCH.

Seventh Annual Meeting, Held at Yonkers October 9, 1913.

VICE-PRESIDENT, Dr. HENRY LYLE WINTER OF CORNWALL, CHAIRMAN PRO TEM.

Address of Welcome.—Hon. JAMES T. LENNON, Mayor of Yonkers, welcomed the members and guests of the Society and said that Yonkers was not unmindful of the debt that it owed to its physicians. The campaign at present being waged for the purpose of raising $150,000 for the hospitals of that city bore witness to this fact. In closing, the speaker extended an invitation to those present to visit and inspect the city hospitals.

Address.—Dr. WISNER R. TOWNSEND of New York said that he was present as the representative of Dr. William F. Campbell, the President of the Medical Society of the State of New York. He deplored the small attendance and said that the program presented an embarrassment of riches and was worthy of a large audience. There were 3,500 members of the First District Branch who should have been present, while there were actually scarcely 35 to take part in the election of officers. The officers were well chosen, so that the small attendance could not be laid to that score, and again the place of meeting was not inaccessible. Small places in distant parts of the State had meetings well attended, as for instance at Sonyea recently there were 200 in attendance at the District Branch meeting. Dr. Townsend said they would welcome any suggestions as to means for increasing the interest and attendance at these meetings. He would suggest that the presidents of county societies make it their special duty to see members personally and drum up parties. Dr. Townsend then expressed the opinion that since homeopathic and eclectic physicians were recognized and licensed by the State it would be wisdom on the part of the Medical Society of the State of New York to admit such practitioners to membership, as the State Society could then influence and direct them.

Election of Officers.—The following officers were elected for the ensuing two years: *President,* Dr. Henry Lyle Winter of Cornwall; *Vice-President,* Dr. James E. Sadlier of Poughkeepsie; *Secretary,* Dr. Charles E. Denison of New York; *Treasurer,* Dr. Thomas F. Goodwin of Mount Vernon.

The Treatment of Typhoid Fever.—Dr. W. STANTON GLEASON of Newburg presented this paper, in which he declared that no acute disease was treated today with as deep a knowledge of the practical underlying conditions as was typhoid fever. In fact the advanced ideas applied today in the direction of the treatment of the typhoid fever patient marked the progress of general medicine. Typhoid fever was plainly an accident which could usually be traced to a positive source and it was not only the duty of the physician to skilfully treat the disease, as Osler had said, but to be also solicitous that no other case arose from that patient. After reviewing the various media through which the typhoid bacillus was transmitted and the history of prophylactic vaccination against typhoid fever, he stated that the most important factor in the successful treatment of typhoid fever was the judgment used in keeping the patient's vigor up to the highest standard. The disease was prolonged and enervating and there was a constant and serious drain on the vitality, a greater demand for food and a diminished power in digestion. The diet as prescribed a few years ago in typhoid fever was absolutely insufficient to sustain a patient during a prolonged illness. One should aim to give the patient from 2,500 to 3,000 calories in the twenty-four hours, meeting this average gradually, as the condition of the patient indicated. Solid food had no place in the dietetics of typhoid fever, as its use frequently caused serious gastric and intestinal irritation. Milk, so long considered the ideal food for the patient, was now deemed insufficient. This was proven to be true, as two quarts of milk daily was only equivalent to 1,300 calories. It had been the author's plan to use milk as the menstrum for lactose and to give in addition one or two raw eggs every four hours. Following this method the total number of calories could be made to equal the required number of calories for twenty-four hours. The condition of the patient during the fever and convalescence fully justified this method. In regard to vaccination during the progress of typhoid fever it had been his practice to inoculate the patient at once with one hundred million dead bacteria, repeating the dosage every third day until four hundred million had been given. This procedure in a series of thirty-two cases, both in hospital and in private work, had been satisfactory. The majority of those inoculated showed but slight reactions; the temperature as a rule ranged lower and the activity of the symptoms moderated. Deductions, however, could not be drawn from the experience in one or two epidemics, but one could assume that the therapeutists of the future would continue the inoculations during the early stages of typhoid fever in progressively increasing dosage.

In regard to the use of intestinal antiseptics some of the idols of the past decade had been rudely shattered. A research conducted under the auspices of the Therapeutic Research Committee on Pharmacy and Chemistry of the American Medical Association showed that so far as figures went their investigations did not go to prove that any of the antiseptic agents employed exerted any beneficial action and later cultures plainly showed that antiseptic drugs failed to kill off per gram of feces millions of indol producing bacteria whose habitat was the large intestine. This research covered every drug that could be employed as an intestinal antiseptic. No report was made as to the value of the pure cultures of lactic acid bacilli. Many had faith in the value of the Bulgarian laetic acid bacilli as inhibitors of fermentation in the digestive tract and this had been borne out by practical tests of its utility in typhoid fever and the intestinal diseases of childhood. The pure cultures of the Bulgarian bacilli could be given to overcome the putrefactive bacteria which must be greatly increased in the conditions produced during typhoid fever, and they also took up the defense of the system against impending toxemia. Metchnikoff and his pupils had recently announced that the intestinal lesions found in typhoid fever were not wholly due to the *bacillus typhosus,* but were also produced by several groups of anaerobic bacteria. Of these groups they found the *B. satellitis* in the stools of nearly every case of typhoid fever examined, but they were never found in the stools of the normal individual. The *B. satellitis,* when injected into guinea pigs, always produced ulceration in Peyer's patches, but when the *B. typhosus* was injected there was simply swelling of the patches without ulceration. The argument, therefore, was that the *B. satellitis* was the cause of the ulcerative process. He usually gave four drams of the pure culture of the Bulgarian bacilli during twenty-four hours, and under its use there was little or no discomfort from gaseous distention of the abdomen, and it was reasonable to believe that the patient was at least partially protected from toxemia. It was evident that the use of cold water, as laid down by Brandt, was losing favor and that the cold sponge, wet pack, and ice-water enema were much more in evidence than the tub plan of Brandt. Outside of the lines of treatment laid down, the general management of typhoid fever was largely expectant; it was for the physician to meet emergencies as they arose, using little medicine and large doses of common sense.

Dr. THOMAS F. GOODWIN of Mount Vernon said that the Brand treatment of typhoid fever gave the best statistics, a mortality of 8.2 per cent. However, it was cumbersome and expensive, requiring the services of three nurses, and many devices had been substituted for the tub treatment. There was no doubt but that the oyster sometimes carried the typhoid bacillus, but it should be remembered that lemon juice proved a protection against the infection. Vaccination was as yet unsatisfactory in modifying the duration of the disease, but antiseptics and modern methods of treatment modified the complications. There seemed to be just as many cases of relapses with the use of the vaccine as with the ordinary methods of treatment. The time when it was best to use the vaccine was as yet a mooted question. The caloric requirements of patients differed and it was necessary to study each patient individually in this respect. The *B. bulgaricus* was probably of some value. Tympanites was usually due to local trouble in the intestines themselves. Profound toxemia produced paralysis with the attending train of symptoms, and if the primary tympanitis and toxemia could be avoided by the administration of the Bulgarian bacilli it was certainly an advantage.

Dr. EDWIN I. HARRINGTON of Yonkers said that the typhoid bacillus was allied to the colon bacillus, but presented many important differences. It was more toxic to man, as it was capable of invading the circulation and tissues of the living body. The effects of intestinal growth differed in that the typhoid bacillus did not pro-

duce gas or indol. The colon bacillus made large quantities of gas, and indol moderately, depending on the medium. In most cases of typhoid fever there was present flatus and putrefactive stools; it was evident that there was a mixed intestinal flora consisting of typhoid bacilli together with a greatly increased growth of the anaerobic and colon bacilli. The latter were much augmented in all forms of diarrhea, whether typhoid or otherwise. As the typhoid, like the colon bacilli, would grow in a wide range of acidity or alkalinity, one would expect only a partial replacement of these groups by the lactic acid bacilli. On the other hand, the anaerobic putrefactive forms, mostly indol making, and requiring a neutral or alkaline medium, should be greatly reduced by the lactic acid cultures. Theoretically, taking the intestinal flora as a whole, this treatment would greatly help the local condition, and should also lessen the absorption of toxins in the circulation. While not specific, it seemed to offer a safer and more effective treatment than by antiseptics. The speaker said that his clinical experience confirmed this view. In employing a lactic acid culture it was his custom to use it in conjunction with a calcium salt (calcium carbonate precipitate) in doses of five grains or more; the calcium greatly favored the growth of the lactic acid bacilli, and had probably a desirable effect in preventing or restricting hemorrhage.

Dr. S. W. S. Toms of Nyack said that at the Minequa Hospital in Colorado they carried out the ideas of the Massachusetts General Hospital in the caloric treatment of typhoid fever. The patients were given from one to four eggs, one to three pints of cream, the pulp of baked apples and the juice of oranges in twenty-four hours, and the mortality was less than four per cent. The Brandt treatment was modified as the cases required, cold spongings, compresses, and ice-packs being employed. He had treated a case recently, a large man, to whom he gave a large quantity of food, over a quart of lactic acid prepared milk, together with all the sterilized milk that he could drink. He followed the plan of giving only sterilized food carefully and there was no tympanitis, and the general condition was good throughout the course of the fever though there were some complications. Some creosote was given (5 grains three times daily) and he thought this was a factor in maintaining the favorable symptoms. He also thought that colonic irrigations were beneficial in keeping down the temperature. Cold compresses were also valuable in keeping down the temperature and caused the gas to be more easily expelled. Dr. Toms called attention to the fact that there had been a number of cases of typhoid fever in the vicinity of Nyack traced to the drinking of spring water from springs near the railroad. These were no doubt infected by the dejecta of travellers on the trains and this was a matter calling for attention and control.

Dr. Samuel E. Getty of Yonkers said that in view of the known facts regarding typhoid carriers they were not doing their duty in allowing a patient who had had typhoid fever to pass from their care until an examination of the dejecta showed that typhoid bacilli were no longer present. If typhoid cases were cared for until they were innocuous, typhoid fever would soon disappear to a large extent.

Dr. W. Stanton Gleason of Newburg said that he agreed with the speaker who had said that if they could prevent the primary distention by tympanites they would not get the continued distention so often found later in many cases. The lactic acid bacilli treatment, together with calcium salts, was valuable in overcoming anaerobic bacteria in the intestines. The convalescence was shortened and became a matter of days and not weeks. The number of calories given was a matter of individual adaptibility. Some patients could take four thousand but other anemic individuals could only take twelve hundred. The giving of colonic irrigations seemed to him to approach dangerous ground. Ulcerations sometimes extended into the colon and the distention might cause it to give way. The ice-water enema with the patient in the recumbent position was sometimes efficient in extreme conditions until the temperature was reduced. In regard to watching for carriers, this was done in the Massachusetts General Hospital. No patient was allowed to go away until the stool test was negative.

Menorrhagia and Metrorrhagia: What They Signify.—Dr. J. Riddle Goffe of New York presented this communication. He stated that patients suffering from uterine hemorrhage might be divided into two classes. In those of the first group there was a palpable pathological condition which was readily recognized, such as endometritis, displacement, uterine fibroids, salpingitis, ovarian tumors, carcinoma, etc. To the second group belonged girls from fifteen to twenty years of age or women approaching the menopause where hemorrhage occurred without any pathological condition upon which one could put his finger. These cases attracted his attention oftener during the past few years than previously. He could not say definitely whether the condition occurred more frequently than formerly or whether the apparent greater frequency was simply accidental. These cases might be curetted two, three, or four times and the trouble still continued. The error was that the gynecologist had concentrated his attention on the uterus and had not considered the general condition of the patient. Various theories had been advanced by different authorities to account for these hemorrhages for which there seemed to be no palpable cause, among them hardening of the muscles of the uterus so that that organ could not contract in a normal way, sclerosis of the blood-vessels, or a diminished amount of calcium salts in the blood. However, an examination of a large number of cases showed that these anatomical idiosyncrasies were not constant. Arnold Sturmdorf, in investigating this subject, found that one factor was constantly present, and that was that the blood did not coagulate. Menstrual blood did not coagulate readily and in order to study the subject thoroughly the entire subject of the coagulation of the blood had to be gone into. They had formerly been taught that fibrin caused coagulation, but now it had been shown that fibrin was the result of fibrinogen and fibrin ferment, and that fibrin ferment was itself the result of two other substances, thrombogen and thrombokinase. Thrombokinase was found in the walls of the blood vessels and the tissues surrounding them. It had been maintained that the fibrinogen was diminished at the time of menstruation and again that calcium salts were deficient at that time. It had also been claimed that there was no chemical difference so far as the constituents were concerned between the blood in the veins and the menstrual blood. In order to determine whether there was a difference, Sturmdorf put a tube ilnto the uterus and conducted the menstrual blood into a vessel, and then incised the cervix and collected the blood from that source. The blood from the cervix coagulated while that from the uterus did not. It was found that the blood that had passed through the endometrium, if it commingled with that from the incision in the cervix, prevented the latter from coagulating. In other words menstrual blood prevented the coagulation of normal blood. There was also a substance in the blood called antiferment or antithrombin which prevented coagulation, and an undue proportion of this was formed in the blood in the endometrium. The thrombokinase existed in great abundance in the vicinity of the bolod vessels and commingling with the fibrinogen caused coagulation. This process was regulated by some regulator in the human system and the theory was that the corpus luteum controlled this biological factor in the endometrium. This theory was supported by the fact that amenorrhea was usual in cretinism. The ductless glands were the activating factor. Experience had shown that curetting did not relieve the hemorrhage and this might be accounted for by the fact that by scraping one reached the submucous tissue and stimulated the antifibrin and thus made the condition worse. One curettement for diagnostic purposes was to be recommended. If this failed to give relief or to clear up the diagnosis, successive curettements did not offer hope for a cure. The underlying logical treatment was extract of ovary or of pituitary gland. So far as treatment was concerned these cases might be divided into two classes, namely, women approachnig the menopause and young girls. The young girls were put to bed and treated by organotherapy. In women he used the curette in order to eliminate any possibility of cancer. In women approaching the menopause there was no objection to destroying the endometrium, so in these cases he burned the endometrium with nitric acid. He did not resort to this procedure until other methods of treatment had failed. The use of steam to destroy the endometrium he considered decidedly dangerous and rather than employ it preferred to resort to hysterectomy. He wished to emphasize the point that in treating these cases of hemorrhage where there was no adequate cause discoverable one should no longer think that curettement was the only measure available but should look further afield.

Dr. Edgar M. Hermance of Yonkers said that normal menstruation was dependent not alone on the integrity of the genitalia but that it was also necessary that the blood be in good condition. In these cases to which Dr. Goffe referred there was something in the condition of the

blood that prevented coagulation. It might be some low form of injection, some toxic condition of the blood, the result of digestive disturbance. If they were careful enough he thought that in most cases they would find the cause of the menorrhagia or metrorrhagia. The speaker asked Dr. Goffe if he had secured any effect from the use of thyroid gland in cases of this kind or whether he had noted a lack of results. He, himself, had used mammary gland grains three times a day continuously for some time without any noticeable effect.

Dr. H. Moffat of Yonkers felt that the experiments related by Dr. Goffe were interesting in showing that the hemorrhage was due to local conditions, but he did not feel entirely convinced that the change in the blood was local. Serum ought to have some effect on the bleeding.

Dr. Jerome Morley Lynch of New York said that while he was not a gynecologist he would like to call attention to the fact that local hemorrhage was seen in other localities than those in the field of the gynecologist. He did not know what it was in the walls of the uterus that caused the hemorrhage, but there was a certain balance between the different constituents of the blood which when interfered with resulted in a lack of coagulation. Hemorrhage frequently occurred from the bowels and this was often due to infection. It was true that a low grade of infection would cause hemorrhage from the bowels and possibly this might be a factor in causing uterine hemorrhage.

Dr. J. Riddle Goffe of New York, in closing the discussion, said that in reply to Dr. Lynch's remarks he wished to say that these cases had been examined with the points in view that had been suggested. The idea was that the bio-chemical process that should go on in the endothelium was regulated by the ovary, pituitary, or other ductless glands. There was no doubt but that it was in the mucous membrane of the uterus itself that the process took place. They had been careful to isolate the cases in which there was absolutely no pathological lesion discoverable. In regard to the condition of the blood, in some cases of hemorrhage a Wassermann examination was made and in those cases in which this was positive salvarsan stopped the hemorrhage.

Diagnosis in Rectal Diseases.—Dr. Jerome Morley Lynch of New York read this paper. He stated that the diagnosis of rectal disease in many cases was attended with difficulties since the patient frequently did not seek the advice of a medical man until the diagnosis was so apparent that the patient could make it for himself. This delay spelled disaster. In malignant conditions the symptoms were at first so insignificant that in the majority of cases they were overlooked by the patient and very often by the physician as well. It was important when a patient complained of any symptom that might have reference to the rectum that a thorough examination be made before any measures were taken for the relief of the condition. The laity was apt to term any rectal trouble "piles" and to refuse examination, and this was unfortunate. Dr. Lynch cited two cases which illustrated the importance of making an examination and of doing a radical operation in doubtful but suspicious cases. The examination of the specimens in one of these cases proved it to be a sarcoma and in the other a beginning adenocarcinoma. A good history was of the first importance, as a diagnostic aid, and the physician who aspired to eminence in any branch of medicine should recognize the importance of a complete history. Pain was the symptom which most frequently brought the patient to consult the doctor. It was important to get the patient to describe the exact character of his pain, its relationship to defecation, and its location. Pain occurring during a movement, and lasting for some time after was indicative of ulceration of the anus. A throbbing pain was usually indicative of an abscess. A sense of fullness, or a dull aching pain (especially after exercise or mental worry) shooting toward the prostate in the male would suggest hemorrhoids, or congestion around the anus. The pains of hemorrhoids were often mistaken for disease of the prostate. If the pain was situated over the coccyx, and aggravated by pressure or movement of this bone, the symptoms were rather indicative of coccygodynia. Pain in the back might be due to a prolapse or impaction, or a malignant growth. The history would have to elucidate the problem. When the painful points were situated on either side of the sacrum, almost at its junction with the lumbar vertebræ, it was indicative of intussusception of the sigmoid, especially if associated with a dragging sensation in the left iliac region and a feeling of heat in the lower portion of the abdomen. A burning pain was suggestive of ulceration, or an acid condition of the stools. Pain shooting down the legs and in the lumbar region might mean cancer, ulceration, or an inflammatory tumor of the pelvis. It was sometimes the earliest manifestation of a cold abscess, though under such circumstances the nerve did not always have painful points. The pain differed from ordinary neuralgia in that there were usually signs of blocking of the nerve. It was exceedingly important to be able to differentiate between tuberculosis and other conditions. In rebellious cases of sciatica tuberculin and other diagnostic tests should be applied with scrupulous care, so that when a diagnosis was made, measures could be instituted at once to put the patient in the best possible condition, with or without local intervention. A sharp pain during a constipated movement, followed by swelling, would suggest a thrombotic hemorrhoid. If constantly present during a movement it would suggest a foreign body. Pain coming on when walking up stairs, or standing up was suggestive of a fistula. A bearing down pain, or constant stabbing pain, might be suggestive of inflammation of the crypts. A patient search might reveal nothing, yet with a bent probe and the speculum in place a search of the little pockets around the rectum would reveal inflammation of the crypts if it existed. Pain might also be indicative of neuralgia, though one should hesitate to make such a diagnosis until everything else had been excluded. Protrusion might mean a great many things, such as hemorrhoids, polypi, hypertrophy of the papilla, villous tumor, pedunculated sarcoma, carcinoma, or partial or complete prolapse of the bowel. A tumor which prolapsed and when replaced returned again was very often either a large thrombotic hemorrhoid, or some external condition. It might also be a carcinoma. A hemorrhoidal condition would have to exist a long time before it would prolapse after being replaced. A polypus generally came down when the patient strained. A prolapse of the rectum might or might not remain in place after it had been put back. A prolapse, however, was always associated with bearing down pain and a feeling of unfinished business. It was important to find out all the characteristics of the discharge and of the feces. Hemorrhage was significant of a great many conditions. Bright red blood projected with some force might suggest an ulcerative hemorrhoid. A little blood might mean an ulceration or a fistula. When the blood was dark in color, and thoroughly mixed with the feces, it might indicate a malignant growth high up. Hemorrhage might be due to acute intussusception when it came on at certain periods and was associated with constipation, and when the symptoms were relieved following hemorrhage. When the blood was associated with mucus and pus, with a frequent desire to move the bowels, it was suggestive of a malignant tumor, stricture, or severe ulceration. When the feces were slightly streaked with blood and there was a frequent desire to move the bowels, accompanied by diarrhea, one should look for a polyp in the rectum or sigmoid. An acute hemorrhage might be due to a rupture or to a varicose vein in the rectum or sigmoid, to an injury, a foreign body, an intussusception or a carcinoma. Diarrhea, alternating with constipation, followed later by a frequent desire to evacuate the bowels, with passage of blood or mucus, either separately or mixed with fecal matter, or a sensation as though there was something more to come away all the time might be produced by carcinoma, multiple polypi, single polypus, tuberculosis, syphilis, stricture, intussusception of the sigmoid, or amebic dysentery. One should distinguish between these conditions only by taking a careful history and making a most thorough examination. Dr. Lynch then discussed the details of rectal examination. He said that he found the left Sim's position most convenient for making examinations. He called attention to the various abnormalities to be noted by inspection. By palpation it was often possible to trace a fistula without the aid of a probe, to outline abscesses, and to note painful points. By palpation one got a fair idea of the condition of the sphincter. By digital examination, when tactile sensation was highly developed, the condition of the anus and lower portion of the rectum could be thoroughly explored and the slightest abnormality discovered. These digital examinations could be made with a minimum of pain. Lubricondine was the best lubricant and castile soap jelly a good second. With regard to the introduction of the hand for the purpose of examination Dr. Lynch was of the opinion that it was safer to give a patient an anesthetic and open the abdomen for purposes of exploration than to depend upon this method. He described the use of the proctoscope and sigmoidoscope, showing these instruments could be passed with ease, an accomplishment not generally achieved by the majority of surgeons.

Dr. Henry Moffat of Yonkers said that the paper had touched upon important points that appealed to all who had any necessity for making rectal examinations. Many patients refused a rectal examination and sometimes the physician himself might not think it necessary. The conditions spoken of and the cases referred to served as a warning against neglect to make these examinations. The physician made more mistakes from not working than from lack of knowledge A great deal could be learned without the proctoscope by making an examination as far as the finger could reach. They should also perfect themselves in the use of the proctoscope. Many conditions were amenable to treatment if the trouble was found. With a little practice any one could tell a tuberculous ulcer, a syphilitic ulcer, a fissure or other of the more common conditions, but the difficult point was to make a diagnosis of malignant disease. When there was a bloody dysentery or a hemorrhagic colitic the good pathologist might find cancer cells if malignant disease was present. One should not forget to be on the lookout for foreign bodies. In one instance he had found the breastbone of a chicken, and in another a large piece of wood. One should remember that a diganosis could not be made without a thorough examination any more readily in rectal diseases than in diseases located elsewhere in the human body.

Certified Milk of the Medical Society of the County of Westchester.—Dr. Bertrand Francis Drake of New Rochelle presented the communication. He stated that the requirements for certified milk in the county of Westchester had been made to conform to those prescribed by the United States Bureau of Animal Industry and the New York Milk Commission. The bacterial count could not be more than 30,000 per c.c. and the milk must contain at least four per cent. butter fat. It could not be sold beyond the date stamped on the cap of the bottle. Dr. Drake described the sanitary details enforced at the different dairies and gave a lantern slide demonstration showing a number of the dairies of Westchester County and the methods used to insure a milk supply as nearly perfect as possible. He showed an illustration of a new system of ventilation for barns and the method of cleaning cows with the vacuum cleaner. They had tried the vacuum milker, but found that there was a higher percentage of bacteria in the milk when this was used and consequently had discarded it.

Acute Specific Fever Manifestations in Nose and Throat, with Treatment.—Dr. Earl Parsons Lasher of New York read this paper in which he reminded the family physician that serious lifelong handicaps often had their source in nose, throat, and ear diseases resulting from the acute infectious diseases, particularly measles, scarlatina, and diphtheria. All were familiar with the nose and throat symptoms of measles. In dealing with the nose and throat condition in this disease one should remember the eustachian tube and protect it against invasion in every possible way. One should not interfere with the free discharge that nature had set up. By this free secretion the turgescence of the membranes was relieved and countless bacteria were washed away. Belladonna and drugs having a like effect should be avoided, while codeine or heroin should be used in the smallest doses to control the cough. One should assist nature in her washing by the use of nasal douches and gargles of mild alkaline and antiseptic properties heated to 110° or even to 120° or 130° F. If the child could be properly controlled the nostrils might be washed out every four hours with a warm solution from a fountain syringe. If the acute rhinitis was persistent and tended to become chronic, one might use an astringent solution with douche, either of alum, 1 grain, tannic acid, 80 grains, and distilled water, 10 ounces; or of boric acid, 2 drams, glycerine, 2 drams, tincture of myrrh, 2 drams, and water up to 6 ounces. One should examine for adenoids which if previously existing were much irritated and would require subsequent removal. The eyes should be protected from light and bathed frequently with a warm boric acid solution. If there was a pronounced secretion, a two per cent. solution of collargol might be employed every two hours. In scarlatina it had been claimed that twenty-four hours before any rash appeared on the skin, it was well marked in the throat. The sore throat of scarlatina was responsible for a large percentage of hypertrophied tonsils and otitis media. Otitis media occurred in from 10 to 30 per cent. of all cases of scarlatina. There were more permanently hypertrophied tonsils from this disease than from any other save, perhaps, from repeated attacks of tonsilitis. The most helpful treatment was irrigation of the throat with hot normal saline solution. This markedly relieved pain and removed the secretions. During sleep cold compresses to the neck were helpful if they could be applied without getting the clothing wet. Every two hours a spray was used of from two to four grains of menthol in one ounce of albolene. If carache was evident, gauze saturated with five per cent. phenol in glycerine might be applied in the auditory canal, well back against the tympanum, and left in place for twelve hours. The hot water bag should be applied and the ear and neck kept well covered. If the temperature and restlessness persisted beyond the normal limits of the disease, the ear drum should be examined and if found to be bulging the only treatment was immediate paracentesis. This should be followed with syringing with warm bichloride solution 1-10,000 every three hours. One should watch for swelling behind the ear or tenderness of the mastoid tip. Cervical adenitis was a frequent complication of scarlatina and as soon as observed should be treated by applying an ice-bag and keeping it on for several days and nights. When this was not feasible, ichthyol ointment, 30 per cent., or kataplasma kaolini might be employed. Fortunately diphtheria did not cause so much trouble of this kind as formerly; still it was credited with causing four per cent. of the otitis media cases. In diphtheria gargles doubtless had very little effect aside from that of cleanliness. The throat should be syringed with a warm alkaline solution every three hours. If the larynx was affected one should avoid the steam tent or its equivalent. For particularly septic throats, nothing surpassed the acid solution of potassium chlorate containing free chlorine. This was made by adding to nine grains of powdered chlorate of potassium five minims of hydrochloric acid and shaking, with an ounce of water gradually added. This was mixed with an equal quantity of hot water and used every two to four hours. It should be made fresh every time it was used. In the laryngeal type of diphtheria one should watch carefully for cyanosis and rapid shallow breathing, and not wait until asphyxia seemed imminent before intubating. If the tube got blocked and deglutition became impossible or very imperfect tracheotomy should be performed rather than keep up repeated attempts at intubation. After the disappearance of the membrane from the throat the tonsils should be painted with a two per cent. solution of silver nitrate, being careful not to get any of the solution in the larynx as it caused most uncomfortable strangulation symptoms. If adenoids were present they would tend to act as a nidus for the disease and keep the patient a source of infection, and hence as soon as the patient's condition permitted the adenoids and tonsils if hypertrophied or diseased should be removed.

Late Cerebrospinal Manifestations of Inherited Syphilis.—Dr. Henry Lyle Winter of Cornwall presented this communication. He said that the discovery of the specific germ of syphilis had illuminated the subject of inherited syphilis nearly as well as that of the acquired type. Probably in all cases under ten years of age with even the slightest indication of inherited syphilis of the nervous system would give a positive Wassermann reaction. This was true in the author's cases. All were familiar with the early manifestations of inherited syphilis, but he wished to consider the later manifestations. Formerly if a patient reached maturity or beyond without developing inherited syphilis they had no method of determining its presence and were inclined to overlook its importance. Since the discovery of the Wassermann reaction a change had taken place and it was now believed that inherited syphilis was a much more common cause of cerebrospinal disease of adult life than was formerly thought. Wassermann tests made by the author merely as a part of routine in one case each of progressive muscular atrophy, combined sclerosis (spastic) (ataxia paraplegia), tumor of the cord involving principally the lateral tracts, and myelitis, and in two cases of multiple neuritis, were positive. Examination of the cerebrospinal fluid would throw considerable light on these cases, but patients objected to lumbar puncture and in fact the procedure was not entirely free from danger. The irregular or atypical cases of inherited syphilis were apparently much more common than the usual conditions referred to above. Any irregular manifestation of cerebral or spinal disease without the history or evidences of acquired syphilis should be regarded as very possibly of hereditary syphilitic origin. The age at which those symptoms appeared should not influence the physician to disregard the possibility of inherited disease. Dr. Winter reported the histories of two cases of sisters who began to have epileptoid seizures, one at the age of sixty-three and the other at the age of sixty-four, which he regarded as ordinary cases of arterial degeneration and treated accordingly with no result. After

treating the first case for a year the second case came to his attention and at this time a Wassermann test was made with no expectation of finding anything, but the reaction was positive in both instances. Treatment with potassium iodide was instituted with very gratifying results. The author then cited a case of rather typical ataxia paraplegia. The patient, a woman, thirty years of age, was making a good recovery under antisyphilitic treatment. The functional neuroses and psychoses frequently presented family histories of syphilis. He did not know how large a percentage of these cases would show a positive Wassermann reaction, but he did know that syphilis was a very prevalent disease, much more common than most of them imagined. They were apt to regard syphilis as a disease of the large cities, but this was a mistake; he believed that the percentage of syphilitics would be found to be equally large in the small cities and in the country. The played-out prostitute naturally gravitated to the country where competition was less keen and the results were most disastrous. He mentioned this because physicians in the country were very apt to overlook the prevalence of syphilis, feeling that they knew the families and could eliminate syphilis without careful inquiry. His own routine was a Wassermann test in practically every cerebrospinal case, and he believed it paid. The treatment in these cases was practically the same as in cases of acquired syphilis, but the results were not so brilliant. The effects of salvarsan were excellent, but the results with the use of neosalvarsan had not been as satisfactory in his hands in hereditary syphilis as in the acquired type. The speaker did not agree with the present tendency to condemn the use of the iodides. He felt satisfied that the iodides had a very important place in the therapeutics of syphilis and that they would continue to hold it. Failure with the iodides in his opinion was due rather to insufficient dosage than to the fact that the iodides lacked therapeutic action. In giving iodides it ought to be a question not of how many grains but of how many drams the patient could take.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held June 3, 1913.

THE PRESIDENT, DR. SMITH ELY JELLIFFE, IN THE CHAIR.

Brain of Patient with Cortical Astereognosis.—Dr. LOUIS CASAMAJOR and Dr. SMITH ELY JELLIFFE presented this specimen, which was obtained from a woman, 43 years old, a housewife, born in this country, who was admitted to the Neurological Institute on June 3, 1912, suffering from paralysis of the right side of the body and inability to recognize objects in the right hand. Her father died at the age of 51 of asthma; her mother at the age of 59 of apoplexy. There was no history of neuroses or psychoses in the family. The patient had been married for 24 years, and was the mother of two children, one living and one dead. She also had two miscarriages. The history obtained from the patient was that she had enjoyed good health until July, 1910, when she began to suffer from severe headaches, which were almost continuous. After improvement under treatment the headches returned in May, 1911, and were continuous and severe. About two months after this the right arm began to feel weak, and later the corresponding leg was similarly affected. At that time she consulted Dr. Jelliffe, and he made a diagnosis of brain tumor in the left supramarginal gyrus. The weakness and stiffness in the arm and leg continued, and in November, 1911, both of these extremities became paralyzed, so that the patient could not get out of bed and was unable to hold objects in her right hand. At this time an operation was advised, but refused, and the patient was given a course of mercury and iodide. Examination showed a spastic hemiplegia, with marked astereognosis in the right hand, and sensory aphasia with paraphasic speech. The fundi were normal. Under mercurial treatment, the patient improved considerably; the headaches disappeared, the weakness was less pronounced and she was able to walk about the house and go on the street. Her skin had a distinctly bronze color, which came on rather rapidly about two years ago, but which she thought had not progressed much of late. On account of the bronzing of the skin, together with the *x*-ray findings, which showed a rather indefinite picture of an enlarged kidney on the right side, an exploration of the kidney region was made by Dr. Alfred S. Taylor. The suprarenal body was found to be normal, while the kidney itself was the seat of a chronic nephritis. The patient returned to the hospital on August 9, 1912, with the statement that she had been entirely well until the previous day, when she was taken with a severe headache, with involuntary twitchings and spasms of the right side of the body, but most pronounced in the right leg. At this time she also developed an internal strabismus. An examination of the eyes, made on August 29, showed that the pupils were small and reacted normally. The ocular movements were slow, but complete. There was no mystagmus; no facial paralysis; sensation was normal. The right upper extremity was more spastic than at the time of her former stay at the hospital. The astereognosis in the right hand was unchanged. During the summer of 1912 the patient grew progressively weaker; she seemed confused and at times almost comatose. The ocular movements varied from day to day; sometimes there was double internal strabismus; at other times only weakness of the external rectus. Death occurred in November, 1912. The patient's brain, Dr. Casamajor said, had not yet been examined and the report thus far was to be regarded as only preliminary. The pathological findings would doubtless prove of interest on account of the presence of definite astereognosis, and the results would be reported at some future date. All that could be seen in the brain at this time was a depressed area of softening just above the supramarginal gyrus on the left side, and a general atrophy of the convolutions of the left hemisphere.

Cortical Astereognosis from a Cyst; Operation, with Improvement.—Dr. J. ARTHUR BOOTH presented a young man of 22, who was a perfectly healthy and intelligent lad until July 12, 1906, when he met with the following accident: He was on a spile driver and attempted to descend to the dock by sliding down a rope. When about 35 feet from the ground one of his companions jerked the rope and he fell, striking on his head and right arm. He was taken to the Perth Amboy Hospital, where an examination revealed a compound, comminuted fracture of the right parietooccipital region and of the right forearm. He was unconscious for five days, but finally made a good recovery, and after a period of seventeen days was discharged as cured. After his return home it was noticed that he was dull and stupid and quite changed from his former self. A year later he had what was called one or two "sinking spells," without any spasmodic movements of the muscles. He had one attack in 1908, another in 1909, a third in 1910, a fourth in 1911 and two in October, 1912. In March, 1913, he had three attacks, and during the following month he had two which he described as follows: "I feel a tingling and numbness in the right hand; it is then drawn up and I feel my head turning to the right; then I lose myself." His mother stated that he then became stiff all over and that on one occasion he had bitten his tongue. Besides the epileptoid attacks he frequently had severe headaches, limited to the left fronteopartal region, the pain being so severe at times that he had been noticed to pound his head with his fist. Examination by Dr. Booth, April 15, 1913: From a bright, intelligent school boy standing at the head of his class he was now apathetic and dull; all mental processes were slow in reaction, with a very faulty memory both for recent and past events. He answered questions slowly and hesitatingly, but there were no motor speech defects. The superficial and deep reflexes were present and normal, excepting the knee jerks, which were exaggerated. No ankle clonus nor Babinski. The tongue was protruded in a straight line and there was no paralysis of the facial muscles. The equilibrium was fairly good. There was no marked ataxia. He was right-handed and the right upper extremity was weaker than the left, though it must be remembered that the right forearm was broken at the time of the accident. There was a decided loss of sensation over the right upper extremity, and to a lesser degree on the right side of the face, as compared with the left. The same applied to the right thigh, as compared with the left. The patient was unable to write anything but his name, which he did slowly and with difficulty. He could, however, write from copy. There was no transposition nor misuse of words. He was able to count up to 100, and recognized figures when they were placed before him. He was unable to recognize but two letters of the alphabet, namely, A and P, but could not read the simplest word or sentence. When blindfolded he failed to recognize a bottle, knife, watch, coins of different denomination, chain, key or pipe with the right hand, but readily did so with the left. The pupils were widely dilated, but reacted slowly to light and accommodation. The fundi were normal. Taking into consideration the above findings, a diagnosis was made of a cyst in the left angular gyrus, the result of a former hemorrhage, and an operation for its removal advised. Operation, April 26, 1913, by Dr. George E. Brewer: Upon elevating the usual parietotemporal osteoplastic flap the dura was found tense and bulging just beneath the parietal eminence. It was

incised, and in so doing a cyst was opened in the upper and posterior part of the exposed area. The cyst was about the size of a silver half dollar, situated over the left angular gyrus, extending forward and bound down with adhesions. These were freed and a drain placed in the cyst cavity after it was completely emptied of about two drams of clear fluid. The patient made a good recovery from the ether, but during the next three days he had a number of convulsive seizures which began in the left hand and gradually became general. Dr. Booth then suggested that the drain be removed, and when this was done the convulsions ceased and he had remained free from them since. He continued to improve, and on May 12, three weeks after the operation, he read from a book that was handed him, "Night Orderly Report," and from a newspaper "Giants Win." He left the hospital on May 18. When Dr. Booth saw him again, on June 3, he had gained ten pounds in weight. Mentally he was much brighter and there was a marked improvement in his memory. He had had no further convulsive attacks and no headache. There was still slight weakness of the right hand, with marked astereognosis. He could recognize a majority of the letters of the alphabet, could read a few simple words and two short sentences.

Dr. William M. Leszynsky said that in connection with these two cases with astereognosis he wished to report briefly a case that was recently under his observation. The patient was a boy, six years old, an unusually intelligent child, who entered the hospital with the history of having been well up to three months previously. There was a rather indefinite history of a fall, but no evidence of any injury to the head. On admittance he seemed to be slightly apathetic. He complained of dizziness and had occasional attacks of headache and vomiting. Examination revealed complete astereognosis in the left hand, and in addition a typical Babinski plantar response on the same side. There were practically no other symptoms. No rigidity; nothing in the eye grounds. Within a week rigidity began to develop in the left lower extremity, followed by partial paralysis. Subsequently these symptoms extended to the left upper extremity, and about a week later the first eye symptoms appeared in the shape of a slight papilloedema. A subcortical lesion originating in the upper gyrus of the parietal lobe was diagnosticated and an operation advised. Before it could be undertaken, however, the boy became comatose and died. An autopsy was refused. In this case, Dr. Leszynsky said, the lesion apparently developed in the parietal lobe and extended to the leg and arm centers.

Dr. I. Abrahamson said that in the case reported by Drs. Casamajor and Jelliffe the condition simulated a tumor. The speaker said he had seen four cases during the past year where choked disk and the other symptoms that were present were strongly indicative of a tumor of the brain, but eventually they all proved to be cases of nephritis, and no tumor was found. A number of similar cases had been reported, and the possibility of a chronic nephritis, with vague symptoms of intracranial pressure, which simulated brain tumor and might tempt one to operate, should always be borne in mind. In all of his cases, Dr. Abrahamson said, the blood pressure had been high.

Dr. Leszynsky said that Dr. Strauss might recall a case in the speaker's service at the Lebanon Hospital, where the patient had many symptoms of a brain tumor. Upon exploratory operation an area of thrombotic softening was found in the cortex, secondary to endarteritis associated with chronic nephritis.

Dr. I. Strauss said he had done the autopsy in two of the cases referred to. One of the patients had practically no focal symptoms, but in all of them there was marked choked disk, which was very puzzling. In both of them there was a chronic nephritis, with albumin and casts, high blood pressure and marked choked disk. The latter symptoms advanced very rapidly, and a decompression was done in the hope, principally, of saving the sight. After death an examination of the brain revealed nothing but a very extensive arteriosclerosis, limited chiefly to the smaller vessels all over the cortex.

The President, Dr. Jelliffe, speaking of the patient with cortical astereognosis reported by Dr. Casamajor and himself, said that for a long time they were in doubt whether or not they had to deal with a brain tumor, but in view of the very gradual extension of the process it was decided that if there was a new growth in the brain it was of such a nature that its removal would be practically impossible—that if it was a new growth it was probably of an infiltrating nature. The result showed that it was an infiltrating process in the nature of a diffuse atrophy, with specially intense development in one area, the true nature of the atrophic process had not yet been determined.

A Case of Myotonia Atrophica.—Dr. Foster Kennedy said the rarity of this curious muscular degeneration was his excuse for the report of a single case. Myotonia congenita—the so-called Thomsen's disease—was not very uncommon, but the combination of increased tonus in some muscles, with a primary flaccid palsy in others in remarkably constant distribution was so rare that but four cases had been as yet reported in the medical literature of this country. The disease was apparently peculiar to persons in mdidle life; it was of a very slowly progressive character, and in rather more than half the cases was of the familial type. The symptom-complex was so constant and so characteristic that when once understood, recognition of subsequent cases became simple. In Dr. Kennedy's case the patient was a male, single, 46 years old, a native of Switzerland, who was admitted on March 17, 1913, to the Cornell Medical Division of Bellevue Hospital, under the care of Dr. W. Gilman Thompson, who kindly asked Dr. Kennedy to see the case and by whose courtesy he was permitted to make use of these notes. The patient's parents had both died in old age. He had three brothers and three sisters in good health. One sister, a resident in the United States, had arthritis deformans. There was no neuropathic family history; neither the patient nor his sister knew of any near or collateral relative affected in any way similarly to the case under consideration. For fourteen years the patient had been employed as a farmer in New England. His habits were regular and his general health good. His consumption of alcohol was limited to two or three glasses of beer a day, and he denied venereal disease. His previous health had always been good. In 1893 his left cornea was injured by a burning spark falling on it from a passing engine. In 1887 his hands and feet were said to have been frostbitten. In November, 1911, after hard work in harvest time, he began to suffer from cramplike pain in the lumbar region. These pains were at first intermittent and rare, but later became more frequent, so that at the time of examination he complained constantly of their presence. He could recall no injury to account for this condition, which was more severe when he worked in a bent posture. He strenuously denied having any difficulties in his gait or in the use of his hands, and gave no history of sphincteric trouble. He had not worked for a year, but was never confined to bed. His facial appearance was quite strikingly characteristic, and was the result of an incomplete ptosis of both eyelids, with marked hollowing of the temporal fossæ and flattening of the masseteric region on each side. The orbicular muscles of the eyes were very weak, and there was no movement in the temporal or masseter muscles. The left pupil was hidden by a corneal scar, the result of the injury just related. The reaction of the right pupil was normal. A well marked and advanced cataract was present on each side; that on the left side might have been thought traumatic in origin had not that in the right lens been so obviously otherwise. A slight, bilateral divergent strabismus was evidently a result of defective vision. The patient's articulation of both English and French was slurred and difficult to follow; no structural defect was found which could account for this symptom. The sternomastoid muscles were completely atrophic, and there was some wasting in the extensor muscles of the forearms. The position of rest of both hands was one of slight flexion, the thumbs being strongly adducted. All movements were present, but it was found that after making a strong grasping movement with either hand he was unable quickly to again extend the fingers, the involved muscles, apparently, being in a state of cramp. If the grasping movement were frequently and quickly repeated, this cramp became less and less noticeable, until after perhaps a dozen efforts it would completely disappear. This phenomenon was not present in any other muscles or group of muscles. The abdominal muscles and those of the back and chest were normal, as was also the spine. The vastus internus and externus of the right thigh were diminished in bulk, though no change was found in the intervening rectus femoris muscle. The knee jerk on the right side was difficult to obtain—a reduction in response directly proportional to the reduction of the muscular mechanism involved. There was almost complete atrophy of the anterior tibial and peroneal muscles, with complete bilateral foot drop as a result. The ankle jerks and plantar reflexes were absent. The abdominal and arm reflexes were normal. The gait was of the steppage character peculiar to paralysis of the dorsiflexors of the feet. There were no sensory changes. No reaction to faradism or galvanism in the orbicular eye muscles, the temporals, masseters or sternomastoids, and almost complete loss in the anterior tibial groups of both sides. In the muscles of

the forearms and in the intrinsic hand muscles the reactions were strong, but enormously prolonged. There were no pathological changes in either the blood or urine. The Wassermann test in the blood serum and the cerebrospinal fluid was negative.

Dr. J. Ramsay Hunt said the case reported by Dr. Kennedy corresponded very closely to one which the speaker showed at a meeting of the Society some years ago. In that case there was the Charcot-Marie type of atrophy of the extremities, with involvement of the facial muscles. The phenomena of myotonia were quite active in the tongue and the masseter muscles, and this was also observed in a later case that he had seen. The myotonia electrical reactions were also well marked.

Dr. I. Abrahamson referred to a typical case of myotonia atrophica that had come under his observation. The patient was a woman whose brother had been shown at a meeting of this Society by Dr. Stieglitz about ten years ago as an example of the peroneal form of dystrophy. In his own case, the speaker said, the patient also had bilateral cataract and there was a congenital absence of certain muscles, such as the sternal portion of the pectorals. In another case, now under observation at the hospital, the symptoms were strongly suggestive of myotonia atrophica. The patient was a man who presented a fibrillary twitching of the tongue, etc., with weakness of one sternomastoid; yet, owing to the fibrillary twitching, etc., it was most likely not a case of myotonia.

Dr. Kennedy, in closing, said a peculiar feature of myotonia atrophica was the extraordinary uniformity in the appearance of these patients. They all looked as though they belonged to the same family—like brothers and sisters. There was more uniformity in their symptoms than in other forms of dystrophy. The electrical reactions showed a quantitative change in the atrophied muscles, but in the forearm there was increase in the reaction to both galvanism and Faradism, and the reactions were very long drawn out. The muscles easily went into a tetanoid condition, which was at complete variance with the action of the atrophied muscles.

Cauda Equina Neuritis.—Dr. Kennedy presented an Italian, 49 years old, who was admitted to the Neurological Institute on May 8, 1913, with the history that five years ago he developed a severe pain in the middle of the back, subsequently extending to the left leg and later to the right. It was shooting in character, and after persisting for several months it was said to have disappeared after the injection of morphine. Later he noticed a "dead" feeling in both legs; this progressed, and walking became more and more difficult until he was bedridden. There was no history of incontinence, but he stated that since the onset of his illness he had to strain before passing urine. He was bedridden for two years, when he began to regain power in the legs, and the improvement slowly continued until he was able to walk. He now walked fairly well, but was handicapped by double drop-foot. The upper extremities had never been involved. There was now no pain, but occasional pin-and-needle sensations in the feet. Examination showed marked atrophy of the tibialis anticus and peronei muscles, and the symptom complex was referable to a lesion of the cauda equina which at one time we might have attributed to the presence of a tumor in that region, but in the cases which the author had reported at the recent meeting of the American Neurological Association in Washington they had found no tumor, but a congested appearance of the nerve roots. In the case shown tonight the patient, after being bedridden for two years, had gradually improved, which we would not expect to find with tumor, and we were therefore justified in believing that these cases were due to a lesion which was not luetic, nor to the presence of a new growth, but rather to an infective, inflammatory state of the cauda equina, possibly a neuritis.

Dr. Leszynsky said that in certain cases of this type, in which the patients presented symptoms of tumor of the cauda equina, puncture of the spinal canal had failed to give any fluid, and this might serve as a differential point between neuritis and neoplasm.

Dr. William B. Noyes asked Dr. Kennedy whether muscular atrophy in this case was a prominent symptom. How far was muscular atrophy to be expected in neuritis and lesions of the conus medularis? The speaker had been puzzled by this symptom in various cases. He recalled one case presenting the general symptoms of a double sciatica, excepting that the knee jerks were increased rather than diminished. This patient had a tubercular involvement of the left ankle joint, and there was a prominence of one of the lower lumbar vertebræ which the surgical advisors considered an evidence of incipient Pott's disease, but this idea was disproved by the fact that two years later the condition remained unchanged, and there was evidence that it had always existed. In this case there was double sciatica, plus a slight involvement of the lower cord, and the question naturally arose whether the exaggeration of the reflexes was not caused by the extension of the process beyond the cauda. In another case, Dr. Noyes said, in an adult, a diagnosis of a tumor of the cord or chronic anterior poliomyelitis seemed obvious on account of the atrophy, added to other symptoms of the nature of those in the case of Dr. Kennedy. In that case marked improvement took place in two months after thorough electrical treatment, and an ascending neuritis with the most marked symptoms in the cauda or conus medularis was probably the correct diagnosis.

Dr. J. Ramsay Hunt said that while primary neuritis of the cauda equina was admitted by some authorities, and had been described by Raymond, yet the case presented by Dr. Kennedy showed such an extreme degree of degeneration for a neuritis that he thought the diagnosis was open to question. The condition, which was now old and apparently stationary, resembled what we saw after syphilis of the cauda, and following myelitic affections in the region of the conus. A neuritis, accompanied by such a degree of degeneration and strictly localized to the cauda, was rather difficult to conform with our ideas of the pathology of neuritis in general, especially degenerative neuritis, which involves the distal portion of the neural tree. Such severe degeneration was not observed in the brachial or sciatic types of neuritis, which were rather a peri-neuritis, and here we had a man who was bedridden for a long time and who even now, after all these years, showed evidence of foot-drop, with areas of anesthesia, and the gravity of whose symptoms was apparently disproportionate to the cause to which Dr. Kennedy attributed them. The possibility of an old syphilis should not be lost sight of, in spite of the negative Wassermann, as well as a myelitis of the sacral cord from some other cause.

Dr. I. Strauss said he wished to take exception to the remark made by Dr. Hunt that the Wassermann test had its uncertainties. That might hold good in some instances, but given a case where the spinal fluid showed no change by the Wassermann reaction, no increase of cells nor globulin, it was fairly good evidence that we were not dealing with a specific lesion. Dr. Strauss said that in a case seen at the Montefiore Home about two years ago the patient presented marked symptoms of a lesion of the cauda equina and the conus as well. This patient had been treated with mercury in various forms and very vigorously, but without benefit, and despairing of ever getting well he committed suicide. At autopsy his cord showed a remarkable condition, because not only were the meninges the seat of an active syphilitic process, but the cord itself was the seat of a very active myelitis. In that case, no doubt, an early puncture would have shown the evidence of a syphilitic process, while later on no fluid would probably have been obtained.

Dr. Abrahamson said that in one case of specific involvement of the cauda equina which refused to yield to salvarsan and mercury, the patient showed symptoms similar to those in the case presented by Dr. Kennedy, excepting that the clinical picture of a caudal lesion was more complete. In that case the Wassermann was positive.

Dr. Alfred S. Taylor said that Dr. Hunt was possibly influenced in his view that this case might be syphilitic by the patient's nasal deformity, which the patient stated, however, was the result of an injury. This statement was borne out by the appearance of the deformity, which was a traumatic saddle-nose. The nasal bones here had not lost their contour, while in true saddle-nose the bones were necrosed and the saddle was much higher up.

Dr. Kennedy, replying to Dr. Noyes, said that in his other cases of this condition the atrophy was very distinct and complete, and occurred in the affected root areas, corresponding with the sensory areas. Dr. Kennedy thought the position taken by Dr. Hunt was an interesting one, but not entirely logical. The speaker said he had made no claim that a lesion of the cauda equina could not be produced by syphilis: in fact, the cases mentioned by Dr. Abrahamson and Dr. Strauss, as well as those reported by Oppenheim and in French and English literature showed definitely that we may have lesions of the cauda equina produced by syphilitic pachymeningitis, but those facts did not disprove that in the case he had shown tonight as well as in the cases he had reported previously we had to deal with a non-luetic lesion of the cauda equina. If we placed any reliance at all on the Wassermann test—although we knew that in a certain

number of cases the reports led to a false conclusion—we had to give some weight to it in the six cases he had reported. All of these patients gave a negative syphilitic history; they claimed they had never been infected, and we had no grounds for disbelieving them. They had not been given anti-syphilitic treatment, but both the Wassermann test and the test of the cerebrospinal fluid were negative, and it seemed that under those conditions we were justified in assuming that the individual was not syphilitic. Possibly, in these cases we had a degenerative process of the cauda equina due to some toxin the nature of which we were ignorant, and which gave rise to symptoms similar to those caused by the syphilitic virus.

A Case of Multiple Sclerosis Treated for Incontinence.—Dr. I. Strauss reported this case. The patient was man, 47 years old, who was admitted to the Mount Sinai Hospital on December 5, 1912. His family history was unimportant. The patient was moderately alcoholic and gave a history of gonorrhea and syphilis twenty years ago. Two years ago it was noticed that the patient had difficulty in remembering things, with slowness of speech and motor aphasia. Eight months ago he complained of weakness in the legs when walking, and two months later he developed vesical incontinence, with occasional rectal incontinence. There was also diplopia and loss of weight. An examination at the time of his admission to the hospital showed, in addition to the above symptoms, nystagmus and tremor of the head, exaggerated knee jerks, slight Romberg, slow speech and diminished abdominal reflexes. A cystoscopic examination showed a trabeculated bladder, with a mild cystitis. The Wassermann test at this time was negative. Under repeated injections of salvarsan and epidural injections of sterile alboline, the patient gradually regained control of his bladder function, and when he left the hospital, on May 1, 1913, he was urinating about five times in the course of 24 hours, and was able to retain urine from six o'clock P. M. to six A. M. without discomfort.

Dr. Abrahamson said that Dr. Edwin Beer had advised the introduction of alboline into the bladder for incontinence. By this method, however, the effect was more transient and not to be compared to the results of the epidural method.

Hysteroepilepsy (Piblokto) Among the Eskimos.—Dr. A. A. Brill presented a paper on this subject, in which he said that while reading Peary's fascinating book "The North Pole," he was especially interested in what Peary called a peculiar form of nervous affection found among the Eskimos of the Western Coast of Greenland from Cape York to Etah which they called piblokto and which he designated as a form of hysteria. Peary stated that he had never known a child to have piblokto, but that some of the adult Eskimos would have an attack every day or two, and that one day they had five cases. Concerning the attack proper, Peary spoke as follows:—"The patient, usually a woman, begins to scream and tear off and destroy her clothing. If on a ship, she will walk up and down the deck, screaming and gesticulating, and generally in a state of nudity, though the thermometer may be in the minus forties. As the intensity of the attack increases, she will sometimes leap over the rail upon the ice, running perhaps half a mile. The attack may last a few minutes, an hour or even more, and some sufferers become so wild that they would continue running about on the ice perfectly naked until they froze to death if they were not forcibly brought back." Peary goes on to say that when the attack takes place indoors, nobody pays much attention to it unless the sufferer should reach for a knife or attempt to injure someone. The attack usually ends in a fit of weeping, and when the patient quiets down, the eyes are bloodshot, the pulse high, and the whole body trembles for an hour or so afterwards. It was also remarkable that the Eskimos dog suffered from a morbid condition by the same name. Peary stated that it did not seem to be infectious, though its manifestations were similar to those of hydrophobia. For diagnostic purposes, Dr. Brill said he tried to ascertain whether these attacks of piblokto were accompanied by a loss of consciousness. Prof. Donald B. MacMillan, an anthropologist, and one of Peary's trusted lieutenants during the successful quest of the North Pole in 1908-1909, was certain that all of the cases he saw showed a loss of consciousness and that they were all in a confused state. Thus, they were perfectly harmless when left to themselves, but showed a blind resistance if prevented from following out their various vagaries. Granting this loss of consciousness to be so, it would not simplify matters as regarded diagnosis. Loss of consciousness might be a concomitant symptom of hysteria or epilepsy. So far as could be ascertained, none of those afflicted ever showed a typical *grand mal* attack. On the other hand, everything pointed to hysteria. The disease was almost exclusively confined to the female sex: Prof. MacMillan quoted Peary as saying that in 20 years he saw only one man who had what he thought was piblokto, and the disease was practically unknown in children. Of the 20 women aboard the "Roosevelt," eight had piblokto. The Eskimos themselves thought that the disease had something to do with the evil spirit, and for that reason they were reluctant to touch the afflicted during the attack. The only probable cause of this affliction mentioned by Peary was of a psychogenetic nature. He said, "The immediate cause of this affection is hard to trace, though sometimes it seems to be the result of a brooding over absent or dead relatives, or a fear of the future." In other words, in the ultimate analysis, it was love and hunger. Prof. MacMillan believed the attacks were caused by abuse. Most of the Eskimos women who had this disease were of a jealous disposition; they either imagined themselves ill-treated, or they actually suffered abuse at the hands of their husbands, who beat them with their fists. Many Eskimos were cruel to their wives. Speaking of the attacks he said they reminded him of a little child discouraged and unhappy because it imagined that no one loved it nor cared for it, and therefore ran away. This plainly showed, Dr. Brill said, that as in civilized people, it was hunger and love—especially the latter—that played the great part in the causation of hysteria. It was also interesting to note that it was not the lack of the gross sexual, but the ungratified desire for love that was the determining factor.

Dr. M. J. Karpas said the description of these cases given by Dr. Brill was too indefinite to permit one to form an opinion as to the true nature of the mental upset observed among the Eskimos. The attack, *per se*, presented no definite landmarks of diagnostic validity. It might have been a manic, catatonic, hysterical or epileptic reaction; also such episodes one might observe in constitutional inferiors. Since we knew nothing of the make-up and psychic abnormalities of Eskimos in general, the speaker said he would be reluctant to offer a definite terminology for this mental upset. It appeared to him that it would be more conservative to look upon these episodes as peculiar psychic manifestations whose nature could not be understood.

Dr. Brill, in closing, said that these attacks resembled the "running amuck" of the Malays, but that it was difficult to say whether there was really a total loss of consciousness or not. He saw no objection to calling such an attack a peculiar psychical manifestation, but he saw no reason why Dr. Karpas should think that these attacks showed any resemblance to manic depressive insanity or to catotonia. There was absolutely nothing in these attacks to suggest these diseases.

"Transference" in Psychoanalysis.—Dr. Smith Ely Jelliffe read a paper on this subject, in which he said that as yet, the whole psychoanalytic situation, so far as successful therapy was concerned, was intimately bound up in transference, and one whose purpose it was to attempt to get at the causes for good or bad therapy, must needs view this situation as comprehensively as possible. Stated categorically and baldly, it might be said that without proper transference, a successful therapy for the psychoneuroses was impossible. In speaking of rapport or transference, it was well known that we were not dealing with any new phenomenon: it was older than the Mosaic law, and, like other old truths, it was constantly being stated and re-stated from epoch to epoch, in new forms and at recurring times with sharper and sharper differentiation. The psychoanalytic method fortunately enabled one to deal with the subject of transference much more definitely than ever before. It afforded positive criteria whereby one was enabled to watch its development, realize its tendencies, guide its directions, and, at times regain its losses for the sake of the patient. At the same time it provided the most exquisite sensitizer which, rightly used, compelled the psychoanalyst to search his own resistances, and forced him to keep clearly the goal in view, *i.e.* the patient's best interest, and not his own gratification or glorification. If psychoanalysis, as a method, really permits any great advance over earlier methods of handling the psychoneuroses, it must in some measure be through its better knowledge of and modes of dealing with transference.

Dr. A. A. Brill said he appreciated the truth of Dr. Jelliffe's remarks, but he could readily understand how they might fail to impress one who had done no actual work in the field of psychoanalysis. He believed that every physician, consciously or unconsciously, came in contact with these cases of "transference," which played

an important part in the success of his practice. We knew that certain drugs were effective in the hands of one man, while they were inert in the hands of another, and that the impression made on the patient often depended more on the personality of the physician than on the drug he prescribed. This was only another phase of transference. Hysterical accusations not infrequently made against physicians were often due to an overtransference and subsequent transformation into hate. A general knowledge of this subject might prove of great value to every physician.

Medicolegal Notes.

Malpractice—Causal Connection Must Be Shown—"Disease"—"Pain."—A married woman, suing a physician for malpractice, alleged that she employed the defendant as her physician to treat her for a backache, but that he diagnosed her case as one of pregnancy, and that he negligently failed to ascertain her true condition, and that by reason thereof she was rendered sick and injured in her health and rendered weak and nervous. It was held that this complaint stated no cause of action because it failed to show that the plaintiff's condition was one of disease which by the exercise of ordinary skill the defendant should have discovered. It was of no importance whether the plaintiff was pregnant or not, for either condition is normal for a married woman who has not passed her sexual climacteric, and neither is a disease or a malady. "Disease" was defined as an alteration of the state of the body or of some of its organs interrupting or disturbing the vital functions, or a particular instance or case of this. "Pain" was defined as a disagreeable feeling usually in its intenser degrees resulting from or accompanying deranged, overstrained, or otherwise abnormal action of the physical powers and serving as a warning of danger. If sound health and steady nerves were absolute conditions of every human being, it would be sufficient in so many words to charge that a departure from these conditions was due to the negligence of the attending physician. But a continuous condition of perfect health in every or any individual does not accord with human experience, and it does not necessarily follow that the ills of which the plaintiff complained were attributable to the treatment given her by the physician merely because they occurred during his attendance. While it is sufficient to charge in general terms that an injury was negligently inflicted, the acts done must be stated, and it must appear from the facts averred, and not from mere conclusion, that the negligence caused or contributed to the injury.

The testimony did not make the situation any better for the plaintiff. She testified to stating symptoms which were common signs of pregnancy, and that she desired to give birth to a child. The principal treatment by the defendant was advice to keep quiet and free from excitement, and medicine to regulate her stomach and bowels, precautionary measures to prevent premature parturition. Lapse of time showed that there was no pregnancy, and consultations with other physicians resulted in her being treated first for a tumor and afterwards for excessive fat on her abdomen, which last diagnosis proved to be the correct one. The evidence thus showed that her condition was one of health and that no injury could have resulted because of the diagnosis of her case as one of pregnancy. It was held that the plaintiff should have been nonsuited.—Merriam v. Hamilton, Oregon Supreme Court, 130 Pac. 406.

Hypothetical Questions—Conclusions.—A physician who had conducted a post-mortem examination of an insured testified that such examination revealed softening of the tissues of the right ventricle of the brain, arterial sclerosis, patches of bronchial pneumonia, and chronic vesiculitis. He then testified that he decided, from the brain tissue and the conditions found there and from the condition of the arterial walls, that a sclerotic condition existed, generally of a syphilitic character, and expressed the unqualified opinion that death resulted from syphilis. It was held that the physician's statement that the various conditions mentioned by him were syphilitic in character was a conclusion from the facts, and not a statement of the facts, and hence such conclusion was properly eliminated from hypothetical questions asked of other experts, as to whether it could be told from the conditions found by the doctor, in the absence of a positive blood test or the finding of germs in the tissues, whether decedent's death was due to a syphilitic affection.—McIntyre v. Modern Woodmen, 200 Fed. 1.

Therapeutic Hints.

The Treatment of Atony of the Stomach.—L. Pron outlines the dietetic and medicinal treatment of this condition as follows: The patient may eat meat and a small quantity of bread. He may partake at dinner of a glass of light wine diluted with plain mineral water. A small cup of coffee at the close of this meal is permissible. There are indicated all those medicinal agents that favor the evacuation of the stomach—whether or not their action is a chemical one. For the loss of appetite the following mixtures have been found of distinct value:

℞ Tincture of gentian,
Tincture of quassia,
Tincture of calumba,
Tincture of anise (Russian Pharmacopeia),
āā 5 grams.

The dose is 20 to 40 drops in a quarter of a glass of water twenty minutes before meals.

℞ Tincture of nux vomica,
Tincture of gentian, āā 5 grams.

The dose is the same as the above.

℞ Tincture of condurango,
Glycerin, āā 60 grams.

Of this mixture the dose is one teaspoonful in a little water and should be taken fifteen minutes before each meal.

Another remedy is tincture of jaborandi in twenty-drop doses, one-quarter of an hour before meals, or its alkaloid pilocarpine, in the following solution:

℞ Pilocarpine nitrate, 0.05 gram.
Distilled water, 150 grams.

The dose is a tablespoonful before each meal. Ipecac may be administered in doses of 10 to 20 drops of the tincture (German Pharmacopeia). Of similar efficacy is bicarbonate of sodium, one-half gram in a little water, one-half hour before meals. The postprandial distress is relieved by the following:

℞ Potassium sulphate,
Potassium nitrate, āā 0.05 gram.
Powdered ipecac, 0.01 gram.
Amorphous quassin, 0.01 to 0.02 gram.
Powdered nux vomica, 0.02 gram.

This powder is to be taken immediately after each meal.

Another important stimulant of smooth muscle is magnesium chloride, which may be given as follows:

℞ Magnesium chloride, 1 gram.
Distilled water, 150 grams.

Of this solution a tablespoonful is given before or after meals.

If the gastric atony is accompanied by pain one may give 10 to 15 drops of equal parts of tincture of condurango and tincture of hyoscyamus, one-quarter of an hour before meals; or the following:

℞ Sodium sulphate,
Sodium phosphate,
Sodium bromide, āā 2.50 grams.
Distilled water, 250 grams.

One tablespoonful is given twice a day, ten minutes before meals.

Dover's powder in 0.2 gram doses may be given after each meal, or one-half teaspoonful of Hoffman's anodyne in a little sweetened water.—Thérapeutique Clinique des Maladies de l'Estomac."

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Original Articles.

REST AND EXERCISE FOR THE TUBERCULOUS AND THE PREDISPOSED CHILD AT SCHOOL.

WITH PRACTICAL DEMONSTRATIONS OF BREATHING EXERCISES AND A DEVICE COMBINING OPEN-AIR STUDY AND THE WINDOW TENT.*

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There exist such a great variety of opinions among phthisiotherapeutists as to the amount of exercise and rest the individual tuberculous adult should take that it is obvious that to regulate the matter of exercise and rest in children must be still more difficult.† It is not an easy problem to solve. No tuberculous individuals are constituted alike, be they adults or children, yet in order to manage or supervise a class of tuberculous children, or even those predisposed to the disease, it must be necessary to have some general conception of what is good and bad for such a pupil.

It goes without saying that I cannot here consider the child afflicted with tuberculous joint disease where the surgeon feels that the particular member must be kept absolutely at rest. We must also leave out of consideration that class of cases which have pulmonary lesions and a temperature approaching or exceeding 100° F. In all such cases individualizing is of prime importance and no general rule is applicable. Thus, for example, a child who is surgically treated for hip-joint disease may not be allowed to walk but may be permitted to take regular breathing exercises. Another child with pulmonary lesions and febrile in the afternoon may be allowed to take a short walk in the forenoon during the afebrile state, but cautioned to breathe quietly.

But to come to general rules which should be the guidance of the teacher managing an open-air class composed of nonfebrile children, not actively tuberculous, or only predisposed, as first maxims let us put down the following: Never overwork the tuberculous child; never start the child to work when it is evident that it is tired. Every tuberculous child or child predisposed to the disease tires less easily in the open air than indoors. This class of children should be allowed to rest 10 to 15 minutes before and at least half an hour after meals. This rest they should preferably take on portable cots provided with a pillow. During rest time it is good to enforce silence in order to assure complete rest and quiet for those desiring it. In cold weather it is essential that the children be warmly covered during rest time.

It must likewise be borne in mind that during hot weather the children need more rest than in winter. In summer they should always rest in the shade, while in cooler weather they may be allowed to rest in the sunshine, providing their heads are protected from the direct rays of the sun. All these children must have the privilege of reporting to the teacher whenever they feel that they are not sufficiently rested or that the work assigned to them tires them too much. In such a case their temperature should be taken and the child referred to the physician for individual advice or care.

And now as to exercise. Let us first consider those which can be taken in conjunction with studies. All outdoor recitations and singing constitute healthful exercise for the lungs. Singing, particularly, has a beneficial effect on lungs and heart, on the pulmonary circulation, on the blood, the vocal apparatus, the upper air passages, the general health, on metabolism, and on the activity of the digestive organs. Season and weather permitting, short botanical and geological excursions, visits to zoological gardens and aquaria, should form a part of the regular curriculum of the tuberculous, the anemic, or otherwise predisposed child. These promenades in the open constitute the very best exercise, providing, of course, they are not overdone.

What other kind of exercises may we add to recitation, singing, and walking in the open air? While all kinds of calisthenics may be productive of good, I have found in my experience that when we can combine the movements of upper and lower extremities and trunk with deep breathing such exercises are doubly efficacious.

Before demonstrating to you a series of exercises whereby every member of the body, including the head, neck, trunk, and the lower and upper extremities, comes into motion, may I be permitted to defend my enthusiasm for respiratory exercises judiciously taught and judiciously practised, which I consider one of the most valuable means to prevent pulmonary tuberculosis, particularly in children? I confess that I am an adherent to the Freund[1]-Hart[2] theory, that the phthisical thorax arises very often from arthritic or rhachitic changes in the first rib or the adjoining vertebra, thus producing a stenosis in that region, preventing expansion of the apex and its bony covering. The sooner we anticipate these changes in the upper portion of the thorax by constitutional treatment aided by proper respiratory exercises the more certain are

*Read before the Fourth International Congress on School Hygiene, Buffalo, August, 1913.

†Biggs, Herman M.: "The Municipal Sanatorium at Otisville." "Work Cure" instead of "Rest Cure." No. 7, Health Department, Reprint Series, June, 1913. Flinn, John W.: "Rest and Repair in Pulmonary Tuberculosis," *Journal of Am. Med. Assn.*, August 16, 1913. Discussions on this subject by Minor, Ritter, Pottenger, Knopf, and Cabot, in the same issue.

we to combat successfully the development of pulmonary tuberculosis.

And now let me in brief demonstrate to you these exercises. To begin with, the pupil has to learn to stand straight, assuming the position of the military attention, heels together, body erect, and hands on the sides. With the mouth closed, he takes a deep inhalation (that is, breathes in all the air possible), and while doing so raises the arms to a horizontal position (Fig. 1), remains thus, holding the air inhaled for four or five seconds, and while exhaling (breathing out) brings the arms down to the original position. The act of exhalation, or the expiration, should be a little more rapid than the act of inspiration.

Fig. 1.—Exercise A

The act of inhalation occupies about four, the act of exhalation about three seconds, and as has already been said, the act of retention of the air about five seconds. The child should be taught to count mentally during these three acts so as to be systematic about holding the air. One can move the hands up and down twice, counting four, and on the fifth second begin to lower the arms and exhale.

When the first exercise (A) is thoroughly mastered, one may commence with the second exercise (B). The pupil places the hands one above the other in front of the chest, with the fingers bent (Fig. 2). The arms and shoulders make a backward movement, the hands moving apart with a motion as though wanting to tear open the chest (the fingers remaining bent), while he takes a deep inhalation, holds the breath, counting four by tapping the chest four times with both hands, and at the fifth second he starts to exhale, bringing the hands and forearms into the position from which they started. This exercise has the advantage that it can be taken in the sitting position, or even when lying on the back.

The third exercise (C) consists in raising the arms from the sides to the horizontal and then above the head (Fig. 3), taking a deep inhalation during this act; then bending back as far as one can and remaining in that position four seconds while retaining the air, counting the seconds by moving the hands alternately forward and backward, and on the fifth second one exhales gradually while resuming the original position. During this exercise it should be borne in mind that when the arms are raised until the hands join, one should not bring the arms close to the head, but rather form a circle above the head by bending the arms outward enough so that the meeting of the index fingers and thumbs form a triangle.

Fig. 2.—Exercise B.

The fourth exercise (D) is for the purpose of bringing the abdominal muscles also into play, or, in other words, combining abdominal and chest breathing. To this end one assumes an erect position, like the beginning of all the exercises, the hands meeting in front, with the little fingers and the edge of the palms touching the abdominal muscles (Fig. 4). While taking a deep inspiration, raise the diaphragm, concentrating all attention on this act, and while doing so move the joined hands upward, sliding them along the thorax up to the chin, then turn them and continue to raise them until they are above the head, as in exercise C (Fig. 3). Remain bent backward during the four seconds while retaining the air, and then exhale, lowering the arms gradually to the horizontal and to the original position of "attention."

Fig. 3.—Exercise C.

The fifth breathing or respiratory exercise (E), which may also be called a dry swim, requires more strength and endurance. It should not be undertaken until the others have been practised regularly several times a day for a few weeks, and until an evident improvement in breathing and general well being has been observed. One takes the usual military position of "attention" and then stretches the arms out as if in the act of swimming (Fig. 5), the backs of the hands touching each other. During the inspiration one moves the arms outward until they finally meet behind the back, remains in this position for the usual four seconds, counting by moving the hands while retaining the air, and on the fifth second exhales, bringing the arms forward again ready to start for another swim; or, if this is the end of the dry swim, the arms return to the original position of "attention." This somewhat difficult exercise can be facilitated and be made more effective by rising on the toes during the act of inspiration and descending during the act of expiration.

It will be seen that with the aid of these five respiratory exercises every muscle of the body, from the nostrils down to the toes, is put into play. The face alone is at rest and can serve as an indicator that the exercises are properly done, for it must be borne in mind that they should be taken with the muscles not actually in use, relaxed, and all unnecessary contraction of muscles or tremorlike movements must be avoided.

Of course, when out of doors, one cannot always take these exercises with the movements of the arms without attracting attention. Under such conditions one assumes a position similar to "attention," raises the shoulders, making a rotary backward movement during the act of inhaling (Fig. 6), remains in this position, holding the breath for four seconds, and then exhales while moving the shoulders forward and downward, assuming again the normal position. This exercise (F) can be easily taken while walking, sitting, or riding in the open air.

Fig. 4.—Exercise D.

Young girls and boys, especially those who are predisposed to consumption, often acquire a habit of stooping. To overcome this, the following exercise (G) is to be recommended: The child makes his best effort to stand straight, places his hands on his hips with the thumbs in front, and then bends slowly backward as far as he can during the act of

inhaling (Fig. 7). He remains in this position from four to five seconds while holding the breath, and then rises again somewhat more rapidly during the act of exhalation, assuming the original position with hands on hips.

The strikingly beneficial results obtained by the regular practice of breathing exercises in schools is shown by the effect on height and chest expansion and chest capacity. This has been recently beautifully demonstrated in one of the common schools of Paris by Professor Meunier and his coworkers. It was observed that the children learned the exercises easily and performed them with pleasure. There were fewer absences from school during the six months of experiments than during the other part of the year. The results were universally good, especially in sickly children.

Fig. 5.—Exercise E.

The following is a table showing the gain of height, chest capacity and vital capacity:

Age	Height in Centimeters		Chest Girth in Centimeters			Vital Capacity in Liters and Centimeters			Number of Pupils
	Beginning	Sixth Month	Beginning	First Month	Sixth Month	Beginning	First Month	Sixth Month	
6.....	115	118	51	53	57	0.54	0.78	0.85	19
7.....	125	125	52	55	59	0.66	0.80	0.93	14
8.....	124	126	53	56	60	0.79	0.86	1.13	27
9.....	130	132	55	59	63	0.89	1.00	1.17	29
10.....	141	143	59	62	64	1.20	1.36	1.51	28
11.....	138	142	58	62	66	1.05	1.31	1.70	18
12.....	145	149	59	63	67	1.47	1.67	1.95	22
13.....	148	151	70	74	77	1.93	2.26	2.26	16
14	147	153	62	66	74	1.83	1.92	2.15	7

How much this increased lung capacity must mean to a child in danger of developing pulmonary tuberculosis must be evident to you when you recall that careful physiological experiments on the process of respiration in the adult have shown how much more oxygen can be inhaled into the lungs by deep inspiration and expiration, in spite of the fact that in the adult the bony frame of the thorax has become ossified and yields but very little. In the child the relative softness of bone and cartilages allows them to yield considerably to the pressure from within.

Fig. 6.—Exercise F.

For the purpose of demonstrating to you the value of an additional respiratory exercise, indicated for the individual with a nonactive tuberculosis or one with a strong predisposition and a badly developed chest, let me recall to you the following figures: The amount of tidal air, that is to say, the volume which is inspired and expired in quiet respiration, is only 500 c.c., the complemental air, the volume which can be inspired after an ordinary respiration, 1500 c.c., and the supplemental or reserve air, the amount which can be voluntarily expelled after a deep inspiration, amounts to about 1240 c.c. There remains of course a good deal of residual air even after such an increased respiratory act as would be accomplished by any of the exercises above described. Now, if it is desirable to increase the process of hematosis, a second expiratory movement can be accomplished and as much as 500 to 600 c.c. of supplemental and residual air expelled. To do this effectually, the individual should inhale and exhale as deeply as he can, accompanying this action with movement or not, and then immediately after the act of expiration make an additional effort to exhale, without, of course, any preceding inspiratory movement whatsoever. This second expiration can be greatly facilitated by supinating the arms and pressing the thorax with them. This exercise is somewhat difficult to teach, and at the beginning it may be well to have the pupil pronounce the German word "eins" or the English word "inch," prolonging the sound during the second expiratory effort. The accompanying figure No. 8 shows the attitude the pupil should assume during this forced expiratory effort.

Fig. 7.—Exercise G.

Leaving aside the above mentioned frequent phthisical thorax due to bony deformation, it is a well known fact that even in a seemingly normal thoracic frame the tuberculous process begins very often in the apices. The frequency of an apical beginning has been explained by an inherent bad inspiratory function of that part of the lung. This supposition is, I believe, erroneous. I agree with Hanau[3] who demonstrated as far back as 1887 that the apices inspire excellently well, almost too well. for dust and all sorts of microorganisms enter and lodge there most easily. Careful post-mortem examinations have demonstrated this fact too often for it to need any further proof. What is faulty is the expiratory function of the apices. A thorough expiration, followed by a forced expiratory effort. as described above, is, to my mind, the only possible way to improve this defect and prevent stagnation and congestion, which, as is well known, produces excellent media for the development of bacilli.

It must be self-evident that in a school for tuberculous and predisposed children individualizing in prescribing breathing exercises is as essential as with all other exercises. As a general rule I can only state the following: Commence with the easier exercises (A), and do not go on to the more difficult ones until the former are completely mastered. Take from four to six respiratory exercises (one of A, one of B, one of C, one of D, or one of E), or when outdoors simply exercise F, four to six times every half hour or hour, or at least four to six times a day, and on rising in the morning and retiring at night. Continue this practice until deep breathing has become a natural habit.

Fig. 8.—Exercise H.

When judiciously regulated, I believe these breathing exercises to be of incalculable benefit as a means to help a tuberculous child to combat its affliction and to aid the predisposed child to increase its resistance to the development of the disease. I recommend to your consideration the careful practice and study of these exercises.

In conclusion, let me call your attention to one more point. Judiciously supervised rest and exercises in the open air are not only essential for the

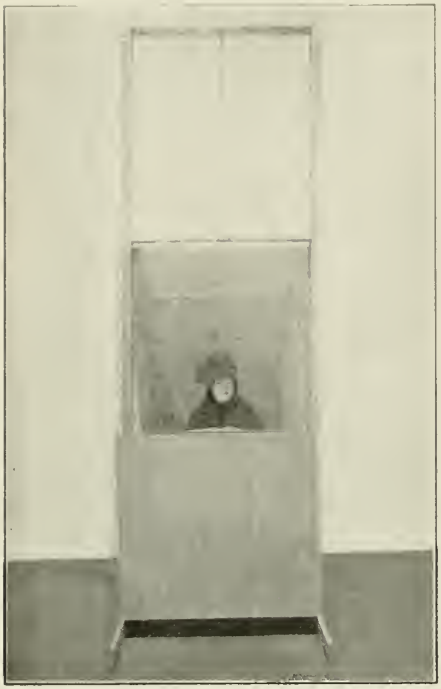

Fig. 9.—Open-air study. Tent and screen in position. Pupil looking out of the window.

tuberculous or predisposed child while attending school, but should also be carried on at home. If we really wish to cure the child of its affliction or its

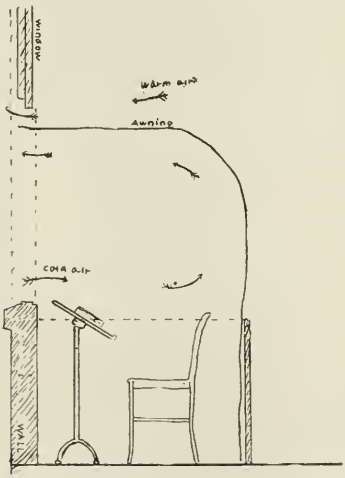

Fig. 10.—Diagram showing the circulation of air in the combined open-air study and window-tent.

inclination to become tuberculous, we must provide for it exercise, rest, and sleep in fresh, pure air during the entire twenty-four hours of the day.

To facilitate the open air regime—rest and exercise at home as well as at school—I beg leave to present to you a device showing a combination of an open air study and window tent.

To give a pupil attending public school or college, particularly when he is tuberculous or strongly predisposed, an opportunity to attend an open air class is, of course, most laudable. But if we wish to be in earnest to thoroughly strengthen this child we must give it a wellnigh constant outdoor life. We must not be contented with giving this boy or girl lessons in the open air for a few hours during school lessons.

My experience with the little device which I brought before the medical profession some eight years ago under the name of the window-tent, intended for the consumptive tenement house dweller, has given me the inspiration to devise a scheme which will give to the pupil not only outdoor life

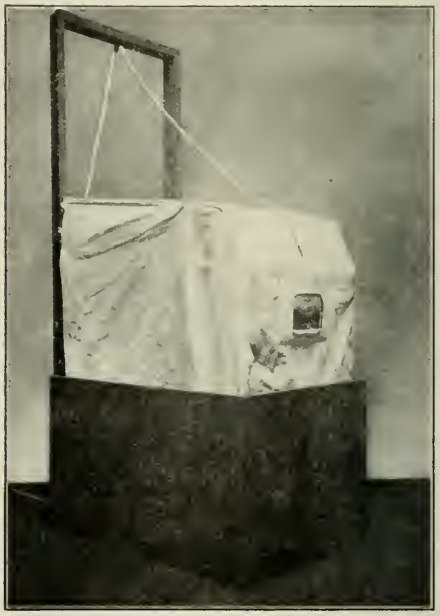

Fig. 11.—Window-tent and wainscoting in position as seen from the room. The little window is of celluloid and serves for parents to observe the pupil and for the latter to look into the room.

during sleep, but also while doing his lessons at home and while resting or reading for amusement.

I am indebted to the Kny-Scheerer Company for their great courtesy in carrying out my ideas on this subject and enabling me to present to this Congress a model which will give a splendid idea of the workings of the device.

I take pleasure in presenting to you to-day this combination of an open air study and window-tent Fig. 9). As you will see, it resembles in the main my original window-tent, only it is larger, extending out from the window 4½ feet instead of 2½ feet, so as to allow room for desk and chair for the pupil when at work. This device consists of an awning which instead of being placed outside of the window, is attached to the window pane inside of the room. It is constructed so that the air from the room will not enter or mix to any extent with the air in the tent.

It is composed of four frames of Bessemer steel rods, suitably formed and furnished with hinged terminals operating on a stout hinge pin at each

Fig. 12.—Interior of the open-air study. Pupil at work and wrapped up in Mann's sitting-out bag.

end, with circular washers interposed to insure independent and easy action in folding the frame.

This frame is covered with an extra thick yacht-sail-twill, attached to the metal frames by tapes on the inside to admit of its removal for the purpose of being laundered or disinfected. The tent is attached to the frame of the window a few inches below the upper sash, so that when the lower part of the window is pushed up there will be a space to allow the hot air from the room to pass out. By lowering the window the space can be reduced according to need. The cold outdoor air enters from without at the bottom of the open window, describes a half circle and makes its exit at the top, carrying with it the exhaled carbon dioxide.

My friend, Professor Sherman G. Bonney, of the University of Colorado, has verified this action by the use of a delicate instrument, known as the air-meter, which showed the current to be perceptibly inward at the bottom and outward at the top. In cold weather it is apparent that the outward direction of the air current at the top is facilitated by the passage of the heated air from the room through the aperture above the window-tent.

While in the typical window-tent the flaps of the awning need to be only long enough to allow them to be tucked under the mattress, in the combination device the awning is long enough to touch the floor. When used for a study, a screen composed of three pieces of wainscoting, 34 inches high, hinged together, surrounds the entire tent (Fig. 11). The lower portion of the canvas is attached to the interior of the screen. The screen and canvas protect the pupil sitting in his study from drafts from beneath and help to keep his feet warm.

In winter the pupil must, of course, be warmly dressed, and I believe there is nothing better for the purpose in the market than the ingenious sitting-out bag (Fig. 12) devised by Mr. Frank H. Mann, the Secretary of the Tuberculosis Committee of the City of New York. This garment provides adequate warmth for the upper part of the body without having the more or less cumbersome bag portion extend up any further than those usually manufactured. Freedom of movement of the hands and arms is, of course, a necessity for work in the tent and is fully provided for by the cape idea without sacrificing the needed warmth about the shoulders.

The garment is made of heavy brown felt. The bottom is square in shape and reinforced with extra heavy material about one inch in thickness to protect the feet from the cold. In addition, the bottom is covered with a special detachable piece of canvas to insure against wear and tear. The system of fastening was specially devised to facilitate convenience in getting in and out of the bag. A series of snap catches all the way from head to foot make the means of access far more practical than the old way of stepping in and out from the top. Hooks around the garment at the center enable the wearer to buckle it snugly about his waist. Another interesting new feature is the pocket at the side provided for handkerchief and mittens.

In the middle upper portion of the tent is inserted a transparent celluloid window (Fig. 13), 8 x 10 inches, which, however, can be made larger. Through it the pupil can be observed during his lessons or he can look into the room and converse without raising the flaps.

Fig. 13 shows the study transformed for the

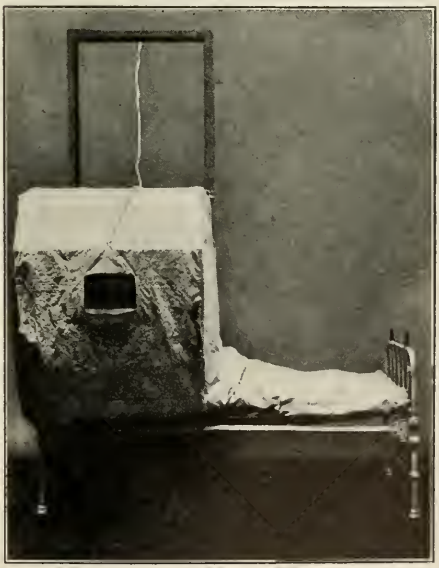

Fig. 13.—The open-air study transformed into a window-tent.

night into a comfortable window-tent. With the aid of a pulley, the frame and canvas can be raised (Fig. 14) so as to be entirely out of the way while

arranging for day study or preparing to retire for the night. On extremely cold nights the pupil can close the window before retiring so that he can dress in a warm room and then open the window from his tent-bed. He can, of course, also close the window in the same way in the morning and have the room get warm before rising to dress.

The entire tent is attached to the window frame simply by two hook-clamps so that, if necessary, the entire device can be lifted off with ease.

It is, of course, desirable to have outside shutters on the window, but if that is impracticable a Venetian blind may be attached on the inside. These shutters or blinds may often be needed in stormy, rainy, or snowy weather. In very cold or windy weather an ordinary wire screen can be placed in the window or a light frame made and covered with cheese cloth. Dr. J. B. Todd, of Syracuse, has

Fig. 14.—Awning raised to facilitate changing the open-air study into a window-tent for open-air sleeping and vice versa.

recently devised a ventilating screen made of such material which will serve the purpose admirably.

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16 West Ninety-fifth Street.

Congenital Hypertrophy of the Right Leg: Scoliosis.—J. G. Saner reports the case of a girl, aged 13, whose right leg was generally larger than the left. The hypertrophy appeared to affect all the tissues, and gave the child an adult appearance on the affected side. There was a general nevoid condition of the skin. It had been tentatively suggested that a resection of some inches of the shaft of the right femur, followed by plating, should be tried.—*Proceedings of the Royal Society of Medicine.*

THE ARCHITECTURE OF OPEN-AIR SCHOOLS.*

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The number of words and time at my disposal are so limited and the subject of Open-Air School Architecture so large that I shall have to confine myself to dogmatic statements or to expressions of personal belief, without adducing the arguments that uphold the statements. Unlike the architecture of the ordinary school where experiment has prescribed the type, open-air schools have not yet been built and tried out. Ferryboats have been adapted to the use, open-air school rooms have been built or altered from old school rooms as minor parts of buildings, roofs covered and uncovered have been turned to the purpose, but the complete school, planned in all its details toward the one end and of an advanced type, is yet to come.

In describing the ideal conditions to which I think such a school should conform, I have in mind a type slightly less radical than what is sometimes known by the title, namely: a school that is entirely out of doors with little more than a roof, and is typified by those at Shrewsbury House and Bradford in England. On the other hand, something that is considerably more open that what has been styled the low temperature school, such as the Graham School, or than such schools as School No. 21, in New York, where the rooms have been adapted from the regular type by merely changing the pattern of the windows and keeping them open. In other words, I propose a building so constructed that the air in all parts of rooms where the children remain will be continually replaced by outdoor air that has only sojourned a few seconds within the limits of the building, yet not a building that is entirely without heat.

First, I wish to consider general aspects of the plan formation. The ground for such a school should be sandy or gravelly without too much clay, so as to preclude a humid condition in the entering air. It should be protected from the wind, pines or spruces forming an excellent screen; but these trees should not be too close to the building and should not cast a shade upon it. City schools should be so situated that sun will not be cut off from them by adjacent skyscrapers. This is also important because the high buildings of our later construction cause concentrated air currents that would render work in an open-air school almost impracticable by blowing papers and material about and forcing dust and dirt up and through the school. Exposed conditions, such as Riverside Drive in New York City, would be objectionable, rendering it difficult to protect the school rooms from violent storms.

The orientation of the school should be such that sun will enter all class rooms during a part of any day in the year. This is especially important in such rooms as study rooms, where the children sojourn for a protracted period. As the rooms are all open, it is not so important that the greatest length of the building be across the direction of the prevailing wind, and it is important that it be not across the direction from which storms are likely to come; but no room dedicated to the children

*Read before the Fourth International Congress on School Hygiene, Buffalo, N. Y., August 25, 1913.

should be in a pocket so that free circulation is impeded.

Toilets are to be placed so that odors cannot reach the open class rooms. An unsanitary condition of this kind will become particularly objectionable in warm weather.

It is essential that the plan be so arranged that all class rooms, study rooms, the auditorium and wherever the children remain shall have ventilation on two or more sides, and to really fulfill conditions properly the room should be open on at least two sides that are opposite each other. Corner rooms with windows on the sides perpendicular to each other may be satisfactory when there is a sufficient amount of wind; but when there is little movement in the atmosphere, a dead corner with eddies is likely to retain the air in certain portions of such rooms. On the other hand, if rooms are entirely open on two opposite sides without protection, a storm or misty rain will carry completely across the room. For this reason an open gallery is advantageous. Such an one is shown in the Ideal Open-Air School originally prepared to illustrate the important contribution to this subject made by Dr. S. A. Knopf in his paper at the International Congress on Hygiene and Demography in Washington, D. C., September, 1912,* and will be seen in the plans and model on exhibit in the Exhibition Hall of the Congress (see illustration).

General plans may be divided into three classes: The "U" or "H" plan, where the wings are about open courts, the "T" or "Star" plan, where the wings radiate from a center, and the enclosed court plan. The last-named is not so good, and all plans should so surround the courts that the latter are open on at least one side which is not the north. This is to insure the entrance of the sun into all parts of the court during some part of the day.

I see no objection to building three stories high above basement or higher, if means of ascent can be provided. Open galleries and open staircases are good provided they are protected from snow and sleet. A great advantage is that children passing between the cold rooms do not undergo a sudden change of temperature. Snow and ice are particularly dangerous in the staircases.

An objection to placing class rooms on the ground floor is dust and odors from the street and the general impurity of the air.

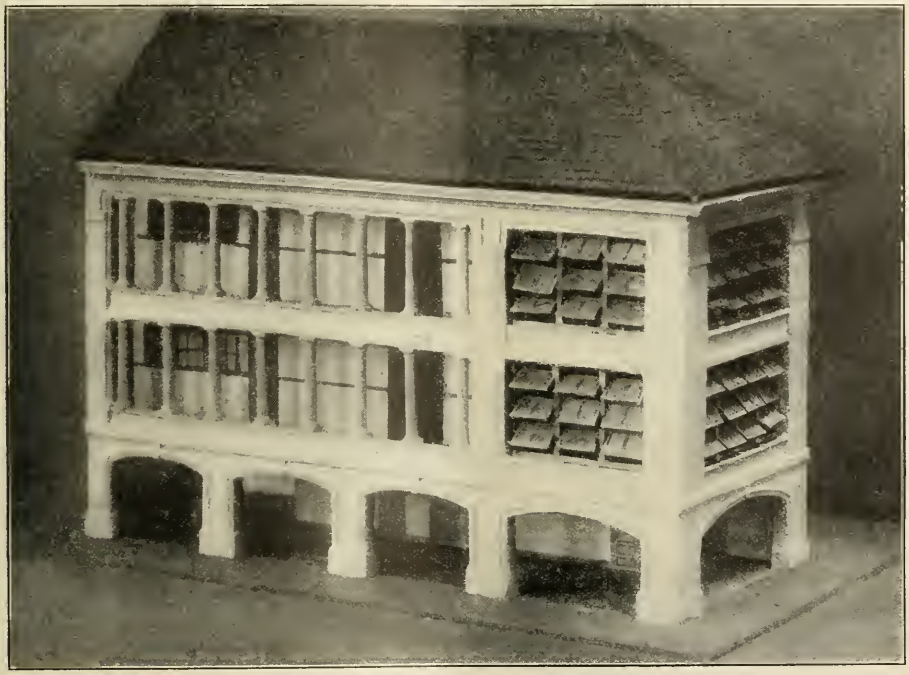
Overhanging cornices are good, because they afford protection from rain for the open windows; but on the top floor they cast a shadow. A glass cornice, like a marquise, might be extended at the top of the building, or such protection might be constructed over each of the large windows. It would certainly be unusual in its appearance and difficult to make it appear architecturally attractive.

The auditorium should be so situated that it can be thrown entirely open. It may be convenient to have it arranged so that it can be closed for special exercises, when visitors are present.

Under a second head I am grouping some recommendations for the details of the building.

Class rooms should have predominant unilateral light; that is, the light on the left of the pupils should be stronger than that from other directions.

Blackboard space must be preserved, especially behind the teacher.



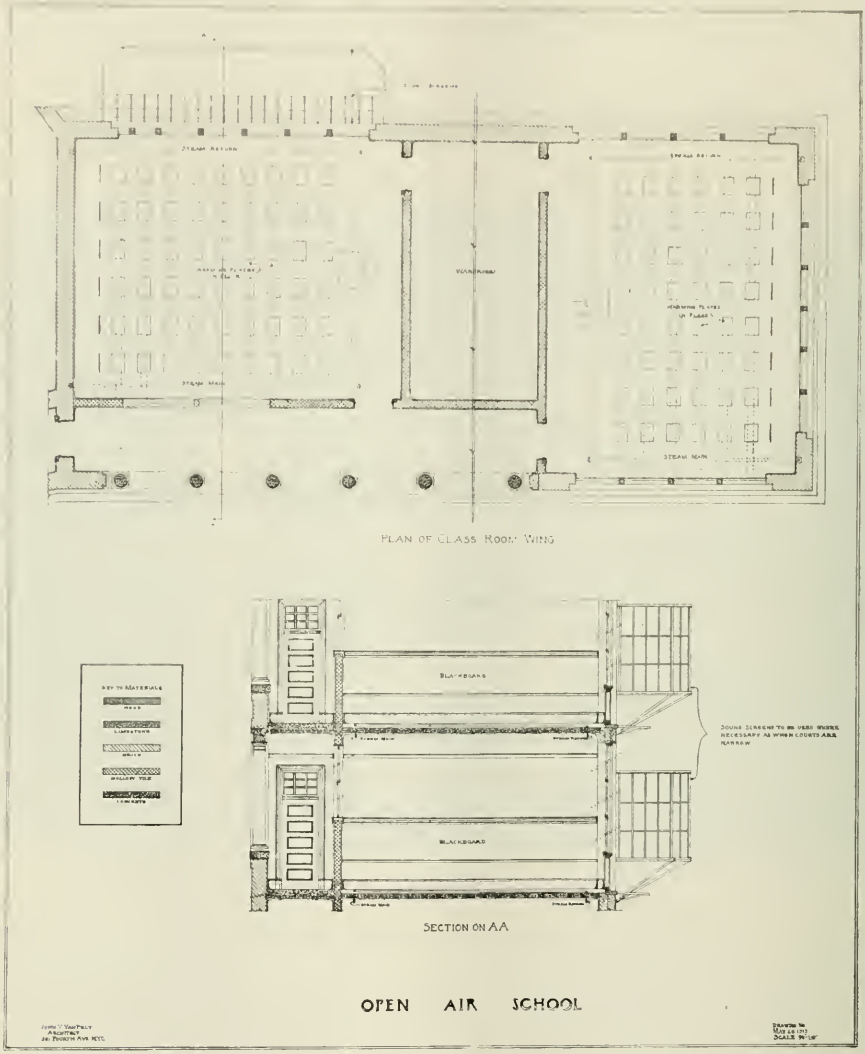
Model of an open-air school.

*Knopf: "Tuberculosis and Other Diseases in Schools and Colleges," *N. Y. Med. Jour.*, January 25, 1913; and in the Transactions of the International Congress on Hygiene and Demography, 1912.

Sills may be three feet high on the side whence the light comes, namely: the maximum for the ordinary sill. Higher than that they cast a shadow. It has been found in the experiments made by Mr. C. B. J. Snyder, architect of the Board of Education of New York City, that low sills are disadvantageous, because they create draughts around the pupils' feet, taking away warmth, do not materially improve the general condition of the air, and are of no advantage to the respiratory organs.

If blackboard space is maintained opposite the lighting windows, large windows should open up the room above these blackboards; but it is not good to place children immediately under a high sill, as the cold air dropping down on them may be objectionable.

Class room windows must be so arranged that any side from which comes a heavy driving storm or a drifting mist can be closed. In such schools as the Providence School, one of the first open-air schools of the country, hinged windows were tried. Mr. Snyder has experimented with these and they have not been found as advantageous as pivoted sash dividing the windows into three parts, the upper half of the lower sash opening in so that it projects above the head of a full-grown person. Still more recently the scheme of operating the two upper sash together and the lowest sash independently has been adopted. Such sash somewhat inclined to the outside form a protection from slanting rain, throwing the water out of the building. Double-hung windows are possible running up into pockets in the head of the windows and below the sill of the window above so as to leave the entire

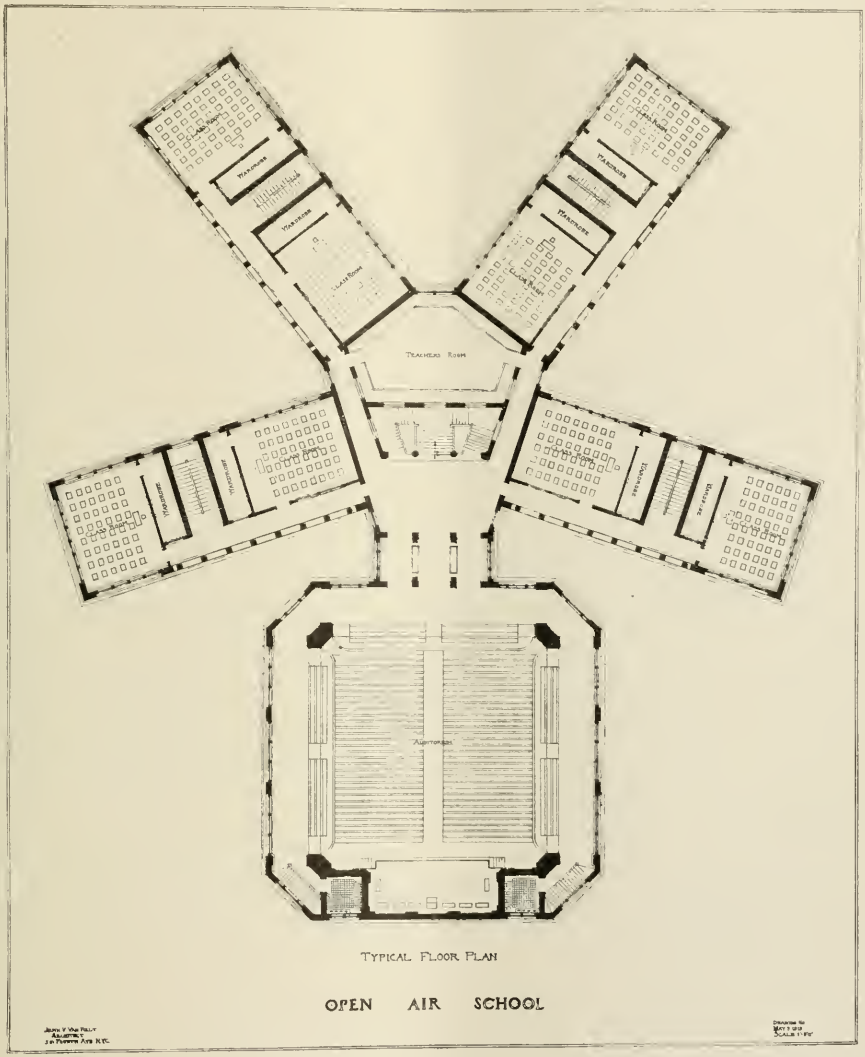


opening free. They are somewhat difficult to operate and do not afford any protection.

In the "U" or "H" plan, if the court is not wide, the noise from class rooms opposite each other is objectionable. I will take up preventives later, in discussing acoustics.

Class rooms may have the floor warmed. This would slightly temper the air and keep the children's feet from becoming cold, tending to dry them if selected that is not too hard under foot. If the floor is heated, it must necessarily be of a material that will not be affected by the heat. For this reason the warmed floor shown in the design is attained by metal plates separated by composition.

Coat rooms should be well ventilated, but kept reasonably warmed, that is about 65° F. This will appear quite warm to the pupils coming from the class rooms and halls, and a higher tem-



they had not come to school with rubbers. This will also be referred to later. Wood floors are good to walk on, as they are not too hard and very durable; but rain, snow, and dampness soak into them and this is objectionable. Linoleum is good, especially if it can be cemented down. It wears out rather easily and is therefore expensive. What is known as composition floors are somewhat expensive, but come within a possible range of prices. They can be made in different ways and a type should be

perature would be uncomfortable before the smaller children could succeed in adjusting their clothes. It may be suggested that coat rooms could be omitted, in that the children wear about the same clothing in the class room that they do out of doors. If they have to come to school through snow and storm, their outer wraps should be taken off and dry wraps put on, and I believe it would be better to provide a proper place to keep such wraps, allowing the damp ones to dry.

Furthermore, exceptional cases occur where fragile or anemic children suffer from time to time from the cold. This has been noted in the Graham School reports, and the warmed cloak room offers an excellent place where their vitality may catch up. Although limited space may seem to force wardrobes in the class rooms, I consider it a bad solution. In such case a warmed room for recuperation should be provided on each floor.

Toilets must necessarily be warmed, as the children have to remove some of their clothes, and in very cold weather plumbing pipes would freeze. A temperature of 60° to 65° is ample. Anything higher than this would be bad. Toilet rooms should be screened to prevent insects from entering through the open windows. As in all schools, an automatic means of flushing toilets should be provided, as the children cannot be relied upon to do this properly.

In laborities, manual training rooms, etc., provision often has to be made to maintain such a temperature that liquids under study will not freeze, and where fine and delicate work is done the temperature cannot be allowed to go quite as low as where some protection for the hands may be worn in cold weather. Furthermore, below a certain temperature it is not easy, and, for some persons, not possible to perform very delicate work. Steam radiators should be introduced in such rooms and if a number of small radiators are scattered about the heat can easily be graduated by turning on one or more and allowing the others to remain empty. Provision must be made for draining these radiators rapidly.

Rooms for visitors should be provided where the temperature is not allowed to fall too low, and heat will probably be required in the principal's and teachers' rooms.

In spite of the fact that such a school is open and a considerable amount of heat lost, the fact that the average temperature of the building is kept so much lower than is ordinarily the case will probably show a slight saving in coal over the usual type of school house. Sufficient experiment along this line has not yet been made to definitely determine the proportion.

Hot water systems cannot be used owing to the danger that pipes and radiators may freeze. Hot air is useless, as it cannot be controlled in such a building. Steam or water vapor are therefore the only possible means of heating, and water vapor is hardly effective enough under the conditions that usually obtain.

Heating the floors of the rooms has already been mentioned. The floors should not be overheated; chilblains would probably result to the children; in the cold rooms the steam that would form would probably be objectionable; a high degree of heat would cause odors. About 40° C. is a maximum temperature for a floor surface.

The acoustics in such a building play an exceedingly important rôle. In an auditorium they must receive special study, as the open windows supply the equivalent of total absorption, and, furthermore, allow exterior sounds to penetrate. This would make speaking in the rooms more dead, and in the noisy quarters of a city exterior sounds would become predominant. In the class room the question becomes quite important. Up to the present time sufficient attention has not been paid to the acoustics of the ordinary school. At the new Brierly School in New York City an effort has been made to introduce a reasonable proportion of deafening material. Absorbent felt has been placed on the ceiling and this has been covered by a muslin blind-nailed, on which paper has been pasted, the latter being decorated in waterproof color to give a smooth surface. In the open air room where class rooms are opposite each other, across a somewhat narrow court, the sound would be thrown over to the opposite room and would cause reverberation in the court. This would be increased by a non-absorbent wall in and opposite the windows of the first room, notably if large blackboard spaces covered the reflecting wall. In certain cases it is possible that the reverberation in the room would be sufficiently reduced if absorbent material were placed on the ceiling of the rooms and sound entering the class room might be sufficiently absorbed if the reverberation were kept down. On the other hand, conditions might exist as previously noted, where a concentration of sound from a reciting class might be thrown out of the window and into the opposite class room in sufficient proportions that the direct sound would be objectionable. It will appear from this that a special study of the acoustics for each class room should be made. In order to obviate the difficulties mentioned in the drawings here exhibited I have shown a glass screen that might be built in front of the windows, deflecting the travel of the sound to a certain extent, without preventing light from penetrating the room. If the screen were inclined away from the head of the windows and Luxfer prisms introduced the sound would be dissipated and the light increased, but such increase might not be desirable.

It is surprising that the medical profession which has occupied itself so considerably with the light and color of the walls in class rooms should have been so oblivious to the nervous strain created by the discordant sounds in recitation in class rooms, or, on the other hand, brought about by imposing too rigid silence and restraint on small children.

In the matter of light the general color of the class rooms should be that of the ordinary room, except that it must be kept in mind that too light a wall reflecting a glare from the snow on a winter's day would be trying. As a much larger quantity of light will probably penetrate the rooms than ordinarily enters a class room having glass areas of only 20 per cent. to 25 per cent. of the floor area, the walls of the room might advantageously be somewhat darker.

It is due my audience to explain that although the complete open-air school contemplated in the foregoing paper is still unrealized, I have felt that I could speak authoritatively because of extended experience on the one hand in building schools of various types and on the other in some twenty years of theoretical study and practical experiment in the construction of sanatoria for the treatment of tuberculosis. These are the two types of building that must be parent to the new ideal, and in closing I cannot do better than urge that as you investigate details beyond the scope of this curtailed résumé they be studied simultaneously in exponents of both of these types.

381 Fourth Avenue.

The Etiology of Tuberculous Meningitis.—H. Koch was able to demonstrate a hereditary basis in 23 per cent. of his cases. In most instances, the children who were less than 2 years of age had had some other infectious diseases just prior to the onset of meningitis.—*Wiener klinische Wochenschrift.*

PREMONITORY AURÆ IN INEBRIETY.*

A STUDY OF SOME SPECIAL SYMPTOMS.

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The term inebriety describes a neuropsychosis, the symptoms of which are convulsive demands for spirits, to the stage of complete narcotism. Then the psychosis disappears and a free interval follows, of indefinite duration, and later a return of the drink paroxysm. This paroxysm is literally an obsession, noted by manias, exaltations and dementias, and other mental changes.

In the free interval there are health, sanity and normal conditions of physical and mental activity.

The term alcoholic is applied to a different condition. Here spirits are taken regularly, without free intervals, and the person does not seem to be abnormal in any particular way. There are toxemias and palsies in such persons, but they are concealed and are not very evident for a long time. There may be a sudden cumulation of abnormal forces, in which symptoms of mental derangement occur. These are of short duration, and alcohol is continued as a beverage and medicine.

The inebriate is in a different class of neurotics, with a great variety of psychical symptoms, in which auræ and premonitory conditions may be marked. The alcoholic has no such symptoms. There are no intervals of abstinence, hence a continuous obscure anesthesia exists, marked by coarse physical symptoms and abnormalities which seem to be fleeting and not prominent over the organism.

The auræ in the inebriate indicate oncoming neuroses and psychoses, both functional and organic. Many of these have been tabulated, and one of these divisions may be called motor auræ, and refers to muscular activities in great excess. Thus the inebriate, after a period of abstinence and apparent good health, will suddenly display intense muscular activity, working far beyond his usual custom, putting out great muscular efforts without any reasonable explanation.

This is commonly seen in persons who are without occupation, or who have some business that has been going on in a monotonous way. Suddenly they will display intense anxiety to promote business, working far into the night, and showing unusual energy and care, apparently afraid that unless they give it the closest attention the business will fail. If without occupation they will suddenly take up exercises, such as golf, baseball, walking, rowing, and pursue these with great energy and pleasure. Then all at once they begin to drink spirits, and their muscular activity and business energy subsides.

Later, when the drink paroxysm passes, they come back to a normal condition, and seem not to have any desire to engage in business and muscular efforts, but go on in a normal way, without being able to explain the changes and unrest which preceded the drink attack.

A repetition of these incidents seems not to impress the patient's mind with any sense of danger or significance of their meaning. When the muscular delirium comes on there is egoism that explains it as due to other causes than the possible outbreak of a drink craze, with intense confidence in their own conceptions of the import and meaning of these unusual auræ and symptoms.

Another grouping of premonitory symptoms refers to sensory functions. Thus a person of ordinary serenity will suddenly become very irritable and sensitive to conditions and surroundings. He will be angry at any little change, or at words which he can construe as a reflection. This irritation is so unreasonable, and sometimes associated with egotistical pride, or loss of pride, and assertiveness in his own conception of acts and use of words, as to attract attention.

Often language will degenerate into coarse expletives, and confidence in his family and associates will be lowered. Then the drink craze will break out, and all these symptoms will pass away. These sensitive auræ and premonitory symptoms take on most complex forms, and appear and disappear in a most bewildering way.

Frequently there are marked changes of circulation, noted in the face and on the surface of the body, pallor, flushing, cold hands and feet, with hurried respiration, seeming to be very intense from any little overexertion, or derangements of the heart's action, which disappear when spirits are taken.

These vasomotor derangements are often associated with psychical symptoms of fatigue and pain, as well as derangements of secretion and nutrition, with sudden chills and perspirations, excessive activity of the bowels and kidneys, derangements of the stomach, all of which disappear suddenly. Physicians who fail to recognize the significance of these symptoms and give spirits or medicine in the form of tinctures will be astonished at the sudden change, and startled to find the patient drinking to great excess.

Another premonitory symptom is extreme pessimism. The person wakes up in the morning with symptoms of dread and a certainty of oncoming danger to himself and family. This condition is alarming to himself and friends. When reminded that in the past similar pessimisms ended in drink crazes the patient is indignant and asserts that this condition cannot possibly end in that way, but persists in believing that it is the ominous sign of a final dissolution.

Later an alcoholic obsession breaks up these symptoms. There are a certain number of persons suffering in this way who realize the significance and possible termination of such disturbances, and make great efforts to overcome them.

John B. Goff was a distinguished example. After a week of most strenuous effort, lecturing once or twice a day to crowded audiences, he would develop the most intense anxiety to talk on the temperance question, anywhere, to anybody who would listen.

After giving six or seven lectures during the week he would insist on getting opportunities to speak once or twice on Sunday, voluntarily. On these occasions he was thought to be at his best, and was particularly emotional and excited. He told his best stories with an energy that was overwhelming. This was simply a consciousness of the auræ of the drink obsession, and the possibility of breaking them up by intense appeals to the audience to sign the pledge and give up all use of spirits. It was his own mental condition that was receiving strength by an intense battle to overcome the psychic states.

In reform circles similar instances are noted

*Read before the American Medical Association at Minneapolis, June 17, 1913.

where men of intelligence and culture suddenly display intense desire to help others by prayer, exhortation, and personal appeals. The M'Auley Mission in New York furnishes very striking examples. Persons will appear in the audience, apparently become converted, and make the most passionate appeals to others, and assist in most energetic efforts for many days, then suddenly disappear.

Sometimes after the drink craze is over they will come back and work with greater energy than ever. These men are inebriates, who recognize the oncoming drink storm and try to prevent it by convulsive efforts to help others. An example was that of a noted lawyer, who every four or five months would have an attack of what his friends called a craze for slum work. He would suddenly drop all business and go down into the lowest districts and exhort and pray with anybody who would listen to him. After a short period he would return to his business and be silent as to the reasons for his philanthropic activity. In reality he had overcome the drink storm by diverting his energies and expending them in ways that were helpful to others.

In another instance under my care a very active business man would become alarmed about his spiritual condition. He would go to some distant place, engage in reform meetings, speak and pray in a most passionate manner, without any sense of fatigue or weariness. Coney Island was one of his favorite resorts. He would go down and hold a meeting on the sand, sing, pray, and exhort for hours, then go home and remain in a stuporous condition for a day or two. This was another outlet for the drink obsession. Later this same man would come home after two or three days of active service and bring a bottle of spirits, remain in bed a day or so, then recover, without any clear memory of where he had been or what he had done.

Some years ago very striking examples of similar cases were noted in persons who conducted temperance meetings following the revivals of Sankey and Moody. In almost every town men and women suddenly became great revival workers, and exhibited unusual energy and skill in keeping up the religious excitement and efforts to help others. These persons disappeared from public life, and in many instances they were suffering from drink psychosis in the premonitory stage, or the same psychosis after the drink stage had passed off in remorse, and exaggerated manias and melancholias prevailed.

In all this there is a most confusing complexity of symptoms which are rarely studied, and often refer to the oncoming drink obsession or follow from its termination. The physician who blunders here, and who lacks the psychical instinct to understand the significance of these abnormal changes of mental and emotional conduct, is often a very dangerous man. Friends of persons and laymen who realize the significance of these unusual acts appeal to me for advice in increasing numbers. To them it is mysterious, and no explanation is satisfactory. There is another aura that is equally difficult to explain and often very distressing. It is that of criminal instinct breaking out in persons highly respected and reputable.

Kleptomania often precedes the drink attack, where persons appropriate things of no value to themselves in the most senseless way. In nearly every city there are men and women who at certain times have this mania and display much skill and cunning, and later they make every effort to return the goods stolen or repair the injury done.

A leading literary man, who is a secret inebriate, will steal books for days before the drink paroxysm breaks out. Later he will return the books or pay for them. The method of taking them shows cunning and secretiveness equal to that of a most expert thief.

In the business world sudden attacks of dishonesty, cheating, lying, taking advantage of persons in the most senseless way, often precede the drink attacks. The public reason that when such a man is convicted he drinks to cover up and lessen the magnitude of his crime. In reality the dishonest acts were obsessions, and the drinking was the neurosis. Sudden dishonest acts should suggest careful study as a psychosis and not a vague moral lapse, but something with a distinct significance of mental disease.

Not infrequently the inebriate will show extraordinary cunning and skill to absent himself where he can drink to great excess without interruption or publicity. Every year incidents of this kind cause more or less distress and attract attention in the papers. Thus a man of character will suddenly disappear, and after a time will be found in some out-of-the-way place where he has drank continuously, or on other occasions he will reappear and give some very childish explanation for his absence.

Instances are not uncommon of persons taking with them lewd women to some obscure place and drinking to great excess; some accident happens, or death follows, then public exposure. The act is so extraordinary and unusual as to bring great distress to the family and friends.

The person realizes the oncoming drink storm and what it involves, and the danger of publicity, and tries to cover up the conditions which he cannot avert. In my book on "A Clinical Study of Inebriety" (The Harvey Publishing Company, Cincinnati), I have described at some length groups of persons in whom the drink storm occurs at distinct intervals, and these are often predicted and prepared for with certainty and skill. The return of these storms is often very exact as to time. I have noted many persons who drank at distinct intervals of days and months, which never varied more than a few hours.

The auræ or premonitory symptoms would vary some, but the drink paroxysm never. Sometimes the auræ would be marked by great generosity, credulity, or parsimony, or severe criticisms of men and events; conduct and character that were unusual, but of very short duration, always ending in the use of spirits. Many persons who live in abnormal conditions of constant over-excitement or extreme monotony, or persons who are overworked, both mentally and physically, and those who have no occupation, all show these premonitory symptoms of disturbed mental conditions. Emotional changes, as well as other derangements of the mind and body, react on nutrition and produce very alarming disturbances. Acute gastritis, obstinate constipation, or persistent diarrhea, attended with great fears, end quickly when the patient begins to drink.

Often patients complain of excessive fatigue and nervous depression and inability to concentrate the mind on anything. These end in about the same way. In the alcoholic there is continuous anesthesia and insidious depression in the functional activities. There are no premonitory symptoms

that are recognized, except in a general way, such as toxemias, nerve, and nutriment disturbances, which are explained as due to other causes.

In both the alcoholic and inebriate there is inability to appreciate the danger of their own conditions. The memory seems incompetent to register the exact impressions. There is a steady weakening of vital forces and covering up of the depressive states.

Some inebriates are morbidly conscious of the drink storm and give way with fatalistic submission. Others struggle against it and exhibit a medley of confusing and disturbing symptoms. In a study of these premonitory symptoms there are possibilities of successful treatment which the empirics have realized and made practical, while the average physician, trusting to the moral theories, has ignored them.

The various cures which have been exploited so vigorously have been based on this one fact, that the obliteration of the drink craze is the cure of the patient. Anything to stop the morbid impulse to drink was curative and when once accomplished this could be held in abeyance for all the future.

The powerful eliminative measures and the intensification of the anesthetic effects of alcohol make a profound impression on the organism, particularly of alcoholics. The sense of physical relief which follows is strengthened by the suggestion that the obsession has been permanently destroyed. In some cases this proves to be true, and in the alcoholic it is always successful for a time. In the inebriate new conditions are created, and unknown depressions and changes provoked, equally perilous. The drink craze dies out, as it would have naturally, with or without any remedy. To this there is added a psychical element of suggestion and a physical reliance on drugs which in the future will fail.

In addition to this there are depression, lowered vitality, and toxic conditions unknown, which have to be overcome in the future. In epilepsy, to remove the exciting causes and prevent the return of the convulsion is the object of all treatment. This is true in inebriates. The auræ and premonitory symptoms, while lacking the spectacular muscular contractions and spasms seen in epilepsy, are far more profound in their effects on the organism.

There is a period in which these premonitory symptoms would give way to active treatment and thus the convulsions be postponed. A number of persons who have been under treatment in hospitals and sanatoriums go back, not so much for specific treatment of the alcoholic craze as for relief from the premonitory symptoms, which, unless checked, will lead up to the drink storm. There is a great wealth of illustration along this line.

Persons who have not drank for years have premonitory symptoms and auræ which call for medical help. A vigorous temperance lecturer, who was an inebriate for many years and then recovered, and has for years been on the lecture platform, has what he calls "fits of blues," or periods of unusual depression, irritability, and paranoiac notions which pass away. Sometimes he calls for medical help and distinctly realizes that these are premonitory symptoms of a drink storm.

One man of this class has an attack of asthma for two or three days at a time and then recovers. Another has a distinct continuous fever, a third has insomnia, which after a time passes off; these are always referred back to the degenerations from alcohol and are regarded as dangerous periods in which the desire for drink may suddenly break out. One fact should never be overlooked and that is, in both inebriates and alcoholics, particularly in the former, some physiological change may take place in the brain and nervous system in which the drink obsession disappears permanently. In most cases there is positive aversion for the smell and taste of spirits. In others there is simply a profound indifference and disinclination to use it in any way.

There may be psychical symptoms and neuroses of most complex character, but the former fascination for the effects of spirits has passed away. Should spirits be given in any form there is distress and suffering and profound disgust, which prevents their further use. In reform circles examples of this are very common. Inebriates who have suddenly stopped all use of spirits ascribe this change to common, simple causes, either mental or physical. Evidently the causes are insufficient, because they do not act the same in other cases.

Certain remedies are credited with being curative and certain special specific moral powers are supposed to have the same effect. This is not confirmed by any careful study. The central fact remains that the drink obsession dies out, in obedience to unknown laws and forces, and other psychoses take its place.

In hospitals and sanatoriums for inebrietes there are a large number of persons who have been treated and restored and who return from time to time with premonitory symptoms which they fear will lead up to relapse. After a short treatment these pass away and they return home restored. Such persons are sometimes called hospital tramps, or repeaters who have the sanatorium habit, who go for treatment on every occasion of mental and physical trouble.

The terms neurasthenia, psychasthenia, hysteria and an endless variety of neuroses are used to describe what are really auræ and premonitory symptoms of inebriety.

Various forms of dyspepsia and obscure mental symptoms have the same meaning and significance. Another very curious fact which I have studied in my book on Inebriety is the reappearance of the toxic symptoms of the drink craze from some unusual strain and excitement in persons who have been abstinent for years. As an example, a man formerly an inebriate, who for ten years had been abstinent from all use of spirits, manifested distinct symptoms of intoxication upon receiving news of the death of his son. He was excited, delirious, foolish, rambling, then stupid.

There was no possibility of his having used alcohol in any form. A general in the Civil War on one occasion appeared to be wildly intoxicated and yet it was ascertained that he had not used spirits for years. Some sudden shock to the nervous system provoked the return of the anesthesia and all the symptoms which followed from alcohol, and yet no alcohol was used. The former impressions made by spirits on the brain and nervous system suddenly came into prominence.

In one instance a clergyman, who had abstained for nearly two years, suddenly became delirious, with all the symptoms of alcoholic intoxication. This was really psychical intoxication. There are many examples of this character that are practically unknown and misinterpreted, all indicating the

persistency of physical degenerations and disorders, being reproduced long after the original causes have passed away.

Active treatment of these obscure premonitory symptoms promises very excellent results and already a wealth of illustrations show how much could be done by an early scientific recognition of the significance of mental and physical changes in both the alcoholic and the inebriate.

Some of the conclusions which a study of these early symptoms would seem to support may be grouped as follows: Inebriety is a neuropsychosis and when carefully studied will be found to have very distinct premonitory stages and aurae that forecast the full attack.

The aurae are very complex and are referred by the patient to causes that are insignificant, and to the physician who is not familiar with the history of the patient they may be confusing and mysterious. A simple attack of violent anger may have a physical significance which, if recognized and treated, would be followed by the most satisfactory results.

When these symptoms appear in the history of periodic drinkers their gravity would be recognized and their complexity centering about the motor, sensory, organic or psychic activity should attract the most careful attention. The inebriate is a masked epileptic in many ways and this condition is equally as complex in the variety of symptoms manifest.

The alcoholic and so-called moderate drinker is always more or less a paretic and toxemic, with degenerations and depressions of every organ of the body. The premonitory symptoms may be localized in deranged metabolism circulation and psychic capacity.

Laboratory studies show that the continued use of spirits, even in small doses, is anesthetic, corrosive, and cumulative; that toxins from without and within are constantly present and being formed. Bacterial infections and inflammatory conditions always follow in various degrees. The premonitory symptoms are so general and are often so masked as to be overlooked.

The common congested face, furtive eye, and diminished muscular activities of the alcoholic indicate an internal condition which is increasing constantly. The final conclusion I wish to make prominent is that the neuroses of inebriety and the toxemias of alcoholism constitute a distinct field for medical practice, which has not yet been occupied. To-day the quacks with their boasted discoveries are doing the work which the educated physicians should do.

Every physician has patients of this class, who need care and treatment, and yet he is rarely able to understand their condition, much less to give proper means and measures for relief and help.

There are hundreds of these neglected men and women in every community who could be restored and permanently cured who now, through neglect, drift into the ranks of criminals, paupers, and dependents, becoming incurable and burdens. Physicians themselves furnish a proportion of victims, which is pitiful, because preventable.

If our medical schools would teach the facts that are at present known a revolution would follow at once. The few workers on this frontier land realize possibilities that are startling in the study and treatment of inebrietes and alcoholics.

What we need is to put aside the traditions of the past, which have come down to us as settled facts, and when examined in the light of modern science are delusions of the most pronounced character. Teachers, leaders, and varied interests, both commercial and otherwise, hold us back from scientific investigation and the application of means and remedies that will effectually clear away the fogbanks of delusions and traditions that hang about this great modern plague.

CASES OF TUMOR OF THE LUNGS AND MEDIASTINUM SIMULATING PULMONARY TUBERCULOSIS.*

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Several cases of intrathoracic tumor, which had been mistaken for pulmonary tuberculosis and sent to Colorado on that account, have come under the observation of the writer. These are not reported with any desire to criticise those who made the diagnoses; for it is well known that, early in their course, these cases may simulate tuberculosis so closely and the physical findings be so similar or indefinite as, in some cases, to make differentiation extremely difficult or even impossible.

Case I.—*Lymphosarcoma of the Mediastinum.*—Mrs. H. M. G., age 30, seen the day of her arrival in Colorado. Family history not important. Well till last year when she felt run down and nervous; cough, expectoration, sweats, fever, and chills. Much emaciation. Glands in neck and axillæ swollen and tender. Vague pain in front of right lower chest early in illness, none since. No dyspnea. Greatly troubled by itching over whole body. Had had local treatment for supposed tubercular laryngitis. Arrived in Colorado desperately ill, with family of five, having sold their home to realize sufficient funds for the journey.

Physical examination showed enlarged glands above right clavicle; flatness in right front, from fifth rib to near iliac spine and to umbilicus. Abdomen tense and very tender over this area. Also area of dullness corresponding to lower half of sternum, continuous with cardiac dullness and extending half way to right nipple. Absence of respiratory and voice sounds over this area.

Right back showed signs of fluid up to lower fourth of scapula. No other abnormal signs in the chest. Dilated deep epigastric veins on either side. Sputum on one examination showed no tubercle bacilli. Died from uremia after ten days.

Autopsy showed a tumor the size of a child's head in lower anterior mediastinum, with metastatic areas in both lungs and considerable serofibrinous exudate in right pleural cavity. No macroscopic evidence of tuberculosis anywhere. The liver was greatly enlarged and pushed down to the brim of the pelvis. Spleen somewhat enlarged. Microscopic examination of the tumor showed it to be lymphosarcoma.

Case II.—*Primary Carcinoma of Lung.*—Mr. J. H. B., 53, merchant, came to Colorado in December, 1908. Family history not important. Previous history good except for hemorrhoids and stone in the bladder. Cough with slight expectoration for four months. Lost 28 pounds; moderate fever. Sputum had been blood-stained a few times, but had showed no tubercle bacilli on several examinations; positive skin tuberculin test. Chest examination had caused only a suspicion of trouble in left lung.

Physical examination. Looks very pale and ill. Chest shows slight dulness in left front from second to fourth rib and from left border of sternum to nipple line; fine moist râles after cough, with harsh respiration over this area; no change in voice. In left back, harsh respiration over whole interscapula space and slight dullness over lower half of area noted. No other abnormal signs. X-ray examination showed the right apex clear, enlarged bronchial glands; heart somewhat to the right. Left side; apex clear, few nodules from clavicle to second rib; from second rib to bottom of the fifth is a distinctly outlined consolidated area, which is being excavated. Several examinations of sputum failed to show tubercle

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bacilli. At the end of a month the signs in chest had become more marked; the patient became restless and spent two months traveling in Arizona and California. Returned March 15, 1909, having lost much ground in every way. Nearly the whole left chest was flat on percussion, with respiration diminished above, bronchial in type, and absent in lower portion; heart displaced to right. Aspiration removed 30 ounces of slightly turbid fluid, not blood stained, and showing no tubercle bacilli or other organisms, but a definite predominance of lymphocytes. The aspiration gave little relief from dyspnea. From this time till his death, April 16, 1909, he had rapid respiration, gradually increasing dyspnea, moderate fever, slight expectoration which was free from blood and tubercle bacilli on numerous examinations, and marked weakness. Each of four aspirations yielded about 30 ounces of fluid of the same character as described above.

Autopsy. Left lung was simply a tumor mass—in areas softened, but mostly hard; pericardium, upper portion of the pleura and of the lung were practically inseparable and indistinguishable and firmly adherent to the chest wall. The mediastinum contained a mass of enlarged glands. The right lung showed no evidences of tuberculosis, but an area of metastasis near the apex, with hypostatic pneumonia at the base. There were metastases in the liver and spleen, found only on section. There was a chain of mesenteric and post-peritoneal glands extending from the bifurcation of the aorta to the diaphragm, but no other lesions in the abdomen. Unfortunately the specimens were lost and there was no microscopic examination, but it appears to have been a case of primary carcinoma of the lung.

Case III.—*Persistent Thymus—possibly Hodgkin's Disease.*—Mrs. C. P., age 40. Family history not important. Never strong; much pelvic and digestive trouble for years; always sallow and anemic; suspicion of gallstones several years ago. Eleven years ago spent a winter in Florida because of cough and weakness. Two years ago, during severe illness of a son, lost much weight and has never been well since. Eighteen and six months ago had pain in chest which required strapping. For a year cough with slight expectoration, fever, and a few night sweats. One year ago glands removed from right side of neck. No microscopic examination was made, but they were considered by a competent surgeon to have been tuberculous. Said to have had moist râles at both apices, but sputum not examined. Menses scanty. In bed past two months with afternoon temperature 99° to 101°. On arrival felt very weak, considerable dry cough, moderate dyspnea, and much indefinite abdominal discomfort.

Physical examination showed a woman poorly nourished, very pale and sallow, but scleræ white; skin almost bronzed throughout but not especially in axillæ or groins, and discoloration not seen on mucous membranes. Says this discoloration has been present many years, though some pigmented spots on abdomen and loins are recent. Systolic blood pressure 112. No enlarged glands except one above right clavicle, about the size of a pigeon's egg, movable, firm, and not tender. Spleen and liver considerably enlarged and the latter is very tender. Indefinite tenderness in right lower quadrant. Uterus large, retroverted, and tender. Hemoglobin 65 per cent.; reds, 3,400,000; whites, 12,500; color index 1. Stained film negative. Urine showed a trace of albumin and a few hyaline casts. Wassermann test, negative. Heart negative; lungs negative except moderately diminished respiratory murmur at right base behind and slightly harsh respiration in right front, in the third interspace.

For a time the patient seemed to improve with large doses of quinine and cacodylate of sodium, but on the whole she gradually grew weaker and lost much flesh. The temperature varied from 99.5° to 101° and the pulse was rapid. Respiration was not rapid nor embarrassed and there was but little cough, till shortly before death when there was distressing paroxysmal cough with attacks of dyspnea. There had also appeared dullness and a systolic murmur over the upper portion of the sternum.

X-ray examination showed a shadow in upper mediastinum, centrally located, 7½ cm. wide at second rib, front, and extending to the upper border of the clavicles. The heart shadow was normal in size, shape, and position. There was no evidence of tuberculosis or other involvement of the lungs. The fluoroscope seemed to show expansile pulsation of the mediastinal shadow.

A hurried autopsy, after the body had been embalmed, showed in the uper mediastinum a mass about the size of the fist, composed partly of a persistent thymus, 2½ x 1½ inches in size, and partly of firm, discrete lymph-glands which surrounded it and extended about the roots of the lungs. The individual glands varied in size from a cherry to an English walnut. The trachea and esophagus, though somewhat surrounded by the mass, were not involved. Heart and aorta normal. Pleural cavities smooth. Lungs showed no microscopic changes. The peritoneal glands formed a mass about twice the size of the pancreas, the individual glands being discrete, and measured up to 1½ inches in diameter. Both liver and spleen were enlarged, the cut surfaces showing nothing but the usual evidences of passive congestion. Stomach, intestines, pancreas, and kidneys, normal. Microscopically, the thymus showed small scattered lymphoid areas surrounded by fatty tissue, and areas of calcareous deposit. The lymph-glands, on numerous sections, showed nothing but a diffuse hyperplasia.

Case IV.—*Malignant Disease of Lungs.*—Male about 50, seen in consultation shortly before his death. Had been supposed to have pulmonary tuberculosis, till rapid emaciation, frequent "prune-juice" expectoration, absence of fever and of tubercle bacilli in the sputum, and finally the appearance of metastases established the diagnosis of malignant disease. No autopsy was obtained.

The following cases were never considered to be tuberculosis, but are related because of the pulmonary signs and conditions.

Case V.—*Malignant Disease of Lungs.*—Male, about 60; gradually increasing weakness, dyspnea, and dry cough; aspiration of blood-stained fluid from left chest; gradual loss of weight; bloody sputum without tubercle bacilli; several aspirations. No autopsy.

Case VI.—*Small-round-celled Sarcoma of First Rib, Involving Lung and Pleura.*—Widow, 68. Past history not important except rheumatism for ten years and shingles nine years ago. Pain in left shoulder, accompanied by an eruption said to have been herpes; later, numbness and severe pain in left arm; lost 15 or 20 pounds; in bed most of the time for four months; slight dry cough.

Physical examination showed a woman poorly nourished, sallow, dry and foul tongue. Temperature slightly elevated; evidence of arteriosclerosis, with hypertrophied heart; slight dullness above and below left clavicle with diminished breath sounds; no râles. Liver somewhat large and tender. Marked tenderness in left supraclavicular fossa, along inner side upper arm and front of forearm; some muscular atrophy and reaction of degeneration. Edema of legs. In two months it was noted that she was weaker; had greater paralysis of left arm and hand; that cough was increased, with slight expectoration which was free from blood and tubercle bacilli, but contained elastic fibers; that dullness at left apex extended to second rib in front and to middle of scapula behind, with diminished breath and voice sounds. There were a few fine moist râles. Above clavicle were to be felt several small hard glands. Patient died eight months from first symptoms.

Autopsy showed a small round-celled sarcoma of the first rib, involving the pleura and apex of left lung, and pressing on the brachial plexus and vessels. It was densely adherent to all neighboring structures. The first rib was largely disintegrated, from the spine to within 1½ inches of the sternum. The right lung and pleura showed no change.

It seems, perhaps, worth while to report these cases and particularly to discuss some of their symptoms and signs with reference to the differential diagnosis from pulmonary tuberculosis. It is of value to compare the actual findings in cases, as they present themselves for observation to the practising physician, with the more general accounts to be found in the literature. It will be seen that they present problems in diagnosis which are by no means easy.

Most intrathoracic tumors are malignant and what follows has chiefly to do with malignant cases.

Dr. Isaac Adler in an excellent recent monograph, entitled "Primary Malignant Growths of the Lungs and Bronchi," quotes Williams as follows: 55 per cent. of all cases were carcinoma, 9 per cent. sarcoma, 25 per cent. non-malignant and 11 per cent. cysts.

Our late and lamented Curtin, in his paper last year, quoted statistics indicating that primary cancer of the lungs occurs about once in 2,000 routine autopsies, or once in about 800 cases of cancer.

Babcock, in quoting several sets of autopsies,

found one case in about 1,500 autopsies.

They may occur at any age, carcinoma being most frequent between the ages of 50 and 60; sarcoma, between 30 and 40. They are considerably more frequent in males. Secondary growths are very much more frequent than primary, and generally cause fewer symptoms relative to the chest, because they do not attain such size, are generally multiple, and their local manifestations are obscured by those of the primary disease and other metastases.

Sarcoma appears to be more frequent in the mediastinum, while carcinoma is very much more common in the bronchi and lungs. It is probable that most cases of lung carcinoma originate in the bronchi and that the pleura is involved as part of the process. Whether the disease begins in the lungs or in the mediastinum, there is generally an extension from one to the other, during the course of the disease. So that the symptomatology is likely to be much the same in either case, except as to sequence.

All writers agree that there may be, in different cases, great variations in the relative prominence of different symptoms. There have been instances reported in which there have been almost no symptoms till a sudden fatality. The early symptoms in most cases are cough, expectoration, and dyspnea.

Cough may be dry or with moderate expectoration. If there is obstruction of the trachea or large bronchi or pressure on the recurrent laryngeal nerves, it is likely to be husky, rasping, or "brassy." In general it is not troublesome and may be absent. It was a symptom in all of this series of cases. Adler says if no cause can be found for a persistent cough, lung tumor should be thought of.

Expectoration may be absent or insignificant, but Adler considers it one of the most important things in diagnosis. In 10 per cent. of his 374 carcinoma cases there was no sputum; and in 40 per cent. it was not mentioned, being present in 50 per cent. It was present, though slight, in 83 per cent. of my cases. Homogeneous, tenacious sputum of a color resembling currant jelly is said to be characteristic; and Curtin laid stress on the appearance of globules of such sputum enclosed in a transparent gelatinous coating.

Occasionally there may be small masses of the tumor or cells in layers held together by a stroma, which may establish the diagnosis (Babcock). Lenhartz finds large spherical cells filled with multitudes of fatty granules and associated with many epithelial cells, which are curiously deformed and have club or tail-like projections. He thinks these are characteristic of carcinoma and that co-existent tuberculosis does not modify this feature. Adler says that since his attention has been called to these cells he has found them in every case of primary carcinoma of the lung that he has seen; and he regards them as probably pathognomonic for carcinoma. He says, however, that their appearance is very inconstant and that the sputum should be examined repeatedly.

Dyspnea is often the first and may be the most prominent symptom; yet, like all other symptoms, it may be absent. In Adler's cases of carcinoma it was present in 44 per cent. and not mentioned in 50 per cent. In 90 cases of sarcoma it was present in 60 per cent. absent in 2 per cent., and not mentioned in 40 per cent. It was present in 83 per cent. of my cases. It is apt to be progressive and may be most distressing. When severe it is often paroxysmal. Death may occur from suffocation, due to compression of the larger air passages. The worst dyspnea occurs with mediastinal growths and is therefore more common in sarcoma, which is more frequent here.

Pressure symptoms may be of much aid in diagnosis. Obstruction to venous return causes dilatation of the veins of the head, neck, chest, or arms, and there may be edema. There may be hoarseness or loss of voice from pressure on the recurrent laryngeal nerves; inequality of the pupils; or there may be dysphagia from pressure on the esophagus. Babcock and J. N. Hall mention the occurrence of "tracheal tug" and pulsation in cases of tumor adherent to the trachea, or located under the aortic arch, and above the bifurcation of the trachea. There were pressure symptoms in 50 per cent. of these cases. In Case III. the pulsation of the shadow seen by the fluoroscope led to the suspicion of aneurysm.

Pain is often absent and generally only a discomfort. The occurrence of much pain means the involvement of the pleura or pressure on nerve trunks, for the lung parenchyma is not sensitive to pain. It may be referred to different localities. Babcock says that marked persistent pain in the chest, without evidence of pleurisy, is probably not due to tuberculosis and may be from tumor. Pain, in a slight degree, was present in only 33 per cent. of this series.

Pleural involvement and effusion generally occur in malignant cases. The fluid may be clear, sometimes fatty from disintegrated tissue, but is likely to become bloody, as shown by repeated aspirations. This also occurs in tuberculosis. The amount of fluid is generally small; it is sacculated and tapping rarely gives much relief from dyspnea and other symptoms.

After aspiration there may be opportunity to make out conditions that were obscured by the effusion; and Adler points out that the failure of a dislocated heart to show any tendency to return to its normal position after aspiration, should lead to suspicion of tumor. Of course fibrotic and pleural contractions on the opposite side of the chest might lead to permanent dislocation of the heart. There was pleural effusion in half of my cases.

Fever is not constant and is irregular in character. This may be of some help in distinguishing it from tuberculosis. In all of my cases there was more or less fever, irregular in type. It is probable that the fever is chiefly caused by complicating conditions.

Night sweats are said to be uncommon, occurring in 33 per cent. of this series.

The blood count appears not to have been well worked out, but there has been a fairly constant leucocytosis in the reported cases, when the blood count was mentioned. It is possible that here may be some help in differentiating tuberculosis. There was a slight leucocytosis in one-third of my cases. In two-thirds no record of this detail was made.

Course and Termination.—The disease may run its course in from a few weeks to five or six years. It is always fatal, death occurring from asthenia or suffocation.

The physical signs of course vary greatly according to the location and extent of the disease, the pressure on different structures, and the existence of complications. Early in its course there may be no signs at all. If the mediastinum and roots of the lungs are much affected, there may be some of the pressure effects already mentioned. In Cases

I. and III. there were enlarged liver and spleen from passive congestion. Case I. also showed dilated veins.

There is likely to be dullness over the sternum or interscapular spaces, and there may be a prominence, perhaps with pulsation of tumor, either palpable or visible by the fluoroscope, as in Case III. If the growth obstructs a bronchus, there may be the signs of atelectasis and bronchiectasis in the lung and bronchi beyond. These signs may occur also if the disease is confined to the lung and bronchi.

The heart may be displaced and there may be pleural effusion, which will complicate all findings. Enlarged glands in the neck or axilla, or other metastases are likely to occur in late cases.

Respiration over the growth may be loud and bronchial in character, with exaggerated voice sounds, if the underlying or supplying bronchus is patent; or there may be absence of both if it is obstructed. The heart sounds are likely to be well conducted in either case.

The coincidence of poor transmission of voice and respiratory sounds, with good conduction of heart sounds is a very suggestive sign.

Babcock speaks of Fraenkel's observation of the transition from dullness to tympany and the return to dullness over the same area.

There may be signs of cavity, due either to excavation or to bronchiectasis. There may be all the physical signs of pulmonary tuberculosis. The lesion is more likely to be centrally located than is tuberculosis and the *x*-ray shows its outline to be more definite.

Direct examination of the bronchi through the bronchoscope and the excision of pieces of the tumor have established the diagnosis in some cases.

Coincidence of Tuberculosis and Malignant Disease.—Rokitansky believed that tuberculosis and carcinoma were incompatible diseases, but it has been shown that the two conditions are more or less frequently associated in the lungs as elsewhere in the body. Adler found this to occur nineteen times in his series of 464 cases of carcinoma and sarcoma. Weller, in the *Archives of Internal Medicine* for March, 1913, tabulates 90 cases of primary carcinoma of the bronchi, all submitted to autopsy. In 11 of these there was coincident pulmonary tuberculosis.

Kurt Wolf points out that bronchial carcinoma begins most frequently near the bifurcation of the larger bronchi, where there is most irritation from aspiration of dust, smoke, and other irritants; and that there are frequently found in these localities small pigmented lymph glands which are apt to be tuberculous. He advances the theory that these glands break down, perforate the wall of the bronchus, and may be sufficient local irritant to start carcinoma in persons predisposed to the disease. This theory, according to Adler, has not been generally accepted. It has also been claimed that the irritation of any chronic process, tuberculous or not, may determine the incidence of cancer.

Differential Diagnosis from Tuberculosis.—We have seen that the two conditions may coexist, and the diagnosis has been made during life in a few reported cases; but such coincidence is generally not recognizable. In the early stages differentiation, as has been pointed out, may be extremely difficult or impossible; but in many cases some of the following points may lead to a correct diagnosis. Age does not seem to be of much help, for we see both conditions at all ages. The knowledge of reasons for lowered vitality, the occurrence of fever, night sweats, marked general symptoms, and lesions at the apices or bases, with distinct moist sounds or evidences of excavation point to tuberculosis.

On the other hand, early loss in weight, dry hacking cough, marked dyspnea, persistent pain, the occurrence of pressure symptoms, dullness over the upper part of the sternum or upper interscapular spaces, with definite outline, as shown by *x*-ray; and, particularly dullness, diminution or absence of respiratory murmur and voice sounds over an area where the heart sounds are well conducted, should lead to very strong suspicion of tumor.

Of course the finding of tubercle bacilli in the sputum stamps the disease as tuberculosis; while the occurrence of the globules of bloody sputum, referred to by Curtin, and the cells described by Lenhartz, may go a long way toward establishing the diagnosis of tumor. The repeated absence of tubercle bacilli and presence of elastic fibers in the sputum are suggestive, and too much importance cannot be given to careful and repeated examination of the sputum. Unexplained leucocytosis should probably suggest tumor in an early case.

Bloody pleural effusion is more likely to indicate tumor, but it is not very infrequent in tuberculosis. Finding relatively small amounts of fluid, getting little relief from dyspnea by aspiration, and failure of a displaced heart to tend to return to its normal position after tapping, are points strongly suggestive of tumor.

Small pieces of a growth brought out on the needle point, or found in the aspirated fluid may establish the diagnosis.

Displacement of the heart, apparently not caused by pleural effusion or cicatricial contraction; enlarged cervical or axillary glands or other metastases, give pretty definite evidence.

In conclusion it may be said:

1. Intrathoracic tumors are probably more frequent than has been supposed.
2. They are occasionally coexistent with pulmonary tuberculosis.
3. Early in their course they are likely to suggest tuberculosis, and differentiation may be impossible.
4. In cases of doubt it is very important that all hygienic measures for the treatment of tuberculosis be instituted at once pending a definite diagnosis.

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PRURITUS ANI PERTINAX

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Whoever has had to treat pruritus ani or its inevitable result, eczema ani, knows the full bitterness of disappointment. Hell hath no torture like an itching anus. The sufferer is almost distraught from the infuriating insistence of his apparently trivial malady. Therapeusis is barren of effective medication. Let him brave enough to tell the truth declare that along the lines of routine endeavor no impression has been made upon this maddening symptom. I say "maddening" advisedly, because many of the afflicted, after months and even years of ineffectual striving for relief, become neurasthenic to the point of complete incapacity. I say "symptom" advisedly, because it seems perfectly absurd to describe as a

disease a condition that is reflex in the anus, usually from some pathological focus of unknown character and situation. It is reflex in the anus because all the antipruritics applied to the anus have failed to subdue it. It persists interminably despite the most vigorous assaults. Sometimes it gets well, but that is due either to our accidentally blundering on the cause, or to a fortuitous conjunction of circumstances wherein the cause is obvious to the eye, or to the "vix medicatrix naturæ" operating without the least assistance from us. No application suggested by reason, hope, or desperation, has been left untried. Phenol, menthol, camphor-chloral, tar, ichthyol, nitrate of silver, ammoniated mercury, permanganate of potassium, have all been used in dosage steadily increased to the point of marked irritation, and the pruritus in most instances has either not been affected at all or has been aggravated by the production of a dermatitis.

Much is expected from the discovery and cure of fissures. This is certainly a rational attempt to get at the cause, but it is very often an illustration of *mettant la charrue devant les bœufs,* because the fissures are frequently the result and not the cause of the patient's scratching. Naturally after he has torn at his skin for months, sufficient trauma will have been inflicted to produce a fissure. However all fissures should be cut, stretched, or cauterized, in any given case, in the hope that we have stumbled on the etiology. Hemorrhoids are regarded as a cause of pruritus ani and probably with reason in some instances. It is well to clear away this possibility by excising the hemorrhoids. But there are many cases where neither fissures nor hemorrhoids exist, and these are often the very cases least amenable to treatment. Constipation has been given much prominence as an etiological factor, but we are very little encouraged by the effect of laxatives. Threadworms and lumbricoids may be the irritant we are searching for. Pediculi are rarely the offenders. Eczema marginatum, "ringworm of the crotch," may extend to the anus.

Disease of the crypts of Morgagni, about one inch within the rectum, is looked upon by many authors as a common cause of the symptom under discussion. Do not overlook the possibility of a damaged coccyx having to do with the disturbance of innervation. The injury may have occurred long before, and may not have been severe enough in its immediate effects to excite marked attention, and yet remotely it may be the solution of the problem.

Having eliminated these possible local causes, are we to content ourselves and discontent our patients with a blind persistence in the use of impotent antipruritics? Can we search no further than the immediate vicinity of the anus for the reflex irritation? Interrogating the general system, is it possible to find there anything provocative of pruritus ani? Dr. Bulkley's proposition that smoking may be an exciting cause is well worth careful consideration. He recites the case of a physician who got an attack of pruritus ani every time he smoked, even if he consumed but half a cigar. It seems rather a peculiar limitation of the effect of so general a cause, but idiosyncrasies are many and must be taken into account in an investigation of this kind. And this peculiar circumstance emphasizes the necessity of searching for the source of the pruritus not alone in the neighborhood of the anus. Alcohol would probably have an effect similar to that of tobacco in one predisposed. It would also exert an action, apart from its irritation of the nervous system, in causing local congestion through its well known engorgement of the portal circulation. *A fortiori* organic disease of the liver should produce the same result. Diabetes mellitus and chronic nephritis are credited with the production of generalized pruritus, and in a patient with an idiosyncrasy it is conceivable that they might arouse the local variety. This is not meant to include the direct effect of diabetic urine dribbling over the tissues, which is a dermatitis removable with care. Gout, rheumatism, and lithemia are supposed to be at the bottom of some of the cases, as are neurasthenia, hysteria, and melancholia. With regard to the last three, I believe they are the result and not the cause of the pruritus in no inconsiderable number of the afflicted. Hereditary and tertiary syphilis sometimes produce a brittle condition of the mucous membrane near the anus, akin to that of atrophic catarrh, and may thus arouse this prurient paresthesia.

If a child with pin worms becomes the victim of enuresis, may not a man with a stricture become the victim of pruritis ani? The innervation of the anal region is from the pudic nerve, which also supplies the penis, scrotum, clitoris, vulva, bladder, rectum, and the muscles and skin of the perineum. The pudic is derived from the pudendal plexus, which is made up of branches from the second, third, fourth, fifth sacral, and the coccygeal nerves. The sympathetic nervous connections are about the same. It is clear that irritation may occur at widely different points, and still be capable of transmission to the anus. Any abnormality of the pelvic viscera may find expression in reflex anal itching. Stricture has already been alluded to. Prostatitis, cystitis, vesical calculus, irritation of the ureters or pelvis of the kidney, by urine highly concentrated or charged with the products of imperfect metabolism, may be responsible for the same result. In women, who are much less prone to it than men, we have the added etiological possibilities of derangements peculiar to themselves. Vaginitis, endocervicitis, ovaritis, acute chronic and neoplastic, are instances in point. Urethral caruncle, in addition to its own peculiar distress *in situ,* has been in my experience the cause of pruritus ani. This appalling combination of infuriating pain and distracting itch cleared up immediately on removal of the caruncle.

It is demonstrable that appendicitis, attaching the tip of that organ to some one of the other viscera, may, after the subsidence of the acute condition, leave a source of irritation transmutable into terms of anal itching. All this may sound very farfetched, but it is not a farther cry from the appendix to the anus than it is from the anus to the nose, and pruritus nasi is a common symptom of pin worms in children. Pathological conditions high up in the rectum, such as erosions, ulcers, and polypi, must be considered as possible causative factors.

Having exhausted all possible sources of reflex irritation, how shall we apply our hypotheses to the practical management of the concrete case? We shall probably apply them with very indifferent success in the majority of instances, because, while we know what the possible sources are, we are often very much at sea as to what is the actual source in the particular case that presents itself for elucidation. It is all very well to display our knowledge of anatomical relations, but in the working out of our problem along those lines we may be confronted with difficulties that are insurmountable. We may search diligently for every conceivable etiological factor, and either fail to find one, or, having found

it, fail to achieve success by removing it. Occasionally success is phenomenal, as in the instance of the urethral caruncle mentioned above. But usually it is elusive, the focus of irritation escaping our most determined efforts, or, having been discovered, proving to be a jack o' lantern leading aimlessly afield. If you can retain the confidence of the patient long enough to minutely overhaul his being and correct all discoverable abnormalities, your persistence and his endurance may be rewarded. But the chances are largely against any such ideal situation as that. Being hyperesthetic and erethistic, he is quickly translated from the heights of enthusiasm to the depths of despair. The fruitless performance of an operation for stricture, of which much was expected, shatters his faith and severs his allegiance. Granted the phenomenon of a patient with an all-abiding faith, how shall we carry him along while we are seeking to get to the root of his difficulty? Do not forget that we are dealing with an actual or inchoate neurasthenic, whose mind must be influenced, *au moyen d'une grande parade d'effort.* Assiduous attention, especially with mechanical appliances, may so engross his introspective propensity as to relieve his nervous system of much of its tension, and thereby remove one potent element in the production or maintenance of his malady. For this purpose electrical apparatuses are decidedly efficacious. These may be employed in any manner best calculated to impress the patient. Static electricity is credited with an actual relief of the itching, aside from its more devious action through the mind. In my own experience the galvanic current passed through the affected region via the sacral plexus (one electrode in or on the anus, the other passed up and down the sacrum) has mitigated the intensity of the pruritus for several hours.

If the obscurity of the causation cannot be cleared away, a tentative diagnosis of portal obstruction will serve as a reasonable basis of internal treatment. Many years ago I had a very impressive experience of the reflex possibilities of hepatic engorgement. A vigorous young man had been complaining for years of pain behind the upper third of the sternum. Searching examination of his chest, several times repeated, failed to discover any reason therefor. There was no aneurysm, no mediastinal adenitis, no pulmonary or cardiac abnormality. The patient was not neurasthenic. Apparently there was nothing amiss with him except this irremittent, mysterious pain. When the victim's patience and my ingenuity in inventing explanations were both exhausted I sent him to a celebrated internist. The decision was that the pain was due to a nipping of one of the terminal branches of the pneumogastric by a slightly hypertrophied liver. Much impressed, I went over his liver again, and, even with the aid of my imagination, could not discover the hypertrophy. However, the diagnostic acuity of the celebrated internist was justified by the result. He ordered a markedly modified diet, and two and a half grains of powdered rhubarb with twenty grains of bicarbonate of sodium to be taken in a whole glass of water just before eating. In a very short time (a week or ten days) the patient was free from pain. If we are justified in suspecting the liver for a pain in that situation we are equally justified in suspecting it for pruritus ani. The mixture given above, with variations to meet particular indications, will answer very well indeed. Tea, coffee, and sweets are interdicted. Indicanuria will be a reliable guide as to the proper adaptation of the diet. Sponging the hepatic region with a mineral acid solution, while an old-fashioned procedure, has the testimony of long experience to support it. Use three ounces of nitromuriatic acid to a gallon of water.

Intestinal putrefaction, responsible for so many reflex disturbances, such as acne rosacea, trigeminal neuralgia, and a whole tribe of "eczemas," will not have its productive power overtaxed by fathering pruritus ani. And the treatment just outlined is the treatment best calculated to limit its cacogenic fecundity. Now we have reached the point in our disquisition where all attempts to discover the etiology have failed. What are we to do next? Are we to abandon the patient to his deplorable fate, or is there any measure of hope to be extended to him? Shall we conveniently declare that he is a hopeless hypochondriac and devoutly wish him on to some other practitioner, or shall we fight it out as long as he will allow us, and, by the inadequate means at our command, strive to make his life as little miserable as possible? Some topical applications are sometimes of some avail. In general terms we have asserted their impotency, but occasionally they alleviate temporarily, and should be employed one after another, in the hope that we may strike an idiosyncrasy operating in our favor. Crocker is optimistic regarding ammoniated mercury in ointments of 4 per cent. and upwards. Sabouraud favors pine tar pure or in lanolin. Pusey claims to have had good results from solutions of permanganate of potassium, 1 per cent. in water, or nitrate of silver 1 to 2 per cent. Stelwagon distributes his appreciation among several remedies—namely, menthol in liquid albolene, 5 to 20 grains to the ounce: cocaine, 1 to 10 grains to the ounce; chloroform, ½ to 1 dram of each to the ounce of simple cerate; and camphor and chloral, ½ to 1 dram of each to the ounce of vaseline.

The .r-ray is credited by the three authorities last mentioned with some gratifying results. Walker is rather non-committal, and faint-heartedly gives a list of half a dozen ointments, from each of which some good is to be expected. Bulkley puts carbolic acid in water or in oil at the head of the anti-pruritics. The ointment of tar and zinc with ½ to 1 dram of ichthyol to the ounce is also recommended by him. He asserts that marked temporary amelioration can be effected by cloths rung out of hot water and applied as hot as the patient can stand it. The changes may be rung on these topical applications, but they comprise the nucleus of our armamentarium.

It is a sad confession that very frequently we are forced to the use of narcotics to enable the patient to sleep, for the agony is keener at night, the nervous system accentuating all perversions of sensation during the hours needed for repose. Cannabis indica is serviceable in many cases. The dose is ten drops of the tincture cautiously increased if necessary. Tincture of gelsemium in the same dose, repeated at intervals of two hours approaching bedtime, will sometimes give a good night's sleep. Extract of belladonna with or without morphine may be used in the form of a suppository, "and exorcise the demon for the nonce." This brings us to the question of "morphine or no morphine" in pruritus ani. The weight of authority seems to be on the negative side. Morphine produces pruritus, and therefor would seem to be contraindicated where there is an existing pruritis. It may be urged in rebuttal that the action of morphine in diseased conditions is very different from its action in normal conditions. Morphine al-

lays the sensitiveness of the nervous system.

An itch is a paresthesia, a perversion of sensation due to irritation, and a pain is the very same thing. Morphine will relieve the pain by benumbing sensation, and it will relieve the itch in just the same way. Years ago the use of morphine was denounced in the convulsions of nephritis, because, forsooth, it diminishes the output of urine and diminution of urine already exists in that condition. Now everybody uses it in uremic eclampsia, realizing that, through its sedative action on the nerves in the diseased organs it actually equalizes the circulation and permits a better flow of urine than before. I am quite decided that morphine is no more contraindicated by an itch than by a pain. Contraindications may exist in the pruritus case, but the itch itself is not one of them. Great discretion must be employed, of course, in prescribing such a drug in any chronic condition where a habit may be established. I would discourage its use as long as possible, but if circumstances arose where it seemed urgently demanded I would not be deterred by fear of aggravating the pruritus.

The "eczema" that almost invariably complicates pruritus ani must be treated on general principles. Soothing applications are usually called for, because even if the affection is chronic it is in a constant state of acute exacerbation from the constant scratching.

Some of the surgeons offer to operate in aggravated cases, but there is a lack of unanimity as to the wisdom of the procedures. T. C. Wallis advocates dissecting out the complete ring of ano-rectal tissue and bringing down the healthy mucous membrane to the skin. He maintains that the irritation is always in the lower inch of the rectal mucous membrane.

Ball's operation of dissecting up a skin flap and dividing the cutaneous nerve twigs is extolled in certain quarters, but the warning is raised of the possible risk of suppuration and stenosis. Matthew's operation of removing the superficial skin around the anal margin is open to the same objection, only to a greater degree. Burrow's operation of cutting the terminal nerve twigs subcutaneously through small incisions in the skin would seem to be the least objectionable. What the risks of this procedure are remains to be seen, possibly those of the Ball operation, but to a less degree. Furthermore, some of the itching is inside the anus, and he could only relieve that by cutting the nerves to the anus itself, which would put the patient in about the same position as a tabetic who is the victim of obstipation, because the sensory connection between the anus and the spinal cord is interrupted. Kelsey advocates the use of the Paquelin cautery. Tuttle is averse to operating and suggests deep-seated and persistent pressure on the parts by means of a small plug inserted in the anus and retained over night by a bandage.

From the foregoing the prognosis would appear to be rather gloomy. But it is with intractable conditions that medicine has its sternest duty to deal. We must strive to the limit of our resources in every case, not only in the hope of curing the individual, but in the larger hope of discovering something of general application. Discouragement will lead us nowhere. Persistence in the face of tremendous odds will eventually bring forth the idea that will cut the Gordian knot. Perhaps Burrows has it in cutting the cutaneous twigs. *Ipsi di propitientur!*

323 West Fourteenth Street.

THE VALUE OF TYPHOID VACCINATION IN CIVIL COMMUNITIES.

By R. E. EBERSOLE, M.D.,

Passed Assistant Surgeon, United States Public Health Service, Ellis Island, New York.

Typhoid vaccination, which had its beginning in its use by Wright in the British Army in India and has proven of such value in the armies of the leading powers, notably in those of England and the United States, is finding a further use among civilians who are exposed to typhoid infection. Wright, who has vaccinated approximately 100,000 persons, quotes a typhoid morbidity for those exposed in the vaccinated of .914 per 100 with a mortality of .161 per 100 and a morbidity in the unvaccinated of 1.665 per 100 with a mortality of .444 per 100. In the British Army in India of an approximate strength of 70,000 men, the increase in the number of vaccinations has been followed coincidently by a marked decrease in the number of typhoid cases occurring, as follows:

	Vaccinations	Typhoid Cases	Deaths
1906	4,682	1,095	224
1907	10,155	910	192
1908	16,009	1,001	190
1909	43,566	639	113
1910	54,481	350	47

In this latter year there were approximately 823 vaccinations per 1,000 strength, the morbidity being 4.6 per 100 and the mortality 0.63 per 100. The value of this vaccination in the United States Army may be seen by contrasting the number of typhoid cases occurring among the 10,759 troops encamped near Jacksonville in 1898, where no vaccinations were made, with the very small number of such cases occurring in the 20,000 troops encamped and on the march along the Mexican border, during the recent uprising in that country, among which latter troops vaccination was used. In the former case 1,729 cases of true typhoid occurred and if we include all cases probably typhoid there were 2,693 cases with 248 deaths, while in the latter case, although a large body of men were in camp, only two mild cases of typhoid were noted. In these latter troops vaccination was compulsory for all under 45 years of age so that after allowance has been made for the decrease in the number of typhoid cases due to the greatly improved sanitary conditions of the camps as a result of the lessons learned from the camps of 1898, the main credit for improved conditions must be given to the use of the vaccination since the troops were free at all times to visit the nearby towns where typhoid was present. It may be noted in this connection that typhoid vaccination was made compulsory for all army recruits June 9, 1911, and for the entire army personnel under 45 years of age, September 30, 1911.

Following the early work in the British Army in India voluntary vaccinations were made in the troops destined for the campaign in South Africa before their embarkation in England, these being continued in garrisons there, its value being shown as follows:

In Ladysmith, from November 2, 1899, to February 28, 1900, 1,705 were vaccinated, among which occurred 35 cases of typhoid with 8 deaths, giving a morbidity of 2.05 and a mortality of .47 per 100 respectively, while among the unvaccinated during the same period 1,489 cases of typhoid with 329 deaths

occurred—a morbidity of 14.14 and a mortality of 3.12 per 100 respectively. In the campaign of the Modder River, 2.3 per cent. of the typhoid cases that occurred were among the unvaccinated, while 1 per cent. were among the vaccinated. The record of one regiment, the 17th Lancers, which is worthy of notice, shows that of a strength of 593 men, 150 were vaccinated once; 127 were vaccinated twice, and 316 refused vaccination. Of these, two cases of typhoid occurred among those vaccinated once; no cases in those vaccinated twice, and 59 cases, a morbidity of 18.67 per cent., occurred in the unvaccinated.

Equally as good results were shown in the personnel of hospitals in South Africa. In the personnel of seven hospitals in the Modder River campaign, of 297 who were vaccinated, 32 cases with 2 deaths occurred, while in 398 not vaccinated, 111 cases with 18 deaths were reported, giving a morbidity of 10.77 per cent. for the vaccinated and 35.85 per cent. for the unvaccinated. In a number of hospitals in the Transvaal and Natal, the records give a morbidity for the vaccinated of 5.9 per cent. and for the unvaccinated 12.5 per cent.

Good results have followed its use in civil hospitals in this country. Over a period of three years, in 23 hospitals in Massachusetts 1,361 persons who were exposed to typhoid contagion were vaccinated and among these only two cases of typhoid occurred; while among 674 persons who were under the same conditions but were not vaccinated, eight cases of typhoid occurred. In the Massachusetts General Hospital where for a period of three years 80 per cent. of the personnel were vaccinated no cases of typhoid were reported among the vaccinated. Since March, 1910, 2,044 persons have been vaccinated with vaccine from the conjoint laboratory of the City and State Boards of Health laboratory, Baltimore, Maryland, among which no cases of typhoid have been reported, although 184 were closely exposed to infection as physicians, nurses, laboratory workers, etc., and 887 were inmates and employees in a hospital whose morbidity the previous year had been one per cent. In this latter hospital among 333 persons who were not vaccinated three cases of typhoid were reported.

Good results have followed the use of this vaccine by those exposed to infection in small epidemics, as follows:

In a small epidemic in a Vermont town, due, probably, to contamination of the water supply, in which 65 persons were exposed to typhoid contagion, 17 being primary cases; of the remaining 48, 29 were vaccinated within a week and no cases occurred among them, while among the 19 who were not vaccinated, 5 cases occurred.

In a small typhoid epidemic in Connecticut, 80 nurses were employed; of these 45 were vaccinated and no typhoid cases occurred among them, but among 35, who refused to be vaccinated, 5 cases of typhoid were reported.

Typhoid vaccination, it is believed, is of decided value to physicians, nurses, and all employees of hospitals where typhoid cases are cared for. It is also of value to the city resident who goes to the seashore or country for his vacation, where he may be exposed to infected or suspicious food or water supply or to the same individual who may be exposed in the city by reason of contamination of the food or water supply or exposed by reason of the occurrence of cases of typhoid in close proximity to him; to the residents of small communities who may likewise be exposed to contaminated food or water supply, and to the laboratory worker whose work brings him into close contact with typhoid cultures.

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TRANSPLANTATION OF BONE FOR FLAIL JOINT PRODUCED BY INFLAMMATORY DESTRUCTION OF JOINT.

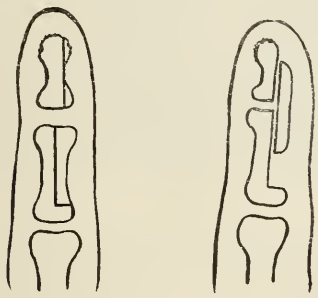
By A. O. WILENSKY, M.D.,

NEW YORK.

ATTENDING SURGEON, MT. SINAI HOSPITAL DISPENSARY; ADJUNCT ATTENDING SURGEON, BRONX HOSPITAL AND DISPENSARY.

The following case is reported from my service in the Mount Sinai Hospital dispensary:

J. W., age 40, janitor.. In the spring of 1913, a violent infection of the left index finger resulted in complete destruction of the tendons and tendon sheath, and in necrosis of the adjacent ends of the two last phalanges. It was necessary to curette out the destroyed bone, and thereafter there was prompt healing.



A B

FIG. 1.—A, showing line along which the bones were chiseled to fashion the transplant. B, the transplant in its final position.

This left the patient with a flail joint between the two distal phalanges, and inasmuch as there was no muscular control, the tendons having entirely sloughed away, the condition that resulted was a positive hindrance to the man in his daily work.

There were two methods available for the correction of this disability: to transplant or create a new joint, or to accomplish an ankylosis between the two bones, and give the man a useful finger. The first method was immediately discarded, for the reason that in the event of a successful joint transplantation there would be no muscular control, the joint would still be flail, and consequently there would be no bettering of the condition.

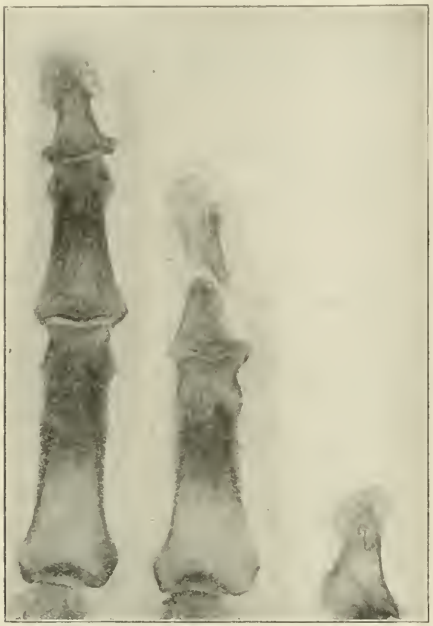
It was, therefore, determined to treat the finger as if a fracture had taken place, and non-union had occurred. The principles of bone transplantation were applied.

Operation.—Regional anesthesia with alypin two per cent. Base of finger constricted with rubber ligature, and the four cutaneous nerves at the sides of the finger injected; perfect anesthesia ensued.

Incision at the side of the finger, from tip to near the second joint, was deepened through the peritosteum, the latter being lifted away from the bones. Scar tissue between the ends was dissected out, and the ends of the bones were freshened. The cortex was removed from the side of the distal phalanx, leaving a fresh area of cancellous bone. The second phalanx was then split longitudinally, from a little below the second joint, and the fragment slid down, so that it overlapped the first and second phalanges (Fig. 1—A and B). No sutures were thought necessary to hold the transplant in place. The wound was closed without drainage, and primary union occurred.

At the end of three weeks there was solid bony union (Fig. 2). At the end of four months the man had a perfectly useful finger.

This report is made to demonstrate another practical application of the principles of bone trans-



Fig—2

plantation. Emphasis is also put on the fact that in this case a subperiosteal transplantation was done.

1200 Madison Avenue.

A DIPHTHERIA CARRIER TREATED WITH CULTURE OF STAPHYLOCOCCUS PYOGENES AUREUS.

By I. E. BISHKOW, M.D.,

CHICAGO.

While reporting nothing new in the treatment of diphtheria carriers with the cultures of *Staphylococcus pyogenes aureus*, this case contributes certain features of interest in its clinical course, and again demonstrates the apparent specificity of the use of this culture in cases resistant to the ordinary means employed to combat the disease.

Male, age 30, married. On June 19 was called to see the patient who had then been ill three days with sore throat, headache, anorexia, and malaise. He had never had sore throat before and there was no history of diphtheria in patient or family. He was a well-nourished and fairly well-developed young man. There was a marked swelling at the angle of the jaw on the left side, extending down the side of the neck; swelling was very tender to the touch and felt very firm. Examination of the interior portion of the mouth showed a dark grayish patch of membrane on the posterior portion of the left tonsil, very adherent, and the tonsil protruding toward the median line. On palpation fluctuation was felt behind the tonsil. No nasal secretions. Other physical findings negative. Temperature, 99.6° ; pulse, 90. Direct smear and throat culture showed Klebs-Loeffler bacilli present.

June 19 the peritonsillar abscess was lanced and 5,000 units of antitoxin injected. June 20 temperature 100°; pulse, 88. Slight muscle pain. By June 23 the membrane had disappeared; culture still positive; direct smear positive. From June 23 to July 14 cultures taken at three and four-day intervals remained positive. During this time a spray of Dobell's solution was used in the nose and throat, throat swabbed with 3½ per cent. tincture of iodine and a gargle of 70 per cent. alcohol used. During this period the throat and pharynx were pale and clean and no systemic symptoms were experienced by the patient. July 14 a 12-hour culture of *Staphylococcus pyogenes aureus* was obtained from the laboratory of the Michael Reese Hospital and we had the patient spray the throat with this bouillon culture every four hours. July 15 another fresh 12-hour culture was used and from July 16 to 20 a normal saline suspension of *Staphylococcus pyogenes aureus* was employed. A slight inflammatory reaction of the throat resulted without any rise of temperature or pulse. On July 20 the first negative throat culture was obtained, six days after starting this treatment; three days later another negative report was obtained. The cultures have remained negative since. The peritonsillar abscess complicating the diphtheritic infection was of interest, but quickly subsided after lancing, and probably played no part in prolonging the presence of the Klebs-Loeffler bacilli in the throat. The mild pharyngitis produced by the culture spray quickly subsided under a Dobell's solution spray.

1240 South St. Louis Avenue.

A NEW COLOSTOMY APPARATUS.

By H. BEECKMAN DELATOUR, M.D.,

BROOKLYN, N. Y.

Having observed on several occasions the distress of patients after a colostomy operation from the soiling of their clothes and the ever present fear of escaping gases and fecal matter, I set about to devise some scheme to protect the patient and to collect an ordinary amount of discharge.

In 1907 I devised the double cup apparatus, which was made for me by Messrs. Tiemann & Company, and which proved very satisfactory. This consisted of a round cup which was large enough to extend about an inch outside the intestinal opening. The rim of this was made double, as if one cup larger than the other had been placed together, giving a rim as is well shown in the illustration. This cup was held to the body by a spring belt similar to the belt of a truss. When the cup was pressed against the skin the tissues would bulge up into the groove of the rim and thus seal the opening. Inside the cup a packing of absorbent gauze was placed. This acted very well unless there was an excessive fluid discharge and then there might be some leakage.

In fitting the apparatus to subsequent cases, Mr.

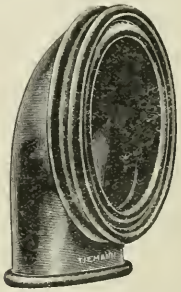


Fig. 1.—Dr. Delatour's colostomy apparatus.

J. A. Pfarre found it necessary to change the shape of the cup somewhat and also provided it with an opening to which a rubber receptacle could be attached and the excessive discharges collected.

The improved cup is so shaped that it fits well

beneath the clothing without being noticeable. The appliance consists of a solid hard rubber shield or cup, made in one piece with an oval outlet at its lower part to permit the outflow of the discharges. The rim face of the cup, which approximates the

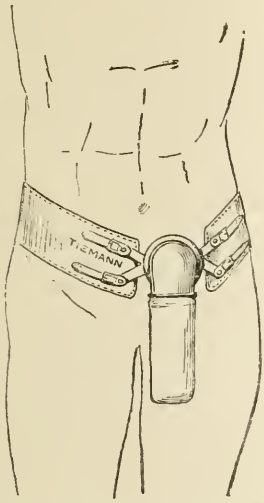


Fig. 2.—Colostomy apparatus with receptacle in position.

tissue surrounding the fissure, has a depression or groove into which the skin will project upon very slight pressure, thus forming practically an air-tight contact. To the cup is attached a rubber bag to hold the discharges. This bag has a constricted neck or opening which is slipped over the outlet of the cup. The bag has a capacity sufficient for any normal discharge and can be removed in an instant and another substituted. The apparatus is held in place by a spring and a light washable belt not unlike an abdominal supporter.

The comfort of the patient depends to a considerable extent on his care of the bowels. My directions are that each morning the bowel is to be washed out through the artificial anus and after the colon is cleared the apparatus is put in place. Then for twenty-four hours there is little or no discharge of feces. In some cases washing the bowel on alternate days has been sufficient.

A number of these appliances are now being worn, my oldest case being the patient operated upon in 1907. He is still free from recurrence and able to be about his business. The apparatus in this and other cases has proved so satisfactory that I new feel it my duty to present it to the profession.

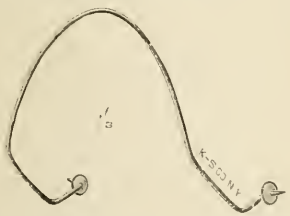
73 Eighth Avenue.

PERINEORRHAPHY RETRACTOR.

By A. REICH, M.D.,

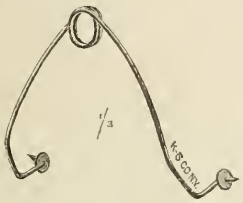
NEW YORK.

This instrument is made of phospho bronze wire, No. 10 and No. 13, with a spring; in both the resiliency can be adjusted. The sharp points pull the parts in a horizontal plane; two small copper washers are fastened few lines from the points to prevent any tearing of the tissue. The sharp points of the retractor are introduced just above the last caruncle or where the highest point of denudation will be. The vulva is held apart by the retractor producing a beautiful exposure of the rectocele; a pair of artery forceps is clamped to the median line at the mucocutaneous junction at the lowest point which will retract the skin posteriorly. A triangu-



lar line along which the denudation should be made is well marked. The retractor has been found to be useful in Goffe's cystocele and prolapse operation. If the rectocele is in the way a selfretaining posterior retractor will be used in addition. In inguinal hernia it can be used, the operation being then completed by one man without any assistant. The principle can be applied in the construction of abdominal selfretaining retractors.

After forceps delivery this retractor will afford the best exposure of parts. If the woman is in bed the spring end of the retractor should be turned up toward the symphysis pubis.



The advantages claimed for the retractor is that it is simple in construction, self-retaining, and not expensive. The instrument is made by the Kny-Scheerer Company.

245 West Twenty-fourth Street.

Hair-Ball Removed from the Stomach of a Child.—Barling reports the case of a girl, aged 7 years, who was admitted to the hospital for vomiting and severe pain in the upper abdomen of two days' duration. The child was rather small for her years, anemic, but otherwise healthy and normal mentally, except that she was described by her parents as being rather sly. Since an attack of dysentery four and one-half years ago she had been in the habit of chewing up pieces of string, tape, etc., and occasionally fragments of such things had been found in the motions. Her appetite was good up to ten days before the time she was taken ill, food being taken in normal quantity and without discomfort. On examination a hard lump exactly resembling the outline of the stomach could be felt descending from beneath the left costal arch, and passing transversely across the epigastrium. The outline of the tumor together with the history led to a correct diagnosis. At operation the specimen was easily removed through a longitudinal incision into the anterior wall of the stomach about 3 inches long, the dilatation of the organ allowing the mass to be turned on itself and delivered endwise through the opening in the stomach. The opening in the stomach was closed by a double layer of sutures, and the child made an uneventful recovery. The specimen consisted of a felted mass of hair and string, the former predominating; it presented an exact cast of the stomach showing the fundus, greater and lesser curvature, pyloric antrum and pyloric canal. When dried it weighed 4 ounces and measured 10 inches from the fundal to the pyloric end.—*Proceedings of the Royal Society of Medicine.*

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New York, November 15, 1913.

THE MORTALITY OF MIDDLE AGE.

DURING the past half century the expectation of life has been markedly increased for the earlier age groups, but for the later age groups, from 45 years upward, the improvement has been much less noticeable. The statistics for the registration area in the United States in the years 1900 to 1911 inclusive show a gratifying decrease in the death rates for all ages under 44, but from 45 upward in males and from 55 upward in females there has been a progressive increase in the mortality. This is of course due largely to the fact that all must die some time, and if they do not die young they must die older. Still the increased mortality should not begin at 45, and it would not if some of the preventable causes of death at this and later ages were, as they could be, more effectively controlled. What some of these causes are may be learned from a study of the death rates in the registration area for 1900 and of those in the same area for 1911. A comparison of these rates shows that there has been a slight increase in the mortality from cirrhosis of the liver, a somewhat greater increase (about 18 per cent.) in that from cancer, a little more (22.5 per cent.) from cardiovascular diseases (including apoplexy and Bright's disease), and an increase of no less than 53.6 per cent. from diabetes. These diseases, with the exception perhaps of cancer, are in large measure preventable, or at least postponable. The cardiovascular affections are degenerative in nature and fall naturally in the involutionary period of life, which should not begin, or at least should not give much evidence of its existence, until long past the 45-year period.

In an interesting address delivered before the American Public Health Association in September last Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, whose figures we have quoted above, considers the causes of, and the possibility of reducing the mortality at the higher age groups—that is, after 45 years. He rightly says that we must look to the conditions of life in the earlier ages for an explanation of the mortality from the degenerative diseases after 45. While heredity counts for something, no doubt other influences are much more in evidence. These influences are chiefly: (1) acute infectious diseases, such as scarlet fever, rheumatism, diphtheria, and typhoid fever, which so often leave their permanent mark on some one or more of the vital organs; (2) habits and modes of life, and (3) occupation. Of these three influences, the last, namely occupation, is the one that the author regards as most important, although he does not underrate sequelæ of the acute infections or the evil effects of alcohol and the venereal diseases. Potent as it may be for evil in the individual case, Dr. Dublin does not look upon the stress and strain of modern business life as affecting the mortality statistics appreciably, for the class from which these cardiovascular and diabetic recruits are drawn is not numerous in comparison with the vast industrial army whose means of livelihood is at the same time the cause of their early death. Even in trades where the workers are safe from the material causes of disease—metallic poisons, dust, etc., there is danger in the mere monotony of the occupation. Fifty years ago the worker had much to sustain his interest and there was something in his occupation of the joy of the creator. In shoemaking, for instance, which the author cites as an example, the individual workman made the entire shoe, thus following every step in the operation. To-day, in the great factories, the shoes are made wholly by machinery and each process is directed by a specialist workman who performs at high speed only one or very few of the total number of operations required in the production of a single shoe; he knows only this one task and the satisfaction of sharing in all the steps necessary for the turning out of the finished product is denied him. He becomes himself a part of the machinery, turning and turning forever in one single monotonous round, and like the rest of the machinery he wears out. Then there are the other injurious influences of the great industrial hive—the bad air, the poor light, the noise of the machinery, the high temperature of the work shop and the sudden change to cold and damp in the return to the home, the vitality being lowered by the long hours of confinement.

The following are the suggestions which Dr. Dublin offers for the diminution of mortality at the middle ages: "(1) We must place even greater emphasis on the municipal control of the communicable diseases of early life in order to reduce the instances of heart and kidney impairments which often result therefrom. (2) We must encourage the movements directed against the spread of venereal diseases as well as the intemperate use of alcoholic beverages. (3) We must further all efforts for the improvement of adequate labor legislation and promote a better understanding between employers and employees. This program will include the improvement of factory sanitation, the medical examination of employees, and the instruction of both employers and employees in industrial hygiene. (4) It will be necessary to supplement labor legislation with the careful examination of death certificates to see that in every instance those who are responsible for preventable deaths are properly prosecuted. (5) Finally, we must heartily encourage the movement for public education on all topics connected with personal hygiene that there may be better cooperation between physicians and their patients and that there may be no unnecessary losses through neglect of symptoms pointing to serious organic diseases."

CHRONIC ADHESIVE PERICARDITIS IN CHILDHOOD.

Chronic inflammation of the pericardium is not an exceedingly rare occurrence in childhood, although Potain recognized the period of most frequent incidence between the fifteenth and twentieth years of life. In most of the cases occurring in adolescents the disease has had its beginnings in early childhood. This stage of the disease is particularly apt to be latent, a fact which emphasizes the importance of keeping a sharp lookout for pericarditis in all rheumatic and tuberculous children. The two most common causes of chronic adhesive pericarditis are rheumatism and tuberculosis. Syphilis is an occasional factor. In almost all instances of the rheumatic type chronic adhesive pericarditis is associated with chronic endocarditis. This accounts for the fact that the lesions of the former are usually overlooked. Pericarditis may be only a part of a general mediastinitis. In children subject to chorea the possibility of the existence of a latent pericarditis should be borne in mind.

In a lucid discussion of this subject in the *Journal de Médecine de Paris*, September 13, 1913, P. Nobécourt alludes to a distinctive characteristic of all chronic inflammations of the pericardium, namely, the persistence of the clinical phenomena as soon as the disease has passed the latent stage. A dyspnea on exertion is succeeded by a dyspnea that is constant. Crises of precordial distress and of palpitation become more and more frequent. There arise sooner or later localized edemas, oliguria, ascites, and enlargement of the liver. All of these phenomena point to a persistent asystole.

Without enumerating the well-known physical signs of chronic adhesive pericarditis, it may suffice to state that Nobécourt, in agreement with other clinicians, does not regard any of these signs as distinctive. The evidence in favor of chronic pericarditis is not more than strongly presumptive. For instance, in an individual presenting a rebellious asystole, with a greatly enlarged heart and an unvarying area of cardiac dullness, and with a persistently enlarged liver, one is justified in making a presumptive diagnosis of chronic pericarditis. Immobility of the apex is not a pathognomic sign. A year ago Pezzi described what he regarded as a characteristic phenomenon in this condition, namely, an absence of the presystolic auricular wave in the cardiogram. Nobécourt, however, discounts the value of this sign, which at any rate is not a constant one.

Chronic tuberculous pericarditis differs in certain notable respects from the rheumatic type. There is always an associated mediastinitis with enlargement of the peribronchial lymphnodes. The pericardium forms a fibrous, infiltrated shield around the heart, which is not greatly enlarged. The liver is always hypertrophied. Tuberculous peritonitis is frequently present. The pericardial affection is chronic from the outset, developing insidiously and without manifest cause. The child shows emaciation, pallor, and fever, and becomes easily dyspneic and cyanotic. In time there develop ascites and enlargement of the liver, which draw the attention to this organ. Examination of the heart shows a normal or only a slightly increased area of dullness. Immobility of the apex is constant, and in association with the other manifestations is pathognomonic. Auscultation reveals no orificial murmurs, but discloses a fetal rhythm. The pulse is frequent, small, but regular. The individual affected with tuberculous pericarditis usually presents infantile characteristics and a gradually increasing cachexia and dies from asystole or from some intercurrent disease.

CLINICAL SIGNIFICANCE OF THE PULSE-RATE DURING SLEEP.

Many observations have been made of the frequency of the pulse of normal individuals during sleep, and with few exceptions a distinct showing of the pulse during this condition has been recorded. Apparently no attempt was made to study systematically the pulse-rate during sleep in various morbid conditions, and to derive from this knowledge data of clinical value. Felix Klewitz (*Deutsches Archiv für klinische Medizin*, October 2, 1913) undertook the investigation of this subject, employing a method that marked a vast improvement over the crude methods that have been used hitherto in noting the pulse-rate of the sleeping individual. In order to eliminate any possible disturbing factor resulting from the presence of the experimenter in the room of the sleeping subject, Klewitz arranged an apparatus with which by means of suitable tubing connected with the stethoscope chest-piece attached to the patient's chest, it was possible for the experimenter to record his observation in an adjoining room. In this manner he studied the pulse-rate during sleep of normal individuals, of those suffering from heart disease in the state either of compensation or of decompensation, of patients with tachycardia of organic origin, and of patients affected with nervous tachycardia. The results obtained in this investigation are of eminent interest from both the theoretical and the practical viewpoints.

In twenty normal individuals the average pulse-rate during sleep was 59.3, and during waking was 74.1. The average diminution was therefore 19.9 per cent. The variations of the pulse during sleep are less than those during waking, the pulse curve in the former condition approximating a straight line. The irregularities occasionally noticed in the pulse during the waking hours do not disappear during sleep. Absolute repose of the body at night without sleep may at times be accompanied by a reduction of the pulse-rate as marked as when sleep is present. In sleep during the daytime the pulse frequency is diminished only slightly or not at all.

Patients with compensated valvular lesions behave with respect to their pulse in sleep exactly as do normal individuals. In cases of decompensated heart disease there is mostly a less marked diminution of the pulse frequency during sleep. In very bad instances of decompensation the pulse during sleep may even be more rapid than during waking. This observation is therefore of some prognostic value. Irregularities, such as extrasystoles, the pulsus bigeminus, the pulsus trigeminus, etc., do

not disappear during sleep. In a series of cases of tachycardia in which subsequent observation revealed an underlying organic affection of the heart, the tachycardia continued during sleep. In cases of purely neurotic tachycardia, however, the acceleration of the pulse disappeared during sleep. The determination of the condition of the pulse during sleep possesses, therefore, a distinct value in the differentiation of organic from functional tachycardia.

Oxytocic Properties of Internal Secretions.

It was long ago surmised that the various internal secretions were complexes made up of groupings of certain primitive bodies. Thus a hypothetical vasoconstriction is redundantly present in adrenalin and pituitrin and also to a greater or lesser extent in other—practically all—of the glands of internal secretion. This is proved for the thyroid, pancreas, ovary, corpus luteum, and especially for the intestinal mucosa. At the recent annual session of the German Naturalists and Physicians (*Berliner klinische Wochenschrift*, October 13) Lindemann reported his results in the study of the oxytocic power of the various internal secretions. The hypophysis is naturally left out of consideration as its position here is assured and it may serve as a standard. It was learned that extract of intestine had oxytocic powers marked enough for use in obstetrics. Next in order in efficiency were thyroid extract, pancreatic extract and adrenalin. Thus far the results obtained show much variation, with which digestion and diet seem to be concerned. The oxytocic principle supposed to be common to all is believed to be kin to proteinogenic amines.

The Pathogenesis of Scarlet Fever.

The phenomenon of anaphylaxis has provided a good working hypothesis in explanation of the clinical picture of certain exanthemata, as measles and scarlet fever. Martin Kretschmer, in the *Jahrbuch für Kinderheilkunde*, September 1, 1913, contributes a logical thesis in favor of the anaphylactic nature of scarlet fever. He notes that this disease occurs in individuals who have a hypersusceptibility to streptococcus infection. He also cites a number of facts which speak against the existence of a specific microbic factor in this disease. Thus, the incubation period is a varying one. Sporadic cases may occur in the household or in the hospital, even though strictest hygienic conditions prevail. Attempts to reproduce the disease experimentally have failed. A close analogy exists between scarlet fever and serum sickness. In the latter there are an exanthem, a varying period of incubation, vomiting, fever, glandular enlargement, swellings and pains in the joints, and renal symptoms varying from a mild albuminuria to a severe hemorrhagic nephritis. The streptococcus is such a common morbid factor in many of the minor ailments of childhood, that it is not difficult to conceive of the individual acquiring a hypersusceptibility to this microorganism. Czerny has pointed out that fat, "pasty" children are an easy prey to scarlet fever and suffer from a severer type of this disease than other children. Moro notes that the former group of children are also more subject to serum sickness. The analogy between scarlet fever and serum sickness is indeed a close one, but it is only an analogy and should not misguide one in the effort to frame definite scientific conceptions.

News of the Week.

Health of the Canal Zone.—The report of the Department of Sanitation for the month of September, 1913, gives the total number of deaths from all causes among employees in the Canal Zone as 44, of which 36 were due to disease and 8 to violence, making an annual average death rate per thousand for the month of 8.92. For the total population of Panama, Colon, and the Canal Zone, the death rate per thousand for the month was 27.39, which is high as compared with the figures of previous Septembers. Of the deaths among employees, 7 were due to pneumonia, 4 to tuberculosis, 1 to dysentery, and 1 to hemoglobinuric fever. As usual, there were no cases of yellow fever, smallpox, or plague.

The Sale of Poisons.—Following the reports in the newspapers lately of several cases of death from the accidental or intentional ingestion of tablets of bichloride of mercury, Congress has taken up the consideration of a bill requiring that such preparations shall be colored in order to distinguish them from other non-poisonous tablets, and is also considering placing limitations upon the sale of this and other poisons.

Cornerstone Laid.—With appropriate ceremonies the cornerstone of the new dispensary of the Hospital for Deformities and Joint Diseases, New York, was laid on November 4. The building will be situated at 41 and 43 East 123d Street, or just around the corner from the hospital building proper. Addresses were made by Dr. Abraham Jacobi, Dr. Reginal Sayre, and Judge Julius Mayer of the United States District Court, who outlined the history of the institution since its establishment in 1904 as a clinic under the control of Dr. H. C. Frauenthal.

Fire at College.—The Leonard Medical College of Raleigh, N. C., the best known Negro medical college of the South, was badly damaged by fire on November 8, the chemical and biological laboratory being entirely destroyed. The blaze began among the explosives in the laboratory, and at one time threatened the entire school buildings.

Medical School Consolidation.—The new Medical College of Virginia, the product of the consolidation of the University College of Medicine and the old Medical College of Virginia, was formally opened on October 30, and dedicated to medical education in the South. It was predicted, during the ceremonies that a further consolidation with the medical department of the University of Virginia was to be expected and hoped for, since by this means Virginia would secure a single medical institution of the highest rank.

Asylum Dedicated. — The Schuylkill County Hospital for the Insane at Schuylkill Haven, Penn., which was recently completed at a cost of $600,000, was formally dedicated on October 30. The new institution has accommodations for 600 patients.

Surgery and Reform.—In Chicago recently four patients were operated upon in the hope that the result would be the elimination of criminal tendencies and moral deficiencies in them all. The operations were done at the instance of Judge Bridgeman of the Circuit Court of St. Joseph, Mich., who has announced that hereafter he will not sentence any one convicted of moral crimes in his court, until by the use of the knife, an opportunity for regeneration has been given the affected mind.

The Plague.—Serious alarm as to the health condition of Ecuador is excited by the reports re-

ceived from Guayaquil. A large number of cases of bubonic plague have been discovered there, and yellow fever also is prevalent.

In Seattle, Wash., vigorous efforts are being made to destroy all the rats, especially along the water front, because of the finding recently of six which were infected with bubonic plague.

Patent Medicine Achievements.—The appraisal of the estate of the late J. M. Kilmer of Binghamton, N. Y., exploiter of a patent medicine known as Swamp Root, puts a valuation of $2,600,000 upon it. This is the result of twenty years' exploitation of the preparation.

Fire Near Hospital.—Patients in the Williamsburgh and Eastern District Hospitals, Brooklyn, were alarmed in the early morning one day last week by a fire which destroyed a large tent in a lot only a few yards from both institutions.

Gifts to Charities.—By the will of the late Edward Sallinger of New York, bequests of $500 each are made to Mount Sinai Hospital, the Montefiore Home, and Beth Israel Hospital.

St. Luke's Hospital, New York, receives a bequest of $50,000, and the House of Rest for Consumptives one of $10,000, by the will of the late Herman C. von Post of this city.

By the will of the late Miss Elizabeth P. Cresswell of Philadelphia the sum of $5,000 is bequeathed to the Philadelphia Home for Incurables.

By the will of the late Rebecca L. Bringhurst of Philadelphia the sum of $15,000 is bequeathed to the Trustees of the University of Pennsylvania for the endowment of three beds in the Children's Orthopedic Ward; and the sum of $5,000 to the Philadelphia Home for Incurables.

The Mountainside Hospital of Montclair, N. J., receives a bequest of $2,500 under the will of the late Mr. Alfred C. Toxbury of that city.

The Woman's Hospital and the Presbyterian Hospital, New York, receive each one-tenth of the residuary estate of the late Mrs. M. A. Murray, estimated at over $50,000.

By the will of the late Mrs. Ellen Phillips Samuel of Philadelphia, the sum of $20,000 is bequeathed in equal parts to the Jewish Hospital, Jefferson Hospital, St. Christopher's Hospital, and the Woman's Hospital of that city.

College of Physicians and Surgeons.—At a meeting of the trustees of Columbia University, New York, on November 3, Dr. James W. Jobling, formerly of Chicago, was appointed assistant professor of pathology, in succession to the late Dr. Hugh A. Stewart. Dr. Frederic S. Lee was elected delegate to the University Council from the Medical Faculty to serve until June 30, 1916, in succession to Dr. George S. Huntington. Several gifts were also announced, including $7,500 from Dr. C. W. McMurtry for alterations in the dermatological department of the Vanderbilt Clinic, and $905 from Prof. E. B. Cragin for alterations in the gynecological department, and an anonymous gift of $1,500 to be added to the income of the Crocker Special Research Fund and expended for the investigation of the effect of radium on cancer.

A recent census of the graduates of Columbia University gave some interesting results. Of the class of 1840 of the College of Physicians and Surgeons, the medical department of the university, five members are thought to be still living, although their addresses are unknown. Of the class of 1844, two graduates are known to be alive; of 1845, four are living; of 1846, seven; of 1847, two; of 1848, four; of 1849, three; of 1850, three; of 1851, twenty-two; of 1852, twenty-six; of 1853, twenty, and of 1854, ten. The oldest living graduate of the University, so far as is known, is Robert M. Olyphant of New York, who received his B.A. degree in 1842.

Personals.—Dr. John L. Bower of Reading, Pa., medical examiner for the Reading District of the Schuylkill Valley Division of the Pennsylvania Railroad, has been promoted to be medical examiner in chief of the Philadelphia district.

Dr. James E. Murphy of Philadelphia has been appointed resident physician at the Wildwood Sanatorium at Hartford, Conn.

Dr. Charles E. Woodruff, lieutenant-colonel in the United States Army Medical Corps, retired, has recently become a co-editor of *American Medicine*.

Conference of Health Officers.—The Thirteenth Annual Conference of the Sanitary Officers of the State of New York will be held in Utica, November 19-21, 1913. The week beginning November 16 will be "Public Health Week" in Utica, during which popular lectures on various subjects addressed to various classes of the community will be delivered daily.

Medical Society Elections.—Virginia Public Health Association: Annual meeting in Lynchburg on October 23. Officers elected: *President,* Dr. Mosby G. Perrow, Lynchburg; *Vice-Presidents,* Dr. Robert C. Bagby, Westpoint, and Dr. C. B. Boyer, Stonega; *Secretary-Treasurer,* Dr. Lucien Lofton, Emporia.

Medical Society of Virginia: Annual meeting in Lynchburg on October 21-23. Officers elected: *President,* Stephen Harnsberger, Catlett; *Vice-Presidents,* Dr. Robert C. Bryan, Richmond; Dr. J. S. Davis, and Dr. Benjamin R. Gary, Newport News; *Treasurer,* Dr. Mark W. Peyser; *Secretary,* Dr. Paulus A. Irving, Farmville. The next meeting of the society will be held in Washington, D. C.

San Bernardino County (Cal.) Medical Society: Annual meeting in Redlands on October 15. Officers elected: *President,* Dr. Benjamin Franklin Church, Redlands; *Vice-Presidents,* Dr. Henry William Mills, San Bernardino, and Dr. L. J. LaMotte, Colton; *Secretary,* Dr. Carlos G. Hilliard, Redlands; *Treasurer,* Dr. William Taltavall, Redlands.

San Joaquin Valley (Cal.) Medical Association.—Annual meeting in Fresno on October 14. Officers elected: *President,* Dr. C. P. Kjaerbye, Fresno; *Vice-President,* Dr. L. R. Willson, Fresno, and Dr. Warden T. Barr, Fresno; *Secretary,* Dr. R. O. Ross, Fresno; *Treasurer,* Dr. Thomas M. Hayden, Fresno.

Eighth District (Tex.) Medical Society.—Annual meeting in Wharton on October 16. Officers elected: *President,* Dr. Stephen A. Foote, Bay City; *Secretary,* Dr. Phillip E. Parker, Bay City.

Somerset County (Penn.) Medical Society.—Annual meeting in Rockwood on October 21. Officers elected: *President,* Dr. George C. Berkheimer, Windber; *Vice-President,* Dr. Herbert P. Myers, Confluence; *Secretary,* Dr. Henry Clay McKinley, Myersdale; *Treasurer,* Dr. Walter S. Mountain, Confluence.

Princess Anne County (Va.) Medical Society was organized on October 18 with the election of the following officers: *President,* Dr. Thomas B. Luxford, Princess Anne; *Vice-Presidents,* Dr. Thomas L. Brooks, Oceana, and Dr. Nathaniel A.

Nicholson, Creeds; *Secretary-Treasurer,* Dr. A. D. Tyree.

Sixth District (Tex.) Medical Association.—The following officers were elected at the annual meeting in Corpus Christi on October 14 and 15: *President,* Dr. F. G. Painter, Corpus Christi; *Vice-President,* Dr. T. J. Turpin, Corpus Christi; *Secretary-Treasurer,* Dr. L. S. Monfolf, Aransas Pass.

Second District (Ia.) Medical Society.—At the annual meeting held at Davenport on October 15 officers for the ensuing year were elected, as follows: *President,* Dr. F. H. Little, Muscatine; *Vice-Presidents,* Dr. C. F. Howard, Iowa City, and Dr. L. B. Carson, Maquoketa; *Secretary-Treasurer,* Dr. J. V. Littig, Davenport. The 1914 meeting will be held in Davenport.

Northwestern Ohio Medical Association.—The annual meeting of this association was held in Findlay on October 16 and 17, when the following officers were elected: *President,* Dr. J. D. Tritch, Findlay; *Vice-Presidents,* Dr. G. P. Willard, Tiffin, and Dr. W. A. Dickey, Toledo; *Secretary,* Dr. S. D. Foster, Toledo; *Treasurer,* Dr. E. H. Porter, Tiffin.

Coast Line Surgeons.—At the annual meeting of the Association of Surgeons of the Atlantic Coast Line Railroad on October 14 the following officers were elected: *President,* Dr. J. N. Baker, Montgomery, Ala.; *Vice-Presidents,* Dr. A. M. Brailsford, Mullins, S. C., and Dr. P. P. Lane, Waycross, Ga.; *Secretary-Treasurer,* Dr. C. P. Aimar, Charleston, S. C.

Wabash County (Ill.) Medical Society.—Annual meeting at Mount Carmel on October 28. Officers elected: *President,* Dr. John Jerome McIntosh, Allendale; *Vice-President,* Dr. E. R. Lescher, Mount Carmel; *Treasurer,* Dr. W. B. Baird, Friendsville; *Secretary,* Dr. J. B. Maxwell, Mount Carmel.

Montgomery County (Ill.) Medical Society.—Annual meeting at Litchfield on October 28. Officers elected: *President,* Dr. Zeb V. Kimball, Hillsboro; *Vice-President,* Dr. Geo. G. Allen, Litchfield; *Secretary,* Dr. H. F. Bennett, Litchfield; *Treasurer,* Dr. M. W. Snell, Litchfield.

Louisa County (Va.) Medical Society was organized at a meeting held recently, when the following officers were elected: *President,* Dr. Eugene Pendleton, Cuckoo; *Secretary-Treasurer,* Dr. Thomas M. Taylor, Louisa.

Hospital Cornerstone Laying.—The cornerstone of the new Children's Hospital of Philadelphia, to be erected at Eighteenth and Bainbridge Streets, was laid with appropriate ceremonies on October 22. The actual placing of the stone in position was done by Miss Charlotte Rush, a lineal descendant of Dr. Benjamin Rush. Addresses were made, among others, by Dr. Joseph S. Neff, Director of Public Health and Charities, and Dr. J. Claxton Gittings, secretary of the medical staff of the hospital.

Memorial to Dr. Fitz.—In the amphitheater of the Harvard Medical School, Boston, on Monday evening, November 17, there will be held a memorial meeting to the late Reginald Heber Fitz, professor emeritus of the theory and practice of physic. Addresses will be made by W. W. Keen, professor emeritus of surgery in the Jefferson Medical College, Philadelphia; Charles W. Eliot, president emeritus of Harvard University; Henry P. Walcott, chairman of the board of trustees of the Massachusetts General Hospital; William Sydney Thayer, professor of clinical medicine, Johns Hopkins University, Baltimore, and William T. Councilman, Shattuck professor of pathological anatomy, Harvard University.

Obituary Notes.—Dr. Jesse S. Myer of St. Louis, Mo., died at his home, from leukemia, on October 30, aged 40 years. Dr. Myer was graduated from the University of Missouri in 1893, and from the Marion-Sims College of Medicine, St. Louis, in 1896, and following his graduation from the latter continued his studies at the Charité Hospital, Berlin. From 1902 until 1912 he was instructor and lecturer on clinical chemistry and microscopy at Washington University, and until his death served as chief visiting physican to the Jewish Hospital. Dr. Myer was a member of the American Medical Association, the Missouri State and St. Louis Medical Societies, and the American Gastro enterological Association, and of the last named a member of the council, and editor of its official publication. He had also attained literary recognition, particularly through his "Life and Letters of William Beaumont."

Dr. August Schumacher of Hamilton, Ohio, a graduate of the Medical College of Ohio, Cincinnati, in 1897, a member of the Ohio State and Butler County Medical Societies, former coroner of Butler County and former health officer of Hamilton, died at his home on October 12, aged 39 years.

Dr. Thomas Alexander Elder of Wooster, Ohio, a graduate of the Rush Medical College, Chicago, in 1868, and of the Bellevue Hospital Medical College, New York, in 1872, and a member of the Ohio State and Wayne County Medical Societies, died at the Presbyterian Hospital, Chicago, on October 19, aged 70 years.

Dr. Ellsworth Henry Ward of Riverside, Cal., a graduate of the Cleveland, O., University of Medicine and Surgery in 1874, and one of the founders of the Riverside Hospital, died at his home on October 23, aged 62 years.

Dr. James Thomas Harris of San Jose, Cal., a graduate of the College of Physicians and Surgeons of Keokuk, Ia., in 1877, at one time coroner of Santa Clara County, and city physician of San Jose, and a member of the California State and Santa Clara County Medical Societies, died at his home from paralysis, on October 21, aged 74 years.

Dr. Samuel B. Mills of Louisville, Ky., a graduate of the Medical Department of the University of Louisville, in 1852, and a former member of the Louisville Board of Health, died at his home on October 25, aged 85 years.

Dr. Philip T. O'Brien of Clinton, Ia., a graduate of the Albany Medical College, N. Y., in 1872, died suddenly at his home on October 31, aged 63 years.

Dr. John M. Rader of St. Louis, Mo., a graduate of the St. Louis College of Physicians and Surgeons in 1893, formerly a deputy coroner of St. Louis, died suddenly at his home on October 21, aged 54 years.

Dr. Edith E. Keisker of Philadelphia, Pa., died on October 23, at the age of 35 years, as the result of scarlet fever contracted at the Municipal Hospital for Contagious Diseases in the course of her work as school medical examiner.

Dr. John A. Bush of Greenville, Tex., a graduate of the Louisville Medical College, Ky., in 1890, died at his home after a short illness on October 23, aged 48 years.

Dr. Clarence G. Clark of New York, a graduate of the University of Michigan, Department of Medi-

cine and Surgery, Ann Arbor, in 1899, and a member of the Physicians' Mutual Aid Association, died at his home on November 5, aged 36 years.

Dr. Daniel A. Arter of Canton, O., a graduate of the Cincinnati College of Medicine and Surgery in 1850, died recently at his home, aged 84 years.

Dr. Thomas C. Finnell of New York, a graduate of the New York University Medical College in 1880, and a member of the medical staff of the Department of Education, died suddenly in the street on November 6, aged 48 years.

Dr. Elizabeth G. Pyrum-Perry of Fryeburg Center, Me., and formerly of New York, a graduate of the Eclectic Medical College of the City of New York in 1882, died at her home, from pneumonia, on November 7, aged 93 years.

Obituary.

CHARLES McBURNEY, M.D.,

NEW YORK.

Dr. Charles McBurney of New York died suddenly at the home of his sister in Brookline, Mass., on November 7, from heart failure, following a hunting trip in Maine, on which it is feared he may have overtaxed his strength.

Dr. McBurney was born in Roxbury, Mass., on February 17, 1845, and was educated at the Roxbury Latin School until his entrance into Harvard University from which he was graduated with the degree of B.A. in 1866. He then entered the College of Physicians and Surgeons, New York, and received his medical degree in 1870, having also in the meantime received an M.A. from his alma mater. After serving for a year and a half as interne at Bellevue Hospital and spending two years in study abroad, Dr. McBurney began the practice of his profession in New York. In 1873 he was appointed demonstrator of anatomy at the College of Physicians and Surgeons, and in 1882 lecturer on operative surgery; in 1889 he became professor of surgery, and head of the department, a position which he resigned some years later because of the increasing demands of his private practice, though he retained the chair of clinical surgery until he was made emeritus professor. He was connected with many of the large hospitals of New York, but his most notable work was done in connection with the Roosevelt Hospital, where in 1888 he was placed in full charge of the surgical service. During the twelve years of his work there the hospital attained an international reputation, and many noteworthy additions were made to therapeutics and surgical methods. At the time of his death Dr. McBurney was consulting surgeon to St. Luke's Hospital, the Presbyterian Hospital, the Orthopedic Hospital, St. Mark's Hospital, and the Hospital for Ruptured and Crippled, and was a member of the American Medical Association, the New York State and County Medical Societies, the New York Academy of Medicine, of which he was vice-president from 1892 to 1895, the Practitioners' Society of New York, and the Roman Medical Society, and a corresponding member of the Société de Chirurgie of Paris. His contributions to the literature of surgery were many and important, the most notable being those on the subject of appendicitis.

Of late years he had made his home at Stockbridge, Mass., and funeral services were held there on November 9.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HARVEIAN ORATION—NOGUCHI'S DEMONSTRATION AT ROYAL SOCIETY OF MEDICINE—SECTION OF HISTORY OF MEDICINE, PROFESSOR JASTROW—MEDICAL SOCIETY OF LONDON, CEREBROSPINAL FLUID—MISTAKES IN PROGNOSIS—COMMITTEE ON AFRICAN DISEASES—ROYAL COLLEGE OF SURGEONS—MEDICAL MUSEUM—ACTION AGAINST BRITISH MEDICAL ASSOCIATION—CHARITABLE BEQUEST—OBITUARY.

London, October 24, 1913.

The Harveian Oration was delivered at the Royal College of Physicians according to custom on St. Luke's day (Saturday). This year the orator was Dr. Mitchell Bruce who took for his subject the Treatment of Fever. For the 150 years from the death of Harvey to the first decade of the nineteenth century he pronounced the social conditions of this country revolting. Sanitation did not exist; ventilation was hindered by the window tax and overcrowding excessive. Yet in those days the foundations of sanitation were laid by such men as Mead, Pringle, Lorid, and Blane. In 1831 came the first epidemic of cholera for which the country was altogether unprepared. In 1847 typhus killed above 30,000 persons in England and Wales. From 1871 to 1880 typhoid fatalities were 78,000. It was humiliating to see the time that Parliament let pass before attempting legislation. Medical representations backed by advances in chemistry, physiology, and pathology had no effect except on some grave emergency which aroused a spasmodic effort. The terrible tale of deaths from fever and the destitution following raised the poor rate to such a height that the Commissioners in 1838 reported that "prevention would be more economical than mitigation," and this consideration of economy had more influence in promoting public health legislation.

The period after 1859 was all important in the history of the pathology of fever and, in fact, of infection generally. Pasteur, Lister, and Koch traced the contagion of certain febrile diseases to vegetable organisms; Lewis, Obermeier, and Lavaran traced others to animal organisms. The greatest modern triumph of preventive treatment was Lister's demonstration of his antiseptic method. This was followed by the discoveries of Roux, Buchner, and Metchnikoff. The history of the pathogeny of fever showed that men, as well as facts, had to be waited for. Pasteur, Lister, Metchnikoff, and Behring had to come and to share with Harvey the honor of their great discoveries. It was surprising to see how Harvey forecasted modern advances, but he was also distinguished by his restraint from speculation. Revealing his conception of the workings of nature, he repressed himself and resumed the position of a simple, patient observer content to record facts for his successors. After the oration the Baly Medal was awarded to Dr. John Haldane, Reader in Physiology at Oxford.

Dr. Noguchi's demonstration at the Royal Society of Medicine which was unfortunately postponed by his indisposition came off on Monday and I need scarcely remark was a great success. His researches are well enough known on this side to secure the respect and admiration of all concerned in the advancement of our art. He showed pure cultures of various spirochetes—pathogenic and saprophytic—illustrating his investigations and dis-

coveries in regard to the transfer of disease and propagating the virus outside the body. Then there were slides showing the *Treponema pallidum* in the brain in cases of general paralysis of the insane and locomotor ataxia. By inoculating rabbits he had produced the various symptoms and lesions of paralysis thus proving the organism to be the cause of the disease. A good deal of interest was excited by the description of his method of cultivation of organisms in liquid and solid bodies from which he had excluded oxygen more or less completely. It was by this method that he had cultivated the virus of rabies and of poliomyelitis. The series of cultural studies of rabies, illustrating his important researches on this disease naturally received special attention.

He classifies spirochetes according to their habitat: (1) Those which grow only in the tissues of the host; *e.g.* the organisms of syphilis and of African tick fever; (2) which only grow in the blood of the host, *e.g. Sp. Obermeieri;* (3) those growing on mucous surfaces, such as are constantly found in the mouth. These last are nonpathogenic, but both the other two classes are pathogenic.

The Section on the History of Medicine began with a most interesting lecture on the "Medicine of the Babylonians and Assyrians" by Prof. Morris Jastrow, Jr., of the University of Pennsylvania. He outlined as fully as time allowed the course of Babylonian and Assyrian medicine and thought it a noble achievement that the physicians passed across the barren wastes of incantation rites and divination practices and reached at least up to the borders of the promised land of genuine medical science—indeed, perhaps, beyond the frontier and took possession of some of the outposts.

The session of the Medical Society of London was opened on the 13th by the president, Sir David Ferrier, with an address on the "Cerebrospinal Fluid in Health and Disease." Of course he had to consider the differences between the lesions of syphilis and parasyphilis. As the blood and cerebrospinal fluid yielded the same reaction it was supposed by many that the spirochete must remain in the body, but he and Emery had sought it in vain and other theories were advanced. Now, however, Noguchi and Moore had found it and their discovery was confirmed by others and this would seem to have obliterated the distinction.

Dr. David Ross, the new president of the Aesculapian Society opened its session with an address on "Mistakes in Prognosis" and offered some useful hints as to the care to be exercised in replying to the anxious inquiries often made. He gave illustrations of errors that had been made, some of the cases resulting in recovery after a hopeless view had been expressed. He doubted if the date of death could be foreseen by anyone and some instances of the attempt to do so being proved unwise by the patient recovering soon after the time for death had been forecasted.

Surgeon-General Sir David Bruce was first witness at Earl Desarts' Committee on African Diseases, appointed to inquire into and report on the parts played by animals and flies in the spread of trypanosome infection; the question of game destruction in a localized area or on a wider scale; or an attempt to exterminate wild animals; or whether any other means could be found to control these diseases. Sir David Bruce has been in charge of the Commission of the Royal Society on Sleeping Sickness in Nyassaland.

The new calendar of the Royal College of Surgeons, just issued, shows 375 members and 66 fellows admitted during the year. Diplomas in public health issued were 41 in number, in tropical medicine 4. As to the short title of the last D. T. M. Eng. it has been decided to add a reference to hygiene, so we are told the title will now be "D. T. M. and H. Eng.," which I hope will be enough for the gentlemen who pass an additional examination to secure a lengthier tail to their names.

The Council has forwarded congratulations to their oldest member, Surgeon-Major Hinton of Adelaide, on attaining his 100th birthday.

The Historical Medical Museum is to be closed with the month. It has been a great success—a natural result of the organizing skill of Mr. Welcome, at whose sole cost it was brought together. It is probable that when the loaned specimens have been returned the others may form the nucleus of a permanent museum.

Dr. Slowman's action against the B. M. A. was ended on Saturday. By advice of the judge the parties conferred with the result that defendants agreed to expunge the resolution objected to and admitted irregularities. Also to pay plaintiff £500 and his costs.

By the will of Miss A. J. J. Arden hospitals and charities benefit to the amount of £67,000.

Major James Moir died yesterday. Born in 1860 he entered the Royal Arms Medical Corps twenty-six years later, served in South Africa in 1900 and received the Queen's Medal with three clasps. Retired in 1905.

Dr. William Watts Thetford, probably the oldest medical practitioner in Ulster, having practised in County Down for about fifty years, has died in his 91st year. He qualified in 1849. Had been surgeon to the Coast Guard and the Royal Irish Constabulary.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

THE ACADEMY OF MEDICINE AND THE NOTIFICATION OF TUBERCULOSIS—PRACTICAL DIFFICULTIES OF THE LATTER—THE SURGICAL TREATMENT OF ACUTE APPENDICITIS — ARTIFICIAL PNEUMOTHORAX—COMPENSATORY RENAL HYPERPLASIA—A MONUMENT TO GUINARD.

PARIS, October 1, 1913.

At the close of a long discussion the Academy of Medicine on July 1, 1913, voted on the report of the permanent commission on tuberculosis. By a vote of 55 to 21, with eight votes not cast, the Academy adopted the following recommendation of Roux, Vaillard, Landouzy, and Charles Richet: (1) It is in the public interest that all open cases of tuberculosis should be reported. (2) The notification should be made to a health officer, who should be bound by the professional secret, and who should carry out the necessary prophylactic measures, provided these are not looked after by the attending physician. (3) The public authorities should extend aid to indigent consumptives and to their families. The Academy also passed a resolution declaring that in all hospitals that shall be built in the future a ward should be set apart for open cases of tuberculosis. The necessity of a national campaign against tuberculosis in France, more effective than has been the case in the past, is quite apparent to almost everyone, for in this respect our neighbors, particularly England and

Germany, have surpassed us. In Paris, out of every 10,000 inhabitants, there died from pulmonary tuberculosis in 1875, 41 individuals; in 1910, 35 individuals; a diminution of 14 per cent. in the mortality from this disease is thus apparent. On the other hand, during the same period, the reduction in mortality in England was 56 per cent., and in Prussia 52 per cent.

But the vote of the Academy does not decide this question. There are financial limitations involved in rendering aid to the needy consumptives. Nor is notification alone sufficient in coping with the spread of the infection, for it is necessary to disinfect the premises of the patients, to improve the dwellings of the poor, and to instruct the consumptives as to the dangers of carelessness. The rank and file of the profession know better than do the members of the Academy, the thousand difficulties that are involved in the practical application of a measure requiring the reporting of all cases of tuberculosis.

The treatment of acute appendicitis came up for discussion at the recent meetings of the Surgical Society. The majority of surgeons now prefer early operation. Potherat operates at the beginning of the attack, or as soon as he is called in. Témoin does likewise, and cites the good results he has obtained with this method in 3,000 cases. On the other hand, Reynier favors operation in the interval, even in cases in which there is a diffuse peritoneal reaction presenting the syndrome described by Dieulafoy under the name "vomito negro appendiculaire."

In only one type of appendicular disease does he favor operation at the outset, namely, in gangrenous appendicitis. In this condition there is at first a slight peritoneal reaction; the abdomen is not very much distended, and there is very little vomiting. On the other hand, the general infection dominates the clinical picture; there is a subicteric tinge of the conjunctivæ; the temperature rises to from 102.2° to 104° F.; the pulse is full and frequent, and, finally, the temperature does not fall upon the application of ice. The last is a pathognomonic sign. Jacob operates early when there is only a slight reaction generalized in the entire abdomen with the defensive muscular reaction extending to the left abdominal wall. Lenormant operates immediately if he is called within the first forty-eight hours. He operates without delay in cases of diffuse peritonitis; in those in which there is a purulent collection; and also in toxic cases with a slight local reaction but severe general manifestations. With the exception of these cases he advocates temporizing, and the resort to surgery when in spite of the application of ice the general condition gets worse, or when the local process seems to be spreading.

Delbet believes that in one hundred cases of acute appendicitis there are only a dozen in which operation is necessary. The latter are cases of peritonitis with or without perforation. As the most important sign of general peritonitis, he considers immobilization of the diaphragm, which is also an early sign. Among one hundred cases of appendicitis there are eighty-five in which it is best to resort to the application of ice. Errors of diagnosis are not rare. There are two or three cases in every hundred in which one should not operate; these are the cases of hematogenous appendicitis with complications in the biliary passages. In these cases operative interference is most frequently disastrous.

"Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis" was the subject of a paper read before the Society of Internes by Léon Bernard. In the technique the latter employs only the apparatus of Russ. The principle of the method consists in the introduction into the pleural cavity of a certain amount of gas, which compressing the diseased parts of the lung favor their sclerosis. In general it is better to employ a general compression. Repeated examinations by means of the *x*-rays are necessary in order that one may determine the degree of compression produced. With a well-ordered technique accidents such as convulsions, embolism, and sudden death are not to be feared. Remote by-effects, as subcutaneous emphysema are negligible. Pleurisy may complicate the course of the treatment, but does not aggravate the prognosis.

The conditions that indicate this method of treatment are deep, old, and circumscribed lesions (acute tuberculosis, pneumonia, or bronchopneumonia). The method of Forlanini should be employed if the lesions extend in spite of the orthodox methods of treatment. In most cases the bilaterality of lesions constitutes a contraindication. Other contraindications are the fibrous forms of disease with sclerosis and extensive pleural adhesions. The method is one to be rarely employed. In only 1 to 3 per cent. of cases of pulmonary tuberculosis should it be applied, and of these it is successful in about one-third. The good results in these few cases justify this procedure.

"Compensatory Hyperplasia of the Kidney, Following Unilateral Nephrectomy," was the subject of a paper presented before the Society of Biology by Paul Carnot. In a first series of experiments he killed the animals ten to twenty days after having removed one kidney, without employing any treatment to stimulate the compensatory hyperplasia. The latter almost always developed to an extent of 16 to 50 per cent. of the spared kidney. The average increase was 33 per cent. in fifteen days.

Carnot next showed the effects of certain therapeutic agents in favoring compensatory renal hypertrophy. Most toxic substances retard this process; likewise does urine. On the other hand, urea, and above all, the extracts of the kidney, notably the extracts of hyperplastic kidneys, activate proliferation and may cause an increase in weight of 60 per cent. in fifteen days. The same effect is observed after the use of pituitary extract. The best results are obtained with the use of *x*-rays in small doses. These, Carnot said, have produced an increment in weight of from 60 to 88 per cent. in fifteen days.

A monument to commemorate Dr. Guinard, who was recently slain, was unveiled June 24. Mesureur, Landouzy, and Delorme referred to the high qualities that Guinard had displayed, to his devotion to duty, to his surgical honesty, and to his professional loyalty. He met death with stoical courage. His life and his death provided an example for many generations to come. It was most fitting that the monument should stand in the Hôtel Dieux, where Guinard was one of the leading teachers.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 30, 1913.

1. The Treatment of Scoliosis. R. W. Lovett.
2. Certain Observations Upon Two Hundred Cases of Gastric Disease. C. L. Scudder.
3. The Farmer and the Hygienist. P. W. Goldsbury.
4. Third Note on the Persistence of Agglutinins for Bacillus Dysenteriæ in the Danvers Hospital Cases. M. M. Canavan.
5. Furunculosis of the External Auditory Canal. The Use of Alcohol as a Valuable Aid in Treatment. O. A. Lothrop.
6. On the Treatment of Delirium Tremens by the Subdural Injection of Sodium Bromide. S. P. Kramer.

1. **Treatment of Scoliosis.**—R. W. Lovett in reviewing the methods of correcting scoliosis states that Wullstein and Shanz have shown that the suspension position can produce remarkable results. Sever and Lovett have demonstrated that the prone lying position can bring about satisfactory results. Abbott has shown that the flexed back lying position is attended by apparently effective correction. It is probable that the particular technique employed is of less importance, as to the final result, than the skill and experience of the surgeon, the amount of force used, and the efficiency of the after-treatment. But after a trial of all methods the author believes that the method of Abbott offers on the whole distinct anatomical advantages and the greatest ease of correction, but the method must be regarded as being to a certain extent still *sub judice*.

2. **Observations on Gastric Disease.**—C. L. Scudder presents an analysis of two hundred cases of gastric disease that have been under his care. He is impressed by the part which syphilis plays in the etiology of chronic stomach disease. Syphilis of the stomach is more common than generally has been supposed. It is a tertiary manifestation. A multiplicity of lesions are possible. These lesions may be a gummatous tumor, or ulcerations in the stomach wall involving the mucosa, or adhesions extending from the stomach to neighboring organs. Syphilis of the central nervous system with symptoms of gastric crises may confuse the picture, when only the spinal fluid will show evidences of the infection. The symptoms of syphilis of the stomach may resemble chronic ulcer—or even cancer—differing from ordinary ulcer in their lack of regularity and persistence. In all of the author's suspected syphilitic cases there have been many peritoneal adhesions. He has made mistakes in diagnosis in the following cases: The diagnosis of gastric ulcer in twelve cases proved to be adhesions in one case; no pathology in three cases; syphilis, but not of the stomach, in one case; leioma in one case; and appendicitis in six cases. A diagnosis of duodenal ulcer in three cases proved to be Lane's kink and appendicitis in one case, sarcoma of the stomach in another, and appendicitis in the third. A diagnosis of carcinoma of the stomach in two cases proved to be gastric ulcer in one case and duodenal ulcer in the other case. In one doubtful case a diagnosis of stomach, gall-bladder, or appendix disturbance proved to have no visible pathology. The author has been most assisted to a diagnosis of chronic ulcer by a carefully elicited story of the onset and course of the symptoms. Definite pain in the stomach region has been the most constant symptom. The hunger pain, so-called by Moynihan, has been found to be associated so frequently with ulcer on the gastric side of the pylorus that the author is inclined to think that it is not diagnostic of duodenal ulcer. As regards the surgical treatment of cancer of the stomach it is pointed out that gastroenterostomy is a poor palliative measure. The length of life secured is but about four months. It is better, if practicable, to resect as a palliative measure, and rid the patient of a sloughing mass of cancer, not being content simply with a posterior or anterior gastroenterostomy. The length of life is longer after resection than after gastroenterostomy.

5. **Alcohol in the Treatment of Furunculosis of External Auditory Canal.**—O. A. Lothrop describes the technique of this method of treatment as follows: The canal is cleaned of cerumen, desquamation, discharge, foreign bodies, or polyps. A wick is then inserted into the canal, nearly to the drum membrane, completely filling the lumen. If there is no discharge cotton is used. If there is a discharge a gauze wick is used. If the canal lumen is partly closed by one or more distinct "ripe" furuncles, these should first be incised and the pus evacuated. Any incision should be carefully made into the center of the furuncle, for, if this is not done, the pus does not escape and the patient is not relieved. In addition, there is danger of infecting a new area, and a perichondritis sometimes results from trauma to the cartilage. A probe point will often help to locate the center of a furuncle. After being inserted snugly into the canal, the wick is saturated with alcohol, plain or with boric acid, and the patient is instructed to keep the wick wet by dropping alcohol upon it at frequent intervals. The wick should be removed daily by the physician and a fresh one inserted. Whenever a pocket of pus can be located it should be incised. After incision, the alcohol should be applied before the patient recovers from the anesthesia. The alcohol smarts on freshly cut or abraded surfaces with the first application, but gives very little discomfort at later applications.

6. **Subdural Injections of Sodium Bromide in Treatment of Delirium Tremens.**—S. P. Kramer has used this method of treatment in a series of twenty cases and vouches for its safety and efficacy. The technique of the treatment consists in the withdrawal of 50 to 60 c.c. of cerebrospinal fluid by lumbar puncture. The same amount of a sterile one per cent. solution of sodium bromide is injected with a syringe. There is absolutely no danger from increased subdural pressure. This amount and even as much as 80 cubic centimeters of fluid have been injected into the subdural cavity in an interval of one minute without the least sign of increased intracranial pressure. Sodium bromide is not toxic to the nervous system. The potassium salt must not be used, since it is slightly irritating. The patients as a rule show a lessened delirium within a few minutes after the injection. This immediate improvement, however, disappears after a short time, but is followed in from 12 to 15 hours by a permanent disappearance of the delirium.

New York Medical Journal.

November 1, 1913.

1. Common Errors in the Diagnosis and Prognosis of Gallstone Disease. B. T. Tilton.
2. Special Technique in Palpation. L. Napoleon Boston.
3. Induced Pneumothorax. H. Schwatt.
4. The Toxicity of Coal Tar Products. G. H. White, Jr.
5. Methods of Teaching Sex Hygiene. Mary Sutton Macy.
6. A Clinical Study of Leucocytes. G. E. Henson.
7. Neosalvarsan and Malaria: A Personl Experience. J. A. Cutter.
8. A Plea for Oily Injections of Salvarsan. H. C. Klotz.
9. The Treatment of Chronic Uretiritis. S. Steiner.
10. The Intravenous Treatment of Rheumatic Fever. P. M. Patterson.

1. **Errors in Diagnosis and Prognosis of Gallstone Disease.**—B. T. Tilton points out that jaundice occurs only exceptionally in gallstone disease. A common belief held is that the symptoms caused by gallstones are always directly referable to the liver and biliary ducts. This mistaken idea has probably been the cause of most errors in diagnosis. The classical symptoms that have long been ascribed to cholelithiasis are unfortunately the exception. Other organs, particularly the stomach, give the first evidence of gallstones, and that it may not be until months or years later that the symptoms point directly to the liver and bile ducts. Patients with epigastric pain and stomach symptoms are constantly being treated for indigestion, while the real trouble, gallstones, is entirely overlooked. Stomach clinics are visited by patients with

gallstones who are religiously treated by gastric lavage, antacids, sedatives, etc., without relief. It is evident that a failure to recognize the real nature of these cases, over a long period of time, may lead to serious changes in the gall bladder, bile ducts, pancreas, and other organs. As a consequence a simple lesion becomes a complicated one and the patient runs the risk of a sudden attack of acute cholecystitis, obstruction of the common duct, infectious cholangitis, or the gradual development of painful adhesions about the gall bladder and ducts, pyloric obstruction, chronic pancreatitis, cancer of the gall bladder, and other lesions resulting from the continued presence of stones.

2. Special Technique in Palpation.—L. Napoleon Boston, has employed a special technique for the purpose of determining the degree of tension over various portions of the abdominal surface. In normal subjects, when the patient is resting upon his back with the thighs flexed, there is a slight increase in tension immediately below the right costal margin (hepatic tension). This area when compared with the same area in the left superior abdominal quadrant, offers slightly more resistance to the palpating finger. Comparing the two sides of the abdomen, one or two inches above the level of the umbilicus, the same degree of resistance is offered to the palpating fingers. There is no appreciable difference in the resistance of the two sides of the abdomen below the umbilicus during health. This method for palpating the two halves of the abdomen simultaneously is to begin immediately above Poupart's ligaments, ascending in lines drawn from the center of Poupart's ligaments to the costal border. One should continue by comparing the two halves of the abdomen at equal levels ascending to the margin of the ribs. One may also palpate the abdomen, employing the same scheme and ascending from the inferior abdominal region to the costal margin, following lines approximately two inches to the right and the same distance to the left of the line previously mentioned. Through this method of palpation it is possible to elicit one of the most delicate signs of new growths of the abdomen. Enlargement of the liver, spleen, and kidneys; uterine, ovarian, and cystic growths and fecal impaction are all mapped out by a localized increase in tension of the abdominal wall over the site of the lesion. Prolapse of any viscus causes a lessened resistance to the finger when palpating over its normal position; and increased tension is detected immediately over the present position of such migrating viscus. Localized inflammatory processes involving the abdomen are accompanied by undue tension over a limited portion of the abdomen, and this is exemplified in acute appendicitis, pyosalpinx, gastric cancer, and conditions accompanied by localized peritonitis. Posture may materially alter the degree of abdominal tension, therefore it is preferable to perform palpation while the patient is resting upon his back, on his right side, on his left side, and when standing.

5. Teaching of Sex Hygiene.—Mary Sutton Macy calls attention to a few very potent dangers in the teaching of sex hygiene. First there is the danger of introducing pathological data—not only morbid and detailed information about masturbation, sex anomalies, and kindred diseased conditions, but also statistics on the prevalence of sexual diseases, and of prostitution. The pendulum has swung so far from the old-fashioned silence on all sex topics that one is in serious danger of saying too much and talking too often, without making plain the facts that (1) the reproductive function is only one function of the body, (2) that it is physiologically no more vital than any other, and (3) that it is closely associated with and interdependent upon all other mechanisms of the human machine. The author emphasizes the danger of too detailed information, and in this relation quotes from the report of the special committee of the American Federation of Sex Hygiene as follows: "Sex instruction has a purely practical aim and should be strictly limited by this aim. Its purpose is to impart such knowledge of sex at each period of the child's life as may be necessary to preserve health, develop right thinking, and control conduct. Its aim is both hygienic and ethical; and whatever knowledge of sex and of sex relations in human life is not necessary at any particular period of the child's life for these ends should not be imparted at that period."

Journal of the American Medical Association.

November 1, 1913.

1. The Relation of Pathological Physiology to Internal Medicine. A. W. Hewlett.
2. Study of a Case of Congenital Hemolytic Jaundice. E. T. F. Richards and W. C. Johnson.
3. Importance of the Tuberculin Reaction in the Diagnosis of Early Pulmonary Tuberculosis. V. C. Vaughan, Jr.
4. Limitations of Lange's Silk Ligaments in Paralytic Surgery and Substitutes Therefor. E. A. Rich.
5. Clinical and Laboratory Salvarsan Relapses and Their Remedy. A Serologic Study of Six Hundred and Fifty-one Cases Covering Nine Hundred and Fifty-two Intravenous Administrations and Three Thousand Three Hundred and Four Wassermann Examinations. M. L. Heidingsfeld.
6. An Experimental Study of the Antiseptic Value in the Urine of the Internal Use of Hexamethylenamine. F. Hinman.
7. The Pseudodiphtheria Organism in the Urinary Tract. W. W. Townsend.
8. Correction of Impediments of Speech in Our Public Schools. H. F. McBeath.
9. A Method of Closing a Sinus between the Antrum of Highmore and the Mouth. L. W. Desm.
10. The Surgery of Infantile Paralysis. E. W. Ryerson.
11. Acidosis as a Complication after Surgical Operations. W. B. Russ.
12. Von Mikulicz' Disease—Further Studies. W. Lintz.
13. Gas Bacillus Infection—A Report of Six Cases. L. B. Robertson.
14. A Case of Tumor of the Hypophysis Partially Removed by the Transfrontal Method of Approach. C. H. Frazier and H. Lloyd.
15. The Invariable Blood-Stain. B. G. R. Williams.
16. Further Notes on Transfusion by Means of Glass Cylinders. A. R. Kimpton.
17. An Improved Method of Extracting Ova from Stools. H. L. McNeil.
18. Manometer and Safety Valve for Use in the Operation of Artificial Pneumothorax. L. S. Mace.
19. A Case of Prolapsed Cord. H. E. Robinson.
20. A Sporadic Case of Thyphus Fever. H. H. Newman.

2. Congenital Hemolytic Jaundice.—By E. T. F. Richards and W. C. Johnson. (See MEDICAL RECORD, July 5, 1913, page 39.)

3. Tuberculin Reaction in Early Pulmonary Tuberculosis.—By V. C. Vaughan, Jr. (See MEDICAL RECORD, June 21, 1913, page 1148.)

5. Salvarsan Relapses.—M. L. Heidingsfeld alludes to the difficulty of establishing fixed rules for the treatment of syphilis. A few fundamental principles are generally accepted. The intravenous administration of salvarsan is conceded to be the most efficient method of its administration. With proper technical precautions it can be performed in ambulatory practice but painstaking surgical asepsis is essential. In his early use of the drug the author was inclined to give large doses frequently repeated, but experience has made him more conservative. He insists on the value of the Wassermann test as essential in the treatment of syphilis as even salvarsan. Of his 651 cases 23 per cent. failed to produce a negative reaction with salvarsan and when salvarsan was aided by other measures the Wassermann reaction failed in about 12 per cent. of the patients. From an objective clinical point of view the latter were free from visible manifestations, but the persistent strong Wassermann reaction showed that they were uncured. For the past year or more the author has been using various methods as adjuncts to the salvarsan treatment. In the beginning he employed massive intravenous administration of mercury oxycyanide and mercury bichloride but gastrointestinal disturbances caused him to abandon these drugs. Since then he has employed a 10 per cent. solution of sodium cacodylate and atoxyl with better results, the former proving the more reliable and efficient. Some cases were not favorably influenced, however. The injections were made twice weekly for thirty to sixty days and if the Was-

sermann was negative in thirty days they were given once weekly, but for never more than a total of sixty days. They were always well tolerated. Only five cases have relapsed to a positive Wassermann after a negative one for one full year. Salvarsan is not unfailing. It effects an apparent clinical and laboratory cure in about 77 per cent. and the remainder give every promise in the majority of cases of an ultimate clinical cure with the aid of sodium cacodylate and other measures.

7. **The Pseudodiphtheria Organism in the Urinary Tract.**—W. W. Townsend is convinced that under the proper conditions a pseudodiphtheria bacillus in the genitourinary tract can become a pathogenic organism; that it is more common as an etiological factor than is appreciated in the textbooks, as evidenced in the numerous cases of chronic urethritis in which it is found, in the cases reported by Rosenow and in the one studied by the author. The latter's findings endorse fully Brown's statement that it is not at all uncommon as a sequence of gonorrhea to find a condition in which the urine shows large numbers of organisms of different forms, which undoubtedly tend to keep up the inflammation. The subject of symbiosis is one for further study by the bacteriologists and of vast clinical interest in the treatment of rebellious conditions of the genitourinary tract.

11. **Acidosis as a Postoperative Complication.**—W. B. Russ notes that because of a marked reduction in the normal alkalinity of the blood, the result of some perversion of metabolism, many of the patients requiring surgical operations are unfit subjects for general anesthesia and the ordeal of an operation. The warning signs in such cases are: (1) A history of unaccountable headaches, vertigo, attacks of dyspnea, occasional nausea or vomiting, an unreasonable dread of the operation, tachycardia, and other nervous symptoms. (2) A peculiar sweetish odor to the breath, suggesting the odor of decayed apples. In some cases this is marked and unmistakable. (3) The presence in the urine of the acetone bodies. To disregard these warning signs is to subject the patient at best to an anesthesia requiring large amounts of ether or chloroform, and attended with struggling and great rigidity of the muscles, difficult breathing, a rapid pulse and nausea, followed by a prolonged and nerve-racking convalescence with persistent vomiting, restlessness, dyspnea, a rise in temperature and much suffering, or, if less fortunate; to subject the patient to the certainty of a fatal termination, preceded by nausea, air-hunger, persistent vomiting, a rise in temperature, great nervousness, followed by coma and death in from ten hours to two or three days. A recognition of acidosis in time followed by the institution of such measures as a carbohydrate diet of from 6 to 8 ounces of oatmeal and cream with lactose, large quantities of carbonated alkaline water, colon flushings with an alkaline solution and the internal administration daily of 3 or 4 drams of sodium bicarbonate or sodium citrate by mouth will be followed by a rapid disappearance of all or most of the unfavorable symptoms, and the patient will be rendered for the time being at least a safe subject for the anesthetic and the operation.

The Lancet.

October 25, 1913.

1. The Causes and Symptomatology of Impaired Retinal Activity. G. A. Berry.
2. Symmetrical Necrosis of the Cortex of the Kidneys Associated with Suppression of Urine in Women Shortly After Delivery. H. D. Rolleston.
3. The Effect of Altitude on Blood Volumes, together with Further Observations on the Blood in Warm-blooded and Cold-blooded Animals. G. Dreyer and E. W. Ainley Walker.
4. Veronal Poisoning W. H. Willcox.
5. A Clinical Study of the Chief Function of the Peritoneum. J. Howell.
6. The Experimental Transmission of Disseminated Sclerosis to Rabbits. W. E. Bullock.

1. **Impaired Retinal Activity.**—G. A. Berry concludes that, physiologically, when the intensity of a light stimulus, acting only on a few end organs of the retina, is diminished in any way—that is, when either the brightness of the test object or the contrast between it and its background is diminished—then the visual acuteness, the power of recognizing detail, is lowered. For diminished intensity of stimulus in the case of the normal eye one may assume diminished excitability, conductivity, or receptivity in that of the diseased eye. *A priori* the result must be the same in both cases. That the assumption is justifiable is shown by the fact that in every case of acquired visual defect, with obvious exceptions, the light sense for small visual angles is diminished. As this is not necessarily the case for larger visual angles, it follows that a summation of feebler individual impressions must have the effect of causing a stronger total impression. Both the light and color senses are greatly dependent upon the size of the angle under which any object is seen. The eye is unable to detect anything like as small differences in the intensities of contiguous retinal stimuli under a small, as it does under a greater, visual angle. And this circumstance, when taken along with the physiological imperfection of the retinal images of external points, is the reason why visual acuteness is greater in what we call a good light than it is in a sufficiently bad light. Thus is explained the drop in acuteness which takes place, physiologically, in the dark—a drop which is, however, greatly modified by retinal adaptation. Thus also is explained the drop which takes place, pathologically, when the excitability or conductivity of the nervous mechanism is lowered. It is obvious that, given normal optical conditions of the eye, a diminution in visual acuteness must depend upon some change in the retina, or its direct connections. The author leaves out of consideration those visual defects which come from optical errors alone. The explanation of visual defects that come from optical errors alone is simpler. The diffusion circles of the images of objective points are of quite another nature than those which are due to aberration. As a rule, the visual acuteness of an ametrope is relatively better when compared with that of an emmetrope when the light is insufficient to permit of full vision in the case of the latter. This is due to the absence, generally speaking, in the ametrope, *quâ* his ametropia, of any light sense defect. As regards the methods of examination for foveal vision it is easier and, for clinical purposes, sufficient to test the acuteness for Snellen's types under ordinary and reduced illumination and contrast, than to determine the limits of invisibility with the photometer and Masson's disc. Similar tests are not suitable for the examination of eccentric vision, and an estimate of visual acuteness at other parts of the retina than the fovea must be made with objects which subtend a very small visual angle.

2. **Symmetrical Necrosis of the Cortex of the Kidneys.**—H. D. Rolleston states that this condition is rare, being seen almost only in women directly after childbirth. Eleven cases have already been reported and the author now adds a twelfth case. Symmetrical necrosis of the renal cortex is almost invariably related to recent delivery, and the child is almost always stillborn. The symptoms resemble those of obstructive anuria, but uremic manifestations are not entirely absent. The kidneys may have been previously either healthy or diseased. The necrosis of the cortex is a characteristic lesion, and is intimately connected with thrombosis of the interlobular renal vessels, but the exact relation between these two events is open to discussion.

4. **Veronal Poisoning.**—W. H. Willcox points out that toxic symptoms may occur after the administration

of veronal, and these may be the result of: (1) a special idiosyncrasy causing a susceptibility to a small or moderate dose; (2) an excessive dose having been taken; and (3) repeated small doses as in the veronal habit. The toxic symptoms which occur after a single large dose are drowsiness, headache, and sometimes ataxia, accompanied by a reeling gait. The patient falls into a deep sleep from which he can be roused only with difficulty. In severe cases the sleep deepens into coma, and the patient becomes cyanosed with rapid and often stertorous breathing. In this stage it is very common for a marked rise of temperature, even to 103° F. or more, to occur, and a physical examination of the lungs will probably show all the clinical signs of pneumonia. These signs will be accompanied or followed by those of a general edema of the lungs, such as moist bubbling râles all over. It is quite easy for a severe case of veronal poisoning to be mistaken for pneumonia. When the condition of deep coma and pulmonary symptoms develops after the taking of a large dose of the drug it is uncommon for recovery to occur. Sometimes a condition of coma and high temperature will last for as long as four days before death supervenes, but after a very large dose death may occur in less than 24 hours. Cases of death have been recorded after even such small doses as 10 grains. In these cases probably other factors were present, and death was not entirely due to the drug. In a healthy adult it may be considered that a dose of about 50 grains is dangerous, and might be regarded as an average minimum fatal dose. It is well known that much larger doses have been taken without death resulting, but in these cases serious symptoms such as deep coma have occurred, and there has been grave danger. In the recorded cases of veronal poisoning the patients have often been the subject of some other disease, or of some other form of poisoning, such as alcohol, morphine, etc., and the veronal may not have been entirely responsible for the fatal issue. In fatal cases of veronal poisoning it is usually almost impossible to say what was the exact dose taken, since the early onset of coma usually prevents any information being obtained from the patient.

6. Transmission of Disseminated Sclerosis to Rabbits.—W. E. Bullock has been able to produce paralysis of the limbs in four rabbits out of five by injecting cerebrospinal fluid, withdrawn under rigidly aseptic conditions from a case of disseminated sclerosis, subcutaneously into the rabbits. The fluid was found to be potent after exposure to a temperature of 0° C. for 14 days, and after being filtered through unglazed porcelain. Histological examination of the spinal cord revealed a complete reproduction of the appearances found in the human subject—viz., (1) vascular engorgement and fragmentation of the myelin sheath in the early stages; and (2) areas of degeneration throughout the cord, demonstrable by the Marchi and Weigert-Pal methods, in the later stages of the disease. Whether the cerebrospinal fluid obtained from a second case of the disease would have produced paralysis in two wild rabbits or not could not be determined owing to the premature death; in the case of the other two animals the fluid was not potent in producing paralysis. A cat which was inoculated with fluid obtained from the first case remained active and healthy for nine weeks.

Deutsche medizinische Wochenschrift.

October 16, 1913.

Present Status of Hydrophobia Research.—Professor Josef Koch of the hydrophobia department of the Koch Institute refers to the opening of the latter in July, 1898. To-day, after fifteen years, there is a special building, an offshoot of the temporary institution. During the fifteen years some 5,000 individuals have received prophylactic inoculation, and thousands of suspicious animal brains have been studied for rabies. Thanks to the work of the institute rabies has become of very rare occurrence, and it is only in rural districts that cases occur with sufficient frequency for the general practitioner to be able to state that he has seen or treated one. Hydrophobia is now the only affection with 100 per cent. mortality. The commonest symptoms in the dog are alterations in character; shy and suppressed behavior; refusal of food; emaciation and paraplegia of the posterior extremities. The latter may last but a few days. The paralysis is unusually marked in fowls, and the disease is therefore chronic here with some chance of recovery. Some of the experimental and natural rabies cases in animals recover spontaneously. The question as to the hope of recovery in human cases from this example must be answered negatively. Rarely in a human case we see a spinal paraplegia develop violently. Such cases might naturally hold out some hope for recovery. Before the appearance of the paraplegia patients have slight fever, malaise, headache, pains in sacrum and loins, weakness in the lower extremities. Further among psychic phenomena, great restlessness, and depression of spirits led up to complete paralysis of an intention type. We naturally assume the existence of a myelitis, whether from the presence of a microorganism or of its toxins. Babes years ago ascribed the paralytic component to the inoculated virus. If weakened virus from the rabbit be injected near the spinal cord such a conclusion might be drawn from a few cases, but as such inoculations have been made by the thousand without the development of paralysis Babes' view cannot hold water. The alternative means a spinal type of rabies of rare occurrence which may of course indicate an abortive central type. But speaking of abortive types we come now to a most interesting question: since in infectious diseases as a class we have certain mild and abortive forms, why should not these occur in rabies? This query has already been answered by the discussion of the so-called spinal or paraplegic type.

Example of Freudian Analysis.—Enderlen expresses his belief that psychoanalysis is a joke and states that neurologists look upon it with a pitying smile. It is, therefore, astounding to see such an enormous literature spring up about it, giving a false idea of its worth. A counter propaganda should at once be instituted against it. He relates the following case: A young woman who had been subject to attacks of aphonia had consulted many physicians, whose diagnoses, however differently stated, all pointed to a neurogenic source. In despair at the successive failures the girl turned to a psychoanalyst who claimed that the condition was purely mental. After months of supervision the patient was pronounced cured and a fee of 1,300 marks cheerfully paid. Although her "mental state had become normal," there were much more than vestiges of the old trouble in existence. In fact to outsiders the girl appeared to be worse. It was merely a case of inventing a morbid state, in fact of calling the patient mentally unsound and then after months of treatment pronouncing her mentally sound. The parents rejoicing over their daughter's returning sanity gave little attention to the intermittent aphonia.

The Use of Salvarsan in Puerperal Infection.—G. Bleynie reports four cases of puerperal infection in which after all the usual measures had been resorted to apparently without avail there were injected intravenously 30 centigrams of salvarsan. Two of the patients recovered. In the two fatal cases the injection of salvarsan was followed by a temporary improvement.—*Journal des Sages-Femmes.*

Insurance Medicine.

Prognosis of Heart Affections from the Life Insurance Aspect.—Dr. James Mackenzie says that among the several circumstances which directed his attention to the subject of prognosis in heart conditions was the fact that in the examination of individuals for life insurance he was the means of rejecting a number because of some heart affection who have been able to follow their ordinary occupations for many years and who have never suffered from any form of heart failure. This experience led him to seek the reasons why some individuals with certain characteristic phenomena drifted and died, while others seemed little the worse. Books were vague on the subject, so he was forced to seek out lines of observation for himself. These lines were simply to differentiate clearly the various phenomena, to watch individuals possessing them as the years passed by, and to take every opportunity of seeing how the heart responded under the ordinary strain of life. It was always necessary to seek associated phenomena and to note the state of health of the individual. We first consider what bearing has the cause of the abnormal sign upon the efficiency of the heart; does it indicate heart failure or foreshadow the occurrence?

A clear idea of the term heart failure is necessary. Heart failure is the inability of the heart to maintain a circulation so efficient that it can meet the strain that a healthy, vigorous life demands. In the physiology of the heart its forces may be considered composed of two kinds—a rest force strong enough to maintain an efficient circulation when the body is at rest, and a reserve force, brought into action when the body or any part of it is called into activity. The amount of reserve force varies in different individuals, making the standard peculiar to the individual. Notwithstanding this, the knowledge of what a healthy individual can do is well known, the individual himself recognizing his limitation.

Heart failure sets in by a limitation of the cardiac response to effort in the first instance, and as it progresses, the limitation becomes more and more restricted until the rest force is encroached upon and dropsy or dyspnea appear. At first the evidence of heart failure is entirely subjective and gradually increases until physical signs are present. A normal circulation is dependent upon a healthy heart muscle, which has its limitation of power. Heart failure is an expression of an exhausted heart muscle. As an outcome of this expression, the presence of any sign revealed by physical examination, however abnormal it may seem, is of no serious significance so long as it is the only sign present, or so long as there is no limitation of the reserve force of the heart. Mackenzie considers this statement of very great importance in the prognosis of heart affections, especially with regard to life insurance. The most common manifestations of the heart regarded as abnormal are the irregularities. A normal heart is supposed to be perfectly regular in its action, whereas, from birth to death, normal hearts may be frequently irregular in rhythm. The clinical teaching of the past dealing with irregularities has been due to a mistaken idea, according to Mackenzie, and only in recent years has there been any attempt to differentiate the various forms of irregular heart action. The inability to distinguish the grave forms from those which are normal and not serious has led to the assumption that all irregularities were of evil import.

There are certain irregularities, such as the youthful irregularity and the extra-systole, present so frequently in healthy people and occasioning no signs of heart failure, that under no circumstances should be considered as impairing the prospect of the individual, when they are the only manifestation. If present with other signs, then the prognosis should be based on the other signs, not on the irregularity. Other irregularities, such as auricular fibrillation, heart-block, pulsus alternans, etc., should arouse an inquiry as to how far their cause has embarrassed the heart muscle, as they are always the outcome of an actual heart lesion, and are accompanied by other evidences of cardiac disease, or impairment of the heart muscle. It is therefore upon the associated evidences that the decision must be made.

Murmurs are the second important group of heart affections. As far as life insurance is concerned, MacKenzie divides them into two great groups: those of no significance, and those whose significance has to be considered and weighed. The first group embraces all those which are termed functional and those in which there is a doubt whether they are functional or not. They are supposed to originate according to their mechanism, as mitral, tricuspid, etc. From the life insurance aspect, so long as these murmurs are the only phenomena present they are not to be regarded. Many murmurs associated with a harmless type of irregularity, as the extra-systole, do not become grave; but associated with a limitation of the reserve force, as a weakened heart muscle, then the decision should be based on the cause of this inefficiency, which is either a lesion of the muscle itself or an affection which has impaired the muscle. In the second group are placed all the organic murmurs, and here a variety of conditions is to be found. These should be studied as to whether the process causing them is stationary and if it is embarrassing the heart muscle, or if progressive, and the rate of progress. Murmurs indicate that the valves have been invaded by a disease process and the danger is that the mischief is not quiescent. In cases of heart failure with murmurs it is the muscle lesion which is the causative agent, and not the regurgitation, as supposed by the upholders of the back pressure theory. The prospect of the patient's future can be estimated fairly well by considering the state of the heart's powers and the physical signs of the condition of the muscle.

It will be seen, therefore, that however instructive the evidence revealed by physical examination may be, the essential information for prognosis is the appreciation of the condition of the heart muscle, which can only be learned by a full knowledge of how the heart responds to effort. Speaking generally, exhaustion of the reserve force in a healthy or diseased heart is always accompanied by sensations of distress, and the premature occurrence of these signs indicates the limitation of the heart muscle. Breathlessness is the most common sign and the one least considered on the ordinary insurance blank. The knowledge obtained in recent years on the irregularity of the heart's action constitutes a revolution, not only with regard to the accurate differentiation of the irregularities, but of their diagnostic and prognostic significance.—Life Assurance Medical Officers' Association, March 15, 1913.

Book Reviews.

Orthopedics in Medical Practice. By Prof. Adolf Lorenz, Regierungsrat, Director of the Imperial University Ambulatorium for Orthopedic Surgery in Vienna, and Dr. Alfred Saxl, Assistant Surgeon in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna. Authorized Translation from the German by L. C. Peel Ritchie, Ch.M., M.D., F.R.C.S. Edin., Late Volontär-Arzt in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna; Tutor in Clinical Surgery, University and Royal Infirmary, Edinburgh. With thirty-nine Illustrations. Price $3.00 net. New York: William Wood and Company, 1913.

This book supplies a distinct want in medical literature. It discusses the close interrelation between orthopedics and general medical science. It shows how a number of skeletal and muscular developments play an etiological rôle in the production of internal diseases, and similarty it points out the effects of various so-called medical diseases upon the skeletal system. The book is divided into six chapters which deal in order with the respiratory, circulatory, digestive, urinary, nervous, and locomotory systems, respectively. Among some of the important points touched upon in the first chapter is the relation of scoliosis to displacement of the thoracic organs. It is pointed out that any condition in the osseous chest wall which may restrict the movements of the pulmonary apices, may play a rôle in the evolution of tuberculous involvement at these sites. There is reviewed the work of Freund, Mendelsohn and Schmorl who pointed out the connection between pulmonary tuberculosis and rigidity of the spinal column, and particularly the presence in the former of shrinking of the first rib and ankylosis of the sternoclavicular joint. Freund's operation consists in division of the shortened and ossified cartilage. Nickol has perceived a close relationship between cervical rib and apical tuberculosis, the latter having been discovered in many cases of the former condition. Poncet has recently alluded to a possible tuberculous origin of scoliosis. The deforming effects of emphysema, bronchitis, and pleurisy are fully described. Fat embolism as the result of operative manipulation of the bones or joints is a subject that concerns both the internist and the surgeon. In a similarly complete manner the authors discuss the many orthopedic aspects of the diseases in other parts of the body. Of particular interest is the full and ample description of the orthopedic treatment of the paralyses and paraplegias. One can have no hesitation in recommending this volume to the general practitioner as a complete survey of the latest developments of orthopedic science in its manifold bearings on internal medicine. The book is well written and the translator has brought to his task a sympathetic knowledge of the subject-matter which gives a peculiar individuality to this English edition. The printing, paper, and binding are in keeping with the excellent character of this work.

Syphilis and the Nervous System. For Practitioners, Neurologists, and Syphilologists. By Dr. Max Nonne, Chief of the Nervous Department in the General Hospital, Hamburg, Eppendorf. Authorized Translation from the Second Revised and Englarged German Edition. By Charles R. Ball, B.A., M.D., Chief of the Nervous and Mental Department, St. Paul Free Dispensary; Neurologist, St. Joseph's Hospital, Bethesda Hospital, Mounds Park Hospital, Minnesota Soldiers' Home, and State Home for Crippled and Deformed Children. 98 illustrations in text. Price $4.00. Philadelphia and London: J. B. Lippincott Company, 1913.

There are few subjects in medical science that have undergone such revolutionary changes within the past few years as has that which deals with syphilis of the nervous system. The most recent of these changes is the discovery by Noguchi of the presence of the microorganism of syphilis in the brains of paretics. Unfortunately, this, the second edition of Nonne's well known work was printed before the announcement of Noguchi's discovery, for it is quite probable that this announcement would have changed some of Nonne's opinions regarding the relationship of syphilis and paresis. He states that general paresis is not a specific syphilitic disease of the brain, but that the relationship between it and syphilis is manifold and intimate. He holds that syphilis weakens the already more or less predisposed brain in its resistance, so that later injurious factors are able to influence it toward the development of paresis. In the light of Noguchi's discovery the relationship between syphilis and paresis is to be regarded as not merely an intimate one, but one of direct causal nature. One of the opinions of Nonne has attracted considerably attention, namely, that paresis is curable. This opinion was based upon the observation of ten cases in the course of nineteen years, in which cases Nonne thought that recovery had occurred. Further observation has reduced this number of cases of recovery to four, and Nonne still believes that an absolute cure in paresis is possible. This opinion is supported by that of many neurologists in different parts of the world. The broad scope of the subject of syphilis of the nervous system is simply mirrored in its wonderfully complete exposition in the pages of this book. The titles of the chapters convey a fair idea of its scope. They are as follows: introduction; pathology; etiology of nervous lues and specific endarteritis; syphilitic cerebral meningitis; specific basilar meningitis; symptomatology of syphilis of the base of the brain; symptomatology and prognosis of specific basilar meningitis; neuroses and psychoses in syphilitics and in cerebral syphilis; dementia paralytica and syphilis; syphilis of the spinal cord; meningomyelitis; tabes and syphilis; cerebrospinal form of syphilis; syphilitic disease of the peripheral nerves; hereditary syphilis and the nervous system; concerning the behavior of the Wassermann reaction in the blood and spinal fluid, also pleocytosis and the increase of globulin (phase 1) in syphilogenetic diseases of the nervous system; prophylaxis, and salvarsan therapy. As regards the last the opinion of Nonne deserves careful attention. He states that in cerebrospinal syphilis "the cases in which salvarsan has had an entirely favorable effect are in the minority. In by far the greater number of cases the superiority of salvarsan over mercury and iodide is not apparent. In cases of gummatous disease of the central nervous system immediate salvarsan therapy may be said to be specially indicated. In specific diseases where the vital centers are involved it is especially contraindicated." A complete bibliography completes this volume. In making a final appraisal of this work one may state that it belong to the category of those medical works that record individual experience and original research. It completely covers the entire field of syphilis of the nervous system. It is well written, and translated into clear and idiomatic English. It should prove of distinct use to the general practitioner no less than to the neurologist and syphilologist.

Aids to Practical Pharmacy for Medical Students. Adapted for the Examinations in "Practical Pharmacy" and Materia Medica of the Conjoint and other Examining Boards, and for General Use, by A. Campbell Stark, M.B., B.S. (Lond.), L.S.A. (Eng.), Ph.C., University Medallist and Exhibitioner in Materia Medica; Late Demonstrator on Materia Medica, St. George's Hospital Medical School; Late Lecturer on Biology, Westminster Hospital Medical School. Second edition. Price $1.00 net. New York: William Wood & Company. 1913.

This little book is intended as an aid to students preparing for the examination in Practical Pharmacy of the Conjoint Examining Board of Physicians and Surgeons in England. Naturally, the British Pharmacopoeia is the basis of the present work; and, while the book seems to be well prepared, it is not likely to be of much service to students in American Schools.

Old Age: Its Care and Treatment in Health and Disease. By Robert Saundby, M.D., Edinburgh; Hon. LL.D., St. Andrews and McGill; Hon. M.Sc., Birmingham; Fellow of the Royal College of Physicians, London; Hon. Fellow of the Royal College of Physicians, Ireland; Professor of Medicine in the University of Birmingham; Consulting Physician to the General Hospital (Birmingham), to the Birmingham and Midland Counties Eye Hospital, and to the West Bromwich Hospital; ex-President, formerly President of Council, of the British Medical Association; Emeritus Senior President of the Royal Medical Society. Price $2.10. New York: Longmans, Green & Co.; London: Edward Arnold, 1913.

This is one of the most practical of the many books on old age that have appeared in the last quarter of a century. That it is most readable need not be said to those familiar with Dr. Saundby's writings, and that it contains wise counsel simply expressed will also be taken for granted. In the opening chapter on The Duration of Life, Dr. Saundby gives many well-authenticated examples of men and women who have lived to the age of a hundred and over with mental faculties well preserved and free from the sorrows and distress laid by the psalmist upon the backs of those living beyond the fatal limit of threescore years and ten. In the second chapter normal old age, or senile physiology, is discussed, while the rest of the book is devoted to the diseases of the aged. A number of appendices contain dietary tables and recipes, a list of exercises suitable for elderly people, and formulæ of the prescriptions mentioned in the text.

Clinical Surgical Diagnosis. For Students and Practitioners. By F. de Quervain, Professor of Surgery and Director of the Surgical Clinic at the University of Basle. With 510 Illustrations and 4 Plates. Translated from the Fourth Edition by J. Snowman, M.D. Price $7.00 net. New York: William Wood and Company, 1913.

The casual turning of the pages of this book, with a glance at the many illustrations, convinces one at the outset that one is in the presence of a volume that mirrors original experience. A varied and abundant clinical material, and a sympathy with the diagnostic needs of students and practitioners, bred of long experience in teaching, has enabled the author to produce a work of eminently practical value. Each surgical condition is discussed from the viewpoint of the symptom for which the patient presents himself to the surgeon for relief. The completeness with which the author surveys every diagnostic possibility is well exemplified in the section on lockjaw. In turn there are briefly described the numerous conditions of which inability to open the mouth in the striking symptom: neurosis, apoplexy in the lower frontal convolution, tumors of the pons, tetanus, periostitis, actinomycosis, tuberculosis, or osteomyelitis of the jaw, gangrenous stomatitis, acute arthritis of the articulation of the jaw, discitis (a slight looseness of the capsule of the articular condyle), arthritis deformans of the articulation of the jaw, suppuration in the tympanic cavity, injuries with bony proliferation in the neighborhood of the articulation of the jaw, retrotonsillar abscess, cicatricial bands in or under the mucous membrane, and malignant neoplasm near the tonsil. Only one who has had to deal with an obscure case of partial lockjaw can appreciate the exhaustive manner in which the author discusses this condition. The brief case reports that elucidate the important points bring these before the reader in a most vivid manner. The illustrations are particularly helpful. There are 509 of these, and all are reproductions of photographs of the author's own cases. It is difficult to pick out any one portion of this work for special commendation, for the entire field of surgical diagnosis is thoroughly gone over. An interesting chapter is that in which the author discusses acute inflammation within the abdominal cavity. The various regions of the abdomen are discussed with reference to the surgical conditions localized in these regions. A separate chapter is devoted to acute appendicitis. An important distinction is made between two groups of cases of so-called chronic appendicitis. The author points out that logically this term should be applied only to that form of appendicitis in which the appendix does not recover from its inflamed condition. The other group of cases has nothing to do with the appendix, including cases of localized ulcerative colitis, localized functional disturbance of the large intestine in their various forms, such as cecal distention, etc. Without yielding to the temptatoin to point out some of the other seasoned views of the author, the reviewer must be content to place an estimate upon this work as one that the general practitioner no less than the surgeon will read and reread with pleasure and profit. The beauty and clearness of its illustrations, and the excellent typography, paper, and binding, all serve to make this work a model of the printer's art.

A Manual of Venereal Diseases. Introduction by Sir Alfred Keogh, K.C.B., late Director-General of the Army Medical Service. History, Statistics, Invaliding, etc., Brevet Colonel C. H. Melville, R.A.M.C., late Professor of Hygiene, Royal Army Medical College. Clinical Pathology, and Bacteriology, Brevet Colonel Sir William Leishman, K.H.P., F.R.S., R.A.M.C., Professor of Pathology, Royal Army Medical College. Clinical Course and Treatment, Major C. E. Pollock, R.A.M.C. Second Edition, Revised and Largely Rewritten. With New Matter by Major L. W. Harrison, R.A.M.C., Clinical Pathologist, Military Hospital Rochester Row. Price $3.75. London: Henry Frowde, Hodder & Stoughton; New York: Oxford University Press, 1913.

The volume is based upon a study of the methods of treatment of venereal diseases in the British army. That the military service provides ample opportunity for the investigation of these diseases, with the patients under close control and scrutiny, there can be no question. In addition to the excellent delineation of the well-known clinical features of the venereal diseases the authors have had ample opportunity to test the various methods of treatment, and these are given in full, together with an estimate of their relative merit. We know of no single textbook on venereal diseases which presents such a full exposition of the latest diagnostic and therapeutic methods in syphilis. The search for differentiation of the *Treponema pallidum;* the serum diagnosis of syphilis, with the details in its technique; the various modes of administering salvarsan and neosalvarsan, all come in for careful consideration. The orthodox methods of treatment are, however, not neglected. The sections devoted to gonorrhea are also strikingly complete and detailed. In fact the reader may be confused by the profusion of methods in seeking some routine, definite plan of treatment. The sociological aspects of venereal disease are not overlooked. Prophylaxis is discussed, but in its moral and disciplinary aspects, rather than in its latest "army-packet" phase, so loudly extolled on this side of the Atlantic. This volume is provided with a number of excellent colored photogravures, and other illustrations. It is well written and should prove a boon to the student of the latest developments in the diagnosis and treatment of venereal diseases. The printing, paper, and binding leave nothing to be desired.

Headache. Its Varieties, Their Nature, Recognition and Treatment. A Theoretical and Practical Treatise for Students and Practitioners. By Dr. Siegmund Auerbach, Chief of the Polyclinic for Nervous Diseases, in Frankfurt, a.M. Translated by Ernest Playfair, M.B., M.R.C.P. Price $1.50. London: Henry Frowde, Hodder & Stoughton; New York: Oxford University Press, 1913.

Headache is one of the common though by no means one of the minor maladies. The interpretation of this symptom demands a profound knowledge of medicine. This small volume of 208 pages, written by a neurologist presents a comprehensive survey of the many varieties of headache and delineates the different modes of treating them. The classification is particularly helpful. First the author recognizes the more independent forms of headache as migraine, neurasthenic headache, and the nodular (rheumatic) or induration headache. Next he discusses the headaches associated with diseases of individual organs. In the following section the author deals with headaches in general diseases. The combinations of different forms of headache are described in the final section. A most ingenious theory is advanced to explain the origin of migraine. The author assumes that the predisposition to this disease depends upon a disproportion between cranial capacity and brain volume, and that the attacks are brought on by exciting causes which, through the action of the vasomotor mechanism, are calculated to exaggerate this disproportion. This work constitutes an original and most instructive contribution to the literature of neurology and cannot fail to be of distinct service to the general practitioner.

Practical Bacteriology, Microbiology, and Serum Therapy (Medical and Veterinary). A textbook for laboratory use by Dr. A. Besson, formerly director of Bacteriological Laboratories of the Military Hospitals of France and of the Péan Hospital; Laureate of the French Institute. Translated and adapted from the fifth French edition by H. J. Hutchens, D.S.O., M.A., M.R.C.S., L.R.C.P., D.P.H. (Oxford), Heath Professor of Comparative Pathology and Bacteriology of the University of Durham; formerly an Assistant Scientific Investigator, Royal Commission on Tuberculosis. With 416 illustrations, 149 of which are colored; price $10.50 net. London, New York, Bombay, and Calcutta: Longmans, Green & Co., 1913.

Besson's monumental treatise on microorganisms has long enjoyed a high repute in France, and among bacteriologists of other nations, but is little known to the profession in general in other than French-speaking countries. We are glad, therefore, to welcome an English translation, especially one so well made as this. Mr. Hutchens has discharged his difficult task with great skill, avoiding an awkward literalness of version while preserving admirably the meaning and even the style of the original. He has not given us, however, a mere translation, but has enriched the original with many notes and additions which the rapid advances in microparasitology in the interval between the publication of the fifth French edition and that of the English translation have made necessary. The work is divided into seven parts, of which the following are the titles: I, General Technique; II, The Pathogenic Bacteria; III, The Parasitic Fungi; IV, The Pathogenic Spirochætæ; V, The Protozoan Parasites; VI, The Filtrable Viruses; VII, The Application of Bacteriological Methods to the Examination of Water, Sewage, and Air. The illustrations are good and the book is beautifully printed on thin but opaque paper. The general practitioner will find much of interest and exceeding value in this book, and for the bacteriologist it is well-nigh indispensable.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held October 17, 1913.

DR. HENRY D. CHAPIN, CHAIRMAN.

Atypical Infantile Paralysis.—Dr. F. L. WACHENHEIM read this paper. He stated that one of the striking features of the present epidemic of infantile paralysis, which had prevailed since 1907, was the large proportion of atypical cases. The following course was run by the typical and classical form of the disease. The patient suddenly fell ill with moderately high temperature, more or less gastrointestinal disturbance, and general weakness of the extremities. In a few days the temperature would abate, leaving the child paralyzed in one or more limbs. This paralysis gradually passed off, except for one group of muscles, in usually one of the lower extremities, which remained atrophied and disabled for life. Infantile paralysis was considered a disease of the anterior cornua, usually of the lower spinal cord, rarely involving other portions of the gray matter. During the epidemic of last fall Dr. Wachenheim observed seven cases, of which only one was typical; the other six cases were so atypical that he thought them worth reporting in full. Attention was called to a series of cases reported by Dr. Henry Koplik in which symptoms recalling both cerebrospinal and tuberculous meningitis dominated the clinical picture throughout the course of the disease. It seemed that the Fehling test was of doubtful value in severe cases of meningoencephilitis; this seemed to vary, according to the intensity of the infection, rather than the etiology of the disease. A characteristic feature of these cases was the sudden onset. The high leucocyte count seemed to be a constant feature. The cerebrospinal fluid at first was cloudy, but differed from that of cerebrospinal meningitis in that the sediment consisted largely of leucocytes; in a few days the fluid cleared up, leaving only a delicate fibrin on standing. The germ of poliomyelitis, which had recently been found, might turn up in the spinal fluid of this group. The intraspinal pressure was usually not high. The temperature was apt to run the course usually observed in poliomyelitis, possibly rather high at first, but falling to normal before the remission of the grave cerebral symptoms. After all was said the most striking feature was the disproportion between the cerebral symptoms and the general condition of the patient; this was the chief guide in the diagnosis of his case. After the first few days one infant held its own and even gained in weight, in spite of the presence of an apparently serious intracranial condition. This clinical discrepitancy was so remarkable that it could not fail to attract the notice of the attending physician, and clear up speedily all remaining doubts as to the type of the disease. The prognosis in this type of the disease was fairly good as to life; unfortunate after effects, as a paralysis of some muscular group, mental impairment, and amaurosis, might remain. The resulting paralyses were apt to be of the flaccid type distinctive of poliomyelitis, not spastic as after ordinary meningitis. The remarkable variations displayed by so small a clinical material were sufficient to convince them that infantile paralysis was one of the most protean affections of the central nervous system.

The Year's Progress in Poliomyelitis Research.—Dr. GEORGE DRAPER had no paper because the subject assigned to him really called for a review of the literature on the subject of poliomyelitis; consequently anything he might say had already been published. However, there were three points worthy of special emphasis. The first was in reference to the visceral pathology of the disease. Poliomyelitis had hitherto been classified as a disease of the nervous system, but now it had been discovered that there were general lesions. The lesions in the liver, similar to those noted in leukemia, were specially worthy of mention. The second point had reference to the epidemiology. In Sweden washings from the rectum of patients suffering from poliomyelitis had been injected into monkeys and the disease reproduced, though it did not follow the typical course pursued in man. It had been found that the virus existed in the nose and mouth of healthy persons who had been thrown in contact with those suffering from the disease. Thus these secretions, long suspected as being the carriers of poliomyelitis, had proved to be such. The third point was the identification of the organism itself. This organism was extremely small, just on the limits of visibility, was anaerobic and cultivated only with the greatest difficulty. It took the Giesma stain best, was variable to the Gram stain, but tended to be Gram positive, varying, however, with the constituents of the media. It fulfilled Koch's laws. The discovery of this organism was not only of moment because of its relation to poliomyelitis, but because it opened up a new field of bacteriology.

Dr. HENRY HEIMAN said that when one considered that there were at least nine varieties of poliomyelitis it was not surprising that so many atypical cases were found. Dr. Wachenheim's cases would serve as a nucleus for many other types to be observed in the future. Hardly any part of the cerebrospinal nervous system was exempt from attack, and this might account for the many types of this disease. Because of spasticity the cerebrospinal and meningeal types were sometimes confused with meningitis. After the subsidence of the spastic signs paralysis appeared and the diagnosis became clear. In the severe cerebral forms it was almost impossible to give a definite prognosis. Dr. Heiman asked, since the germ was anaerobic, how it was able to live in the nasal secretions or in the rectum.

Dr. H. L. AMOSS said that Dr. Draper had described the organism of poliomyelitis very accurately. It was only with the greatest difficulty that they had succeeded in cultivating the organism at all and according to Noguchi's method. They tried out about twenty-five samples of ascitic fluid before they at last succeeded in cultivating the organism from the nervous tissues of the monkey dead of the disease. The organism had been found in the spinal fluid of a monkey, but never, so far as he knew, in that of the human being. They had concentrated fluids from several human cases of acute poliomyelitis under diminished pressure at 33° C. and injected it into the brain of monkeys, resulting in suggestive symptoms only. With regard to the viability of the organism, one of their strains had been kept in 50 per cent. sterile glycerine in the ice-box for twenty-four months and was still capable of producing the disease when inoculated into the brain of monkeys.

Dr. F. L. WACHENHEIM said that the points he wished to emphasize were the difficulty of diagnosis in the meningeal cases in the early stages, and that in a few days one could size up these cases as not typical meningitis. The subject of insects as carriers of poliomyelitis had not been discussed during this meeting and it was to be hoped that it would be brought up later.

Results of the Investigations of Summer Diarrhea at the Boston Floating Hospital, 1910-1913.—Dr. HENRY I. BOWDITCH of Boston said that his remarks would be only an accumulation of facts and would illustrate the fact that by intensive work they could accomplish more than by extensive work. The Boston Floating Hospital had accommodations for 120 ward patients and 160 day patients. Children were taken at all ages. There was a post-graduate staff of about 16 internes, 2 bacteriologists and 1 pathologist connected with the hospital. The scientific work was started in 1909, when Dr. Lucas and one of his confrères were working on agglutinins in the blood of dysenteric cases. In 1910 Dr. Arthur I. Kendall made, with the assistance of the staff, an extensive bacterio-clinical study of diarrheas, especially dysenteries. They established a shorter method by twenty-four hours of making the bacteriological diagnosis of the dysenteries produced by the Flexner and Shiga bacilli. They found the gas bacillus was in many cases the predominating organism and then they demonstrated a clinical test for its presence in the stools. This test consisted in taking a tube one-quarter full of milk and inoculating it with mucus from a movement. The whole was boiled over a Bunsen flame for one minute and then kept at blood heat for from six to nine hours. A positive gas bacillus infection peptonized the milk, squeezed out the whey, riddled the curds with gas and produced a strong odor of butyric acid. This same year they shortened the former long period of starvation in dysenteries from three, five or seven days to twenty-four hours. Boiled water was given as temporary starvation. This was followed by barley, lactose and buttermilk, according to the infection. They used for the first time (1910) a solution of dextrose (2½ per cent. in normal saline) for stimulation in cases of dysentery of the Flexner type with marked loss of water and depletion. The idea underlying the procedure was that the normal amount of circulating dextrose in the system had been partially used up and by supplying the infecting organism with the food it could be prevented from living on the body proteins and producing toxins. In 1911 they isolated for the first time the Shiga bacillus from the blood. This year they made investigations along the line of rectal

irrigations, trying various solutions; most of them did little good. They now gave saline irrigations immediately on admission and but few during the course of the disease. Where the infection was low they used silver nitrate (3 per cent.) Other solutions, like tannic acid, were of little effect. They found that pyelitis was rather frequent in their cases, the majority of them occurring in cases of streptococcus infection. In 1912 there was an increase in the number of cases infected with the gas bacillus. They carried out the theory of feeding high proteins, giving buttermilk, fat free milk and Eiweiss milk without any trouble. After the first week they felt perfectly safe in giving these without making bacteriological examinations. Almost all the children improved under this treatment. The year 1913 was as yet an incomplete story. During this year there was a predominance of the "slime" bacillus. This bacillus first appeared in August, 1912. The bacterial study of these cases during these years seemed to show that the predominating bacillus in the month of August would be the predominating one in the following July. This carried out the cyclic phenomenon of epidemic diseases. They used this year high protein feedings during July because of the presence of the gas bacillus. In August the Flexner bacillus appeared and because of the danger of giving high proteins in such cases they quickly changed to other methods of feeding, five or seven per cent. lactose solutions with or without barley starch.

Dr. Richard M. Smith of Boston, Mass., said that they had seen primarily three large groups of patients on the Floating Hospital, the first presenting simple digestive disturbances caused by errors in diet, due either to a single constituent of the food or a combination. The diseases in this group were not primarily associated with the summer months. The second group included patients who had more than a simple digestive disturbance. The etiology of this group was not well understood. The third group included cases which were true infections and were to be sharply differentiated from the other groups. The organisms responsible for the individual cases varied, but the cases as a whole could be satisfactorily grouped together under the term infectious diarrhea. The type of organism showed a marked seasonal tendency, one type usually predominating in a single summer. The particular organism could not be absolutely determined by clinical study alone but must be determined by bacteriological investigation. The pathological findings from different bacteria varied strikingly, as also did the response of individual infants to various kinds of treatment, whether fed upon carbohydrate or protein high diet. Many of the types of organisms and the corresponding clinical condition were only partially understood, but they recognized several distinct groups, the Shiga, Flexner bacilli and the gas bacillus. The work was undertaken with no preconceived ideas, but they were trying to draw logical conclusions from the combined clinical, pathological and bacteriological study of the material as it had presented itself at the Floating Hospital.

Dr. Rowland G. Freeman said that if Dr. Bowditch could teach them some simple way of identifying the different sorts of bowel infections and a successful treatment for each sort they would be indefinitely indebted to him. His first experience in pediatrics having been in the autopsy room he said he had always used an anatomical classification. Clinical cases were readily classified in this manner. The lesion was in most cases an ileocolitis and only the lower twelve inches of the ileum and each end of the colon being infected, the transverse colon being distended with gas. These cases might be acute or chronic. There might be simply a congestion or an enlargement of the follicles, or an erosion giving rise to blood in the stools. Dr. Freeman had always loked forward to a bacteriological classification, but so far their information had not been sufficient for this. Some years ago great efforts were made to isolate the Flexner bacillus from the stools, this organism then being known as the Shiga bacillus and he then had two large services in institutions and in studying the results of the bacteriological examinations he felt convinced that the Flexner bacillus was simply a terminal infection and had no significance as regards prognosis and treatment. They were not, however, looking for the Flexner bacillus as a predominating organism.

Dr. Godfrey R. Pisek said that the combined work of the clinician, the laboratory worker and the chemist had told them something practical and given them a clew to the results obtained in selected cases. The men in Boston were on the right track in stating that certain types of bacilli were predominant in certain localities and not in others. It was well known that in New York sociological agencies, educational propaganda and rational methods of management had effected marked results.

Dr. Herman Schwarz said that they had examined a large number of stools at Mount Sinai Hospital and the Flexner and Shiga bacilli were found in all cases in which blood and pus were present in the stools. It seemed possible that these bacilli might be the normal terminal infection in practically all these diarrheas.

Dr. Alfred F. Hess said that Dr. Bowditch had not mentioned the reaction of the stools. Dr. Kendall originally emphasized the importance of this reaction, stating that where an acid reaction was present one should use proteids, and where the reaction was alkaline a carbohydrate diet should be used. They had found that in spite of an alkaline reaction children frequently got well with proteid food. Dr. Hess said that he did not quite understand what was meant by starvation of from five to seven days. It was stated that sugar was suggested because sugar had partially disappeared from the blood. Was that a demonstrated fact or a supposition? It was most important in these cases to give water. This could be given by the drip method by way of the mouth, as was done by the rectum, using a nipple. A quart could thus be given in a day and this method had the further advantage of keeping the baby quiet.

Dr. Henry Heiman said that in thinking over Dr. Bowditch's work it seemed to him that he had proved his cases to have been infectious diarrheas. They were all acquainted with the fact that the Flexner, Shiga, and other bacilli caused specific infections, but these must be distinguished from the so-called summer diarrheas in which there was no specific infection, in which hundreds of saprophytes might be found, but in which these bacteria played only a secondary rôle. At the Mount Sinai Hospital, in the so-called summer diarrheas, the examinations for the Shiga bacilli were almost always negative; out of forty cases examined there was only one in which cocci were found, though Gram negative bacilli were always present. Dr. Heiman believed that most cases ordinarily called summer diarrheas were not caused by specific organisms, but were mostly due to nutritional disturbances with gastrointestinal symptom in which the bacteria played only a secondary rôle.

Dr. J. Finley Bell of Englewood said that the work done at the Floating Hospital was most interesting, but it entailed elaborate laboratory apparatus which was not practical in private practice; probably a simpler method of determining the type of diarrhea with which one was dealing would be evolved. He referred to one case in which blood and mucus were present and in which diplococci were found in the stools, and asked if that was a distinct organism or a streptococcus infection.

Dr. Roger Dennett said that he was interested in the therapeutic test of determining the variety of diarrhea with which they were dealing by feeding sugar solution. In New York many of them had been using just the opposite test, that of giving high protein mixtures as a routine in all cases except the acute febrile dysenteries, in which gruels seemed to be indicated. With the exception of this last variety of cases Eiweiss milch and the strong milk and water mixtures seemed less liable to do damage and appeared more logical on account of Finkelstein's work in which he attributed so many cases of "injury" and "intoxication" to sugars. What about using barley gruel mixtures or cooked starches instead of the sugar solution? Would starches take the place of sugar solution? Therapeutically there must be some place for the time-honored barley gruel which had been used for so many years in the treatment of diarrhea.

Dr. Henry I. Bowditch of Boston said he had not intended to evade the question of mortality, and that while he did not have the figures with him the mortality for 1910 and 1911 was high when the Flexner, Shiga and streptococcus bacilli were predominant. The mortality in the presence of the gas bacilli was fifty or sixty per cent. less until the last month of the summer, when it suddenly jumped up, due to a wave of the Flexner bacilli. Dr. Hess was right in saying that he considered that acid movements were those in which it was wise to give proteid food; as to the advisability of giving sugars the reaction must be taken into consideration with other symptoms. By starvation he meant starvation as regarded food, but water was pressed. As to the treatment of those cases grouped as summer diarrhea to which Dr. Herman had referred, there was no sharp rule for procedure. They had not used Eiweiss milch so much, partially on account of the difficulty of preparing it, but were rather inclined to the milk mixtures. Dr. Dennett had asked in regard to the lactose; they had usually used lactose, though barley water might be administered in the early stages. One advantage of giving starch was that there was less fermentation with it, but it did not provide much nourishment.

There was one more point to be mentioned and that was the great opportunity for them to get results from groups of cases by cooperative study. They would like such a group of cases studied in Philadelphia, in New York, Boston, etc., and then they could come together and get something definite from the results of their observations.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Ohio State Medical Board.

June 2-5, 1913.

(*Concluded from page* 827.)

PATHOLOGY.

1. By what agencies does the body protect itself against the entrance and harmful effects of pathogenic bacteria?
2. Describe morbid anatomy of bronchopneumonia.
3. What changes take place in extravasated blood? Name them.
4. What changes take place in an inflamed part, causing redness and swelling?
5. Describe the process of primary healing—of secondary healing.

DIAGNOSIS.

1. State the difference between organic and functional murmurs.
2. Describe method of examining the size of the spleen.
3. What is the diagnostic significance of edema of one arm and hand?
4. Describe râles, mention varieties and state diagnostic significance.
5. What are friction sounds and what do they signify?
6. What pathological significance has an increased vocal fremitus?
7. What is dyspnea and what does it signify?
8. Describe diagnostic indications from the character of cough.
9. Describe aphasia; name varieties in reference to localized lesions.
10. In what pathological conditions is ocular paralysis present?

PRACTICE.

1. Name the different forms of non-malignant stricture of the rectum. How far above the anus is a simple stricture usually found?
2. Describe your procedure in making a physical examination of the abdomen.
3. Describe the urinary findings in diabetes mellitus and chronic interstitial nephritis.
4. Make a differential diagnosis of pleuritic and pericardial effusion.
5. Define and give etiology of neuritis.
6. Give pathology of typhoid fever. Name some of its complications.
7. Give symptoms and management of paranoia.
8. Differentiate between renal and hepatic colic.
9. Give the differential diagnosis of variola.
10. Give the differential diagnosis between paralysis agitans and tabes dorsalis.

OBSTETRICS.

1. State your views with reference to examinations and what you would expect to learn by them.
2. Name some of the causes and give treatment of hemorrhage after labor.
3. How would you distinguish one shoulder from the other, when the hand and arm cannot be reached?
4. Outline general scheme of treatment for persistent and pernicious vomiting of pregnancy.
5. Give diagnosis and management of the third position of the vertex.

SURGERY.

1. Discuss acute osteomyelitis.
2. Describe complete inguinal hernia—give symptoms of strangulation and treatment.
3. Name varieties of goiter and mention the indications for surgical interference.
4. What lesions would you consider in a severe injury about the ankle joint?
5. In an oblique fracture of the lower third of the femur, state the usual position and give the muscular control of the fragments.

DERMATOLOGY, SYPHILOLOGY, AND DISEASES OF THE EYE, EAR, NOSE, AND THROAT.

1. Describe infantile eczema—outline its treatment.
2. Differentiate scabies from prurigo.
3. How do you recognize and treat scabies?
4. Describe the initial lesion of syphilis.
5. Briefly outline treatment of syphilis.
6. What faulty anatomical conditions of the eye constitute myopia, and how can it be corrected by lenses?
7. Describe simple chronic rhinitis.
8. Describe otitis media purulenta and mention possible complications.
9. Describe iritis; give causes and treatment.
10. Describe laryngeal tuberculosis.

ANSWERS.

PATHOLOGY.

1. *Agencies by which the body protects itself against the entrance and harmful effects of pathogenic bacteria*:—The acidity of the gastric juice, urine, and vaginal secretion; the alkalinity of the blood; the general bactericidal action of the blood and lymph; the action of the leucocytes and phagocytes; the agglutination action of the blood; and the general antitoxic action of the organism.

2. *Morbid anatomy of bronchopneumania*:—"The disease affects both lungs, and begins in the terminal bronchioles, spreading thence to the infundibula and alveoli. The consolidated patches have therefore a lobular arrangement, but if many adjacent lobules are affected the consolidation may be almost lobar. The bronchioles are inflamed and frequently plugged with mucus, and their walls and the surrounding interstitial tissue are infiltrated with small cells. The walls of the air vesicles in the consolidated area are congested, their epithelium is swollen, and their lumen is filled with proliferated epithelial cells, leucocytes, and a mucous or mucopurulent (not fibrinous) exudate. Many lobules are collapsed, but not inflamed, from plugging of the bronchioles. When cut into, the small consolidated areas are seen to be conical in shape, with their bases towards the pleura, reddish in color, with indefinite margins, and separated from each other by crepitant lung tissue. Adjacent lobules may be emphysematous (compensatory emphysema). The bluish-gray collapsed areas are most numerous in the lower lobes." (Wheeler and Jack's *Handbook of Medicine.)*

3. *Changes which occur in extravasated blood*:—"Blood extravasated in the tissues soon coagulates and subsequently undergoes disorganization, the red corpuscles breaking down into pigment-matter, which may be carried away or deposited at the seat of hemorrhage. The fluid elements may be completely absorbed, or, stained with coloring-matter, may remain as a cyst. A focus of hemorrhage may set up reactive inflammation and lead to encapsulation by new connective tissue. Sometimes hemorrhagic accumulations become inspissated and undergo calcification. Blood in the serous sacs does not readily coagulate, but mingles with the normal liquid secretion. It may be gradually absorbed or may undergo degenerative changes, especially when infected by microorganisms." (Stengel's *Pathology.)*

4. "The phenomena of inflammation are dilatation of the arterioles, capillaries, and small veins. At first the blood current is quickened, then retardation occurs, and may progress to stasis and thrombosis. During this time exudation of plasma and white corpuscles from the small veins and perhaps the capillaries, is going on. . . . Red corpuscles may be exuded and broken up, setting free their coloring matter. . . . *Redness* is due to the hyperemia, and disappears on pressure, unless stasis has occurred. *Swelling* is due to the hyperemia and exudation. If the inflammation is under tense structures, like the palmar fascia, the swelling may appear in another part, as on the back of the hand." (*Aids to Surgery*).

5. *Healing by first intention:* "Exudation of plasma from the neighboring blood-vessels occurs, and its fibrinogen is converted into fibrin, so gluing the edges of the wound together. Leucocytes are poured out and infiltrate the wound, absorbing any blood clot present. These are followed by fibroblasts (connective-tissue cells), which take their place. New capillaries form by budding out from adjacent ones, and vascularize the new tissue. Fibrous tissue is formed by intercellular exudation from the fibroblasts and so the fibrocicatrical union is complete, for at the same time epithelium is spreading over the narrow surface line."

Healing by granulation or second intention occurs when the edges of the wound have not been brought together. "Exudation of plasma and leucocytes occurs, followed by

fibroblasts and budding from the capillaries, thus forming granulation tissue. The dead tissues or sloughs are separated, and a red area of granulation is then exposed. The deeper layer of granulation tissue is converted into fibrocicatricial tissue, which contracts, and so the wound gradually lessens in size. In the meantime epithelium spreads in from the edge over the surface, and so the scar is completed. (*Aids to Surgery.*)

DIAGNOSIS.

1. *Organic murmurs* are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

2. An enlarged spleen is diagnosed by palpation. "The position of the patient should be right lateral if minor enlargements are to be noted, as in typhoid fever or other acute infections, and the right hand should make pressure posteriorly while the left makes palpation. Abdominal distention defeats palpation save in great enlargement and the normal spleen is not palpable. If greatly enlarged the dorsal position is to be preferred and the condition can hardly be overlooked, unless with a tense wall the careless or hurried examiner fails to get below the actual border or to distinguish between muscular resistance on the one side and the splenic mass on the other. In these cases the chief notch in the anterior border is sharply defined and quite distinctive. In all cases where doubt arises as to the nature of a large tumor in the splenic area it should be remembered that a splenic growth or tumor is superficial, that its dullness is marked and can be carried directly back to its normal area behind the ninth, tenth, and eleventh ribs, that it ordinarily moves directly with respiration, and that if the colon be inflated splenic tumor dullness is not impaired. On the contrary, large renal tumors extend more deeply, are relatively fixed or immovable, are likely to be reniform or nodular, and are crossed by an area of resonance if the colon be distended with air. As in the case of the liver, a downward displacement of the diaphragm may produce an apparent increase in the lower splenic area just as an emphysematous lung or a pneumothorax may cause an apparent diminution in its upper percussion area."—(Greene's *Medical Diagnosis.*)

3. *Edema of the arm and hand* "may be the result of a tumor of the mediastinum or lung, aneurysm of arch of the aorta, innominate (right arm) or axillary artery, thrombosis of the axillary vein, enlargement of the axillary glands, or trichiniasis." (Butler's *Diagnosis of Internal Medicine*).

4. *Rales* are adventitious sounds heard during respiration; they originate either in the air passages or the pleura. Rales are classified as dry rales and most rales. *Dry rales* are sibilant or sonorous, and are heard in bronchitis, bronchial asthma, and pulmonary phthisis. *Moist rales* are crepitant, subcrepitant, mucous, and metallic rales. *Crepitant rales* are heard in lobar pneumonia, pulmonary edema, hemorrhagic infarction, and atelectasis. *Subcrepitant rales* are heard in bronchitis, pulmonary edema, atelectasis, phthisis, and edema of the lungs. *Mucous rales* are heard in phthisis, bronchitis, and bronchiectasis. *Metallic rales* are heard in cavities, consolidation around large bronchi, and compressed lung.

5. *Friction sounds* are rubbing or creaking sounds due to friction of opposed pleural surfaces when inflamed and coated with fibrin; they are similarly produced in like conditions of the pleura and peritoneum.

6. *Increased vocal fremitus* is found in:—Consolidation or infiltration of the lung, pneumonia, pulmonary tuberculosis; also when there is a tumor between the chest wall and a large bronchus; sometimes, too, in the presence of cavities in the lungs.

7. *Dyspnea* is difficult, painful, or laborious breathing; shortness of breath.

"*Dyspnea may be due* to obstruction of the air passages, pressure upon the respiratory system from without by tumors, and distention of abdomen, diseases of the lungs and pleura, heart disease, asthma, anemia, or paralysis of muscles of respiration as the result of hemorrhage, tumors, or degeneration of the respiratory center in the medulla or toxic agents in the blood. It may be *inspiratory* when it results from obstruction, as in foreign bodies in the larynx or trachea, or it may be *expiratory*, as in emphysema or bronchial asthma. A combination is the more frequent condition. In all forms of dyspnea it is important to determine whether the shortness of breath bears any relation to exertion. Dyspnea *independent of exertion* is a serious condition and is symptomatic of severe cardiac and pulmonary disease. Dyspnea *dependent upon exertion* is less serious and is observed in health, simply debility, anemia, obesity, and somewhat moderate cardiac debility."—(Hughes' *Practice of Medicine*).

8. "DIAGNOSTIC INDICATIONS FROM THE CHARACTER OF COUGH.—(*a*) *Dry cough* is found in the first stage of acute bronchitis, pulmonary phthisis, bronchial asthma, pertussis, epidemic influenza, and acute pneumonia; pleurisy, and diseases of the nasopharynx and larynx. It is also caused by:—Inhalation of irritating fumes or dust, elongated uvula or enlarged lingual tonsil, foreign bodies, and 'reflex' or extra-respiratory conditions. A single, slight, dry cough, frequently repeated, is the 'hacking' cough premonitory of pulmonary phthisis. (*b*) *Loose cough* occurs in the later stage of acute bronchitis, pertussis, pneumonia, pulmonary phthisis, bronchial asthma, bronchiectasis, and pulmonary gangrene. (*c*) *Paroxysmal cough* is most characteristically seen in pertussis. It also occurs in the second stage of acute bronchitis and the softening stage of pulmonary phthisis. It may be due to abscess of the lung, bronchiectasis, and phthisical or gangrenous cavities; also to enlargement of the bronchial glands, mediastinal tumor, and other extra-respiratory lesions. (*d*) *Laryngeal cough* may be due to spasm of the larynx, largynitis, tuberculous or syphilitic ulceration of the larynx, inhalation of dust particles in certain occupations, impacted foreign body in larynx, food particles entering the larynx in pharyngeal paralysis, elongated uvula, or enlarged tonsils; it may also be due to irritation of the recurrent laryngeal branch of the pneumogastric nerve by the pressure of thoracic aneurysm, cancer of the esophagus, enlarged bronchial glands, and mediastinal tumor. (*e*) *Suppressed cough* may be due to:—Pleural inflammations (especially diaphragmatic pleurisy), pneumonia, pleurodynia, acute peritonitis, and abdominal rheumatism; also pertussis, or acute coryza and bronchitis." (From Butler's *Diagnosis of Internal Medicine*).

9. "The speech areas, four in number and in kind, are in the left hemisphere in righthanded persons and in the right in lefthanded persons. There are two types of aphasia, which is the loss of the power of speech, known as motor and sensory aphasia. The motor speech center lies in the posterior part of the third frontal convolution (Broca's convolution), just in front of the center of the muscles of speech (hypoglossal and facial nerve centers). A lesion of the motor speech center causes motor aphasia, in which there is a loss of the word-forming power, although the tongue is movable and the patient may understand spoken and written language and knows what he wants to say. It is as if memory of the motor combinations essential to produce speech were lost.

"The power of writing is usually lost with motor speech. The probable location of its cortical center is in the posterior two-thirds of the first, and perhaps in the second, temporal convolution. A lesion here causes 'word deafness,' a sensory aphasia in which the memory of the sounds of words is lost so that they are not understood, though hearing may be normal.

"The visual speech center lies in the posterior part of the angular gyrus in the outskirts of the higher visual or the visuopsychic field. Word-blindness (alexia), or the loss of memory of printed or written language, is caused by a lesion here, though sight itself may be normal." (Woolsey's *Surgical Applied Anatomy*).

10. *Ocular paralysis may be present in:*—Syphilis, tumor of the brain, cerebral hemorrhage, locomotor ataxia, meningitis, toxemia or injury or inflammation (in the sphenoidal fissure).

PRACTICE.

1. *Non-malignant stricture of the rectum* may be due to:—Syphilis, inflammation, pressure, tuberculosis, ulceration, gonorrhea, scar-tissue, and adhesions. It is usually found about an inch to an inch and a half above the anus.

2. *Physical examination of the abdomen:* "All clinical methods are applicable to this region. The customary prior cathartic removes misleading fecal masses, but accomplishes little more, and may produce a flatulent distention and troublesome peristaltic activity.

"The head and shoulders, particularly the former, should be high, the feet firmly placed and the patient in an easy

and unconstrained dorsal posture. To relax the walls the knees may be drawn up, but often better relaxation may be had with the legs extended or but slightly flexed. The breathing should be easy and natural, with the mouth open, and the patient's attention should be diverted by conversation and inquiry. The hands should be warm, the light should be adequate, its source behind the patient, and no clothing or other covering embarrass the examiner. The flat of the palm and fingers, not the tips, should be used, tender areas should not be immediately approached, nor does the discovery of one justify repeated and purposeless punching and poking. In palpating movable organs or growths respiratory movement should be met directly by the tips of the fingers at right angles to the free margin, the hand being firmly but gradually depressed in deep expiration and allowed to rise laggingly and shift slightly upward to meet the descending border in inspiration. If the hand moves the organ or growth under examination, the opposite palpating hand should be almost motionless as the other brings the organ or tumor to it. After tolerance is established, the finger tips may be used to determine consistence and outline. The deep or superficial character of any pain or tenderness developed by examination and its precise localization or extent of diffusion should be accurately determined. Malingering or hysterical patients can often be misled or diverted by conversation, by attracting their attention to some special region which is being explored by one hand while the supposed tender point is palpated by the other or by misleading and positive statements as to the effect of pressure, forced respiration, etc., upon the spurious symptoms. In some cases nothing less than general anesthesia suffices. The dorsal posture is the best for general purposes, but the lateral is of value in palpation of the spleen or kidneys or for the purpose of 'spilling' the intestinal contents of a large-bellied person to render more accessible the lateral region under examination. The patient may with advantage be placed upon the hands and knees or in the knee-chest position to bring a growth forward against a thin and relaxed abdominal wall. Finally, all portions of the abdomen should be thoroughly examined, not forgetting the hernial openings. The full hot bath is a most useful adjunct." (Greene's *Medical Diagnosis*).

3. In *diabetes mellitus,* the urine is enormously increased in amount, the specific gravity is high (about 1.025 to 1.040), and sugar is present.

In *chronic interstitial nephritis,* the urine is pale in color, has a low specific gravity (about 1.005 to 1.010), traces of albumin may sometimes be found, a few hyaline casts are sometimes present, the solids are generally slightly diminished.

4. *Pleuritic and pericardial effusion:*—"In pericardial effusion dyspnea is a more prominent symptom than in pleural effusion. In the former the heart is not displaced to the right, as in pleural effusion. In pericardial effusion percussion shows the area of flatness to be circumscribed, and to be most marked in the axillary region. Along the posterior margin of the left pleura normal pulmonary resonance is obtained, whereas in pleural effusion a flat note is elicited over this region. In pericardial effusion the heart-sounds are distant, feeble, or muffled, while in pleural effusion the quality of the heart-sounds is unaltered." (Anders and Boston's *Medical Diagnosis*).

5. *Neuritis* is inflammation of a nerve or of a bundle of nerve fibers. It is said to be caused by:—Exposure to cold, traumatism, extension of inflammation from surrounding parts, certain infectious diseases, poisons, and cancerous or anemic conditions.

6. Typhoid fever. *Pathology:*—"Principally inflammation of the lymphoid tissue of the lower portion of the ileum, with more or less catarrh throughout the bowel. *Peyer's patches*—(1st week)—are swollen through infiltration of leucocytes, the surfaces raised and fawn-colored. The infiltration involves the submucous coat, and may extend to the muscular layer. The lesions are most numerous at the lower end of the ileum. (2nd week).—The surface becomes abraded; sloughs form, which are often bile-stained. (3rd week).—Sloughs come away, leaving ulcerating surfaces. Typical typhoid ulcers, with undetermined edges, are thus formed. A few solitary glands undergo the same process. At the end of the week the ulcers begin to granulate, but healing is usually slow. The mesenteric glands may undergo the same changes, but more often become swollen, red, and tender only, or break down into cheesy masses. The spleen and liver are enlarged; the heart is soft and flabby. The voluntary muscles undergo granular degeneration; in fact, the changes are those found after death from high temperature, etc."

Complications.—"Hemorrhage; from bowel, nose, or mucous surfaces. Perforation, which may occur even in mild cases. It is commonest in the third and fourth weeks. Peritonitis, with or without perforation. Meteorism or tympanites. Thrombosis, usually of the femoral vein, and embolism. Neuritis, and later 'typhoid spine.' Bronchitis, and pneumonia, lobar in the early stages, later catarrhal. Early 'typhoid state,' or early cardiac failure. Bed-sores." (From Jack's *Handbook of Medicine*).

7. *Paranoia* "is essentially chronic, the delusions becoming fixed upon one particular subject, or set of subjects, which in turn dominate the life of the individual. The most common characters of these systematized delusions are delusions of persecution or suspicion, delusions of exaltation or grandeur, or of pride, and delusions of unseen agents or influences. The range which these delusions assume is most wide and varied, but always associated with the *ego.* The patient is being persecuted not because, as in melancholia, he has committed some sin, or thinks he has, and deserves punishment, but because the persecutors wish to deprive him of his rights, titles, or estate, or degrade him, or in some way injure him. In the diagnosis there are three points to keep in mind: First, the duration—the fixed, systematized delusions must have existed over one year; second, the absence of symptoms of mania or melancholia; and third, the presence of systematized delusions affecting the personnel of the individual." (Hughes' *Practice of Medicine*).

The disease is incurable. The patient should be placed under the best hygienic conditions; as much out-of-door life as possible, and the minimum of drug therapy. Nutritious food (sometimes stimulants are necessary), plenty of sleep, and moral treatment are indicated.

8. In *renal colic:* The pain is in the region of the affected kidney; it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

In *hepatic calic:* The pain is in the region of the liver; it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

9. *Variala:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and, finally, pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin. *Varicella:* The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the tongue is of the "strawberry" type; the lymphatics in the neck may be swollen, and there is sore throat. *Measles:* Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is dark, not uniform, and is shotty; coryza, coughing, and sneezing may be present; Koplik's spots are present. *German measles:* Period of incubation, ten to seventeen days. Stage of invasion, one day. Eruption appears on first day, is most intense on second day, consists of red papules, often fades from face before it is seen on the limbs. The pulse is not much accelerated, all the symptoms are slight. Desquamation is very slight. There may be slight sore throat and swollen cervical glands. Koplik's spots are absent.

10. *Tabes dorsalis* is characterized by the absence of the patellar reflex, swaying of the body and inability to maintain the erect position when the eyes are closed, the Argyll-Robertson pupil, general ataxia, and various crises.

Paralysis agitans is characterized by the presence of various tremors, and the peculiar "propulsion gait."

OBSTETRICS.

1. *Examinations.* "A general examination should be made as early in pregnancy as possible, especially of the heart and lungs, because pregnancy has an important relation to diseases of these organs. Obstetric examination is usually unnecessary until the seventh month, when the

fetus is viable and of sufficient size to be readily palpated. At this time both an abdominal and vaginal examination is required. Abdominal examination should include inspection, palpation, and auscultation. The discovery of any abnormality will permit at this time of proper consideration of both mother and child. Practice in palpating the fetal head will often aid the attendant in confirming or denying the patient's history as to the duration of the pregnancy. The position of the fetus, however, is not yet sufficiently fixed, and, therefore, a second abdominal examination should be made in the middle of the last month. It is inadvisable to conduct a patient through pregnancy without at least one vaginal examination, which is best done at the first abdominal examination. A second examination in the last month is not always essential, but often the relations of the fetal head to the pelvis may better be determined in this way, and thus enable the attendant to more confidently begin the conduct of labor.

"An internal exploration is advisable in all cases as a part of the preliminary examination; in women pregnant for the first time and in others whose obstetric history leads to suspicion of pelvic deformity, it is imperative. The objects are to learn the condition of the soft parts—vulva, vagina, cervix, especially in multigravidæ—to confirm the diagnosis of presentation and position, to detect a possible vicious insertion of the placenta, and to determine the capacity of the bony pelvis.

"*During labor.* Before examining internally the hands must be disinfected. This part of the examination aims to determine the condition of the vulva, the vagina, the cervix, and the bony pelvis, and to verify the diagnosis of fetal presentation and position as made out by the abdominal examination. Possible anomalies of the fetus, too, that may complicate the labor should be recognized. The resistance likely to be offered at the vulva as the head descends, the lubrication of the vagina, the degree of dilatation of the cervix, the thickness and consistence of the cervical border, the presence or absence of injuries sustained in former labors are to be noted.

"A surgically clean internal examination entails little or no risk of infection. Yet abundant statistics have shown that the best puerperal results are obtained when it is possible to refrain wholly from internal interference. All unnecessary manipulations within the passages should be avoided. If a thorough antepartal examination has been made, a single vaginal examination during the first stage of labor will usually suffice. This is generally advisable to make sure that the cord or an arm has not prolapsed and that no other complication has developed. Should any irregularity be detected repeated examinations may be required.

"It should be a routine practice to make a bimanual examination of the pelvic organs in the third or fourth week of the *puerperium*. The object is to determine the presence or absence of injuries of the vagina or cervix, the degree of uterine involution, and the possible existence of retrodisplacement of the uterus or other abnormal conditions." (Jewett's *Practice of Obstetrics*).

2. POST-PARTUM HEMORRHAGE. *Causes:* Anything interfering with the firm contraction of the uterus after the expulsion of the child; retained placenta, or membrane, or clots; weakness of the uterine muscle; rapid labor; delayed labor; poorly developed uterine muscle; inflammation or disease of uterus.

Treatment: Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging with gauze of uterus and vagina may be necessary. Whatever is done must be done promptly; and everything likely to be needed for this emergency should be prepared beforehand in every labor.

3. When the hand and arm cannot be reached, the physician should find the axilla; this points toward the child's feet.

4. *Pernicious vomiting of pregnancy.* "The treatment consists in rest in bed in a quiet, darkened room and the administration of easily digested foods, such as milk, broths, eggs, etc. A careful search must be made for some local exciting cause, and if any such condition is found, it should receive appropriate treatment. Sexual intercourse should be interdicted. The bowels should be kept freely open. Sodium bromide, camphor, cocaine, silver nitrate, cerium oxalate, hyoscine hydrobromide, antipyrine, etc., are among the drugs used internally. Rectal alimentation may be necessary, and, as a last resort, dilatation of the cervix and internal os, or abortion may be performed. (*Pocket Cyclopedia.*)

5. The third position of the vertex is the right occipito-posterior.

Diagnosis:—"On abdominal examination the striking features are the ease with which the small parts of the fetus can be felt in front, and the fact that the back can either not be made out, or is made out well to the right flank. Auscultation is apt to be very unsatisfactory. Usually the heart is heard round toward the right flank, but owing to the damping down of the sound by the thick muscles, it is but poorly heard. Occasionally it is heard also in front and to the left owing to the throwing forward of the child's thorax. On vaginal examination one is frequently struck by the ease with which the anterior fontanelle can be felt. The sagittal suture is found in the right oblique, but the posterior fontanelle is high up behind the head if the flexion is imperfect.

Management.—"(*a*) *When diagnosed while the head is at the brim.* (1) Leave it alone. The occiput will probably rotate to the front all right if it is given plenty of time. (2) If flexion appears to be deficient, try to increase it by pushing up the sinciput with the fingers in the vagina during a pain, at the same time pressing down upon the fundus with the other hand. (3) The head may be rotated by passing the hand into the vagina and grasping it between the fingers and thumb. At the same time the shoulders must be rotated by abdominal palpation, or else the head will at once go back to its original position. This maneuver generally requires an anesthetic.

"(*b*) *When diagnosed after the head has entered the pelvis.* (1) Leave it alone. After exercising the patience of all concerned, it will probably rotate spontaneously. Only about one case out of twenty fails to do so. (2) An attempt may be made to increase flexion as before. (3) Manual rotation may be attempted as before, but the head must first be flexed and gently pushed back out of the pelvis. (4) If the pains are weak, forceps should be applied well back on the head, so that when traction is applied, flexion will be promoted. The head should then be pulled well down on to the pelvic floor. If it begins to rotate, take off the forceps and leave the rotation to nature, merely keeping the head on the pelvic floor by pressure on the fundus. After rotation the forceps may, if necessary, be reapplied and delivery completed.

"(*c*) When the occiput has definitely rotated into the hollow of the sacrum, and the case has become a persistent occipitoposterior, forceps should be applied and the head delivered with the occiput posterior. The perineum should be guarded as much as possible, and any tears stitched up at once. In extreme cases craniotomy and pubiotomy may require to be considered." (Johnstone.)

SURGERY.

1. *Osteomyelitis* is inflammation of the bone and marrow; the term is often used now for inflammation of bone. It is *caused* by infection, the bacteria gaining entrance either through a wound, or by extension from neighboring tissues, or they may be brought by the blood.

Symptoms: Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present.

Treatment consists in relieving the constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails amputation may be necessary.

2. *Symptoms of strangulated hernia: General.*—"Severe pain comes on suddenly after some effort, at first referred to the umbilicus, and subsequently to the site of the hernia. This is accompanied by some shock. The pulse is weak, and, though slow at first, becomes rapid; the skin is cold and clammy; vomiting occurs, and soon becomes frequent and fecal-smelling. Constipation is complete, though both feces and flatus may be passed at first from the lower bowel. The patient generally becomes exhausted from the vomiting and inability to take food. When gangrene occurs the temperature becomes subnormal, the pulse very rapid and weak, and the patient dies of toxemia from the general peritonitis which follows gangrene. *Local.*—A tumor forms at one of the hernial sites; or more often the patient has been the subject of a hernia, which he now finds to be irreducible, tense, tender, and without impulse on coughing. If allowed to persist the sac and coverings become gangrenous."

Treatment is taxis or operation. "Operative treatment should be undertaken at once when gentle taxis has failed. An incision is made over the sac, which is then opened. There is usually fluid in the sac, so there is no danger of wounding the gut. The fluid is washed away, then the cause of strangulation is made out, and a hernia knife guided up to it by a finger or broad hernia director. The constriction is nicked in one or two places and the gut is drawn down so that the site of strangulation may be examined. Omentum is ligatured and removed. According to the condition of the intestine the further treatment differs. (1) If the gut, though black, has not lost its polish, it is reduced by gently compressing it to remove the edema. (2) If gangrene is suspected, the strangulated portion must be resected, and end-to-end union established. (3) If the gut is undoubtedly gangrenous, one of two methods must be adopted: (*a*) If the patient is profoundly collapsed and will not bear a prolonged operation, an artificial anus is established by dividing the constriction outside the sac, so as not to open the peritoneal cavity. The loop of bowel is then opened to give free exit to the feces. Most of the cases which have to be treated in this way are so bad before treatment is commenced that a fatal termination must be expected. (*b*) If the patient can possibly stand it, immediate resection gives the best chance, and with Murphy's button or a bobbin much time can be saved. A radical cure is advisable after the strangulation has been relieved, unless the patient's condition contraindicates it. Liquid food is given at the end of twenty-four hours, and the bowels need not be disturbed for five or six days, when castor oil may be given." (*Aids to Surgery.*)

3. *Varieties of goiter:* Parenchymatous, cystic, adenomatous, exophthalmic, fibrous, and malignant. *Indications for surgical interference:* Dyspnea, cysts, adenomata, malignant disease (if possible), and in simple cases when medicinal treatment fails.

4. *A severe injury about the ankle joint might suggest:* Fracture of the lower end of tibia, or fibula, or of both bones; Potts' fracture, dislocation at or near the ankle, fracture of one of the tarsal bones, sprained ankle, rupture of the tendo Achillis.

5. *In oblique fracture of the lower third of the femur:* The lower fragment is drawn backward by the Gastrocnemius and Plantaris muscles, and upward by the Rectus, Biceps, Semimembranosus and Semitendinosus muscles. The upper fragment is drawn inward by the Pectineus and Adductors, and forward by the Psoas and Iliacus.

DERMATOLOGY, SYPHILOLOGY, AND DISEASES OF THE EYE, EAR, NOSE, AND THROAT.

1. *Infantile eczema* is generally pustular, and when occurring on the scalp is known as "milk crust." It is said to be due to general weakness, malnutrition, susceptibility of the tender skin to wounds, and the tendency to scratch an itching skin. In the management of this condition special attention must be given to the infant's food; the child should wear a mask or skullcap (whenever possible) smeared with a suitable ointment. Unna's paste is also serviceable. Scratching must be prevented. Calomel, rhubarb and soda, and cod liver oil are all beneficial.

2 and 3. *Scabies* is a contagious, animal, parasitic disease, due to the *Sarcoptes scabiei*, characterized by burrows and a multiform eruption, and attended by severe itching. The eruption usually occupies certain areas where the skin is thin; these are the interdigital spaces, the flexor surface of the wrist and arm, the anterior and posterior axillary folds, the mammæ and nipples (in women), the umbilicus, the buttocks, the penis, the inner side of the thighs and legs, and the toes. The face is exempt except occasionally in infants. The itching is intense and worse at night. The affection is curable, but dermatitis may result from overtreatment.

Treatment consists in a thorough scrubbing with soap and warm water, followed by friction to dry the skin, and the application of sulphur ointment; the latter to be repeated morning and night for three days. The whole process may need to be repeated one or more times.

Prurigo occurs on the extensor surfaces, and is accompanied by enlarged glands.

4. The *initial lesion of syphilis* is called the chancre. It usually appears in from two to six weeks after inoculation, and may show itself as a papule, erosion, or ulcer. It is sharply defined, has a cartilaginous feel, and has an indurated base. The secretion, if any, is thin and serous. It is generally single, and is accompanied by enlarged lymphatic glands.

5. "The *treatment of syphilis* in all cases should be directed toward the general health; and tonics, stimulants, nutritious food, and fresh air should be freely allowed. Mercury is used for its direct effect upon the disorder, and potassium iodide in the late stage for its general alterative and absorbent effect. In the early stage the protiodide, the bichloride, or the biniodide of mercury may be administered by the mouth. In the intermediate stages this may be continued alone or combined with potassium iodide. Often in the late stages potassium iodide is administered alone. In children and pregnant women mercurial inunctions are preferred. There are other methods of introducing mercury into the system, such as by intravenous or hypodermic injections, but the above-mentioned methods are most generally used. Involvement of the special organs requires appropriate local treatment in addition to the administration of the iodides and mercurials. The latest addition to specific therapy is Ehrlich's synthetic arsenic compound, arsenobenzol, or salvarsan. A single injection of a proper dose is reported to be as destructive to the *Spirochæta pallida* as quinine is to the *Plasmodium malariæ*." (*Pocket Cyclopedia.*)

6. *Myopia* is a condition in which the anteroposterior axis of the eye is abnormally long, and parallel rays are focused in front of the retina. The condition can be corrected by means of a concave lens.

7. *Chronic rhinitis* generally results from successive attacks of acute rhinitis, and is apt to cause atrophy or hypertrophy of the nasal mucous membrane. Crust formation occurs in the latter condition. The patient becomes very liable to take cold. Treatment is general as well as local.

8. *Acute purulent otitis media:* Acute catarrhal otitis media, instead of undergoing resolution, may pass into acute purulent otitis media (especially in exanthemata) from the passage of pathogenic germs from the nasopharynx into the middle ear. The pain will become more intense, the hearing dull, tinnitus will become louder and more distressing, and fever usually sets in.

Chronic purulent otitis media is due to the permanent lodgment of staphylococci in the acutely inflamed middle ear. This unfortunate result is usually brought about by improper—*i.e.* excessive—treatment of acute otitis media, generally by the patient, but sometimes, regrettably, by the physician.

Complications of middle ear disease are inflammation of the mastoid cells, caries, and necrosis, phlebitis, meningitis, and brain abscess. (From *Cyclopedia of Medicine and Surgery.*)

9. IRITIS is inflammati[on] iris. *Causes:* Syphilis, rheumatism, gonor[rhea] es, leprosy, scrofula, tuberculosis, injury [to] the eye. *Symptoms:* Pain, photophobi[a] [con]iary congestion, discoloration of iris, exud[ate] [num]ber. *Treatment:* Causal abstraction of [the] s, atropine, diaphoresis, shielding the eye fr[om]

10. *Tuberculous laryngitis* "ma[y] [occ]ur it is usually secondary to phthisis. Tu[bercles] break down, and become ulcers, which coalesc[e] [in] great destruction of tissue. The most co[mmon] for these ulcers is about the arytenoid cartila[ges] cords, and the under surface of the epiglottis. [The] granulations on the posterior wall of the larynx [are] strongly suggestive of tuberculosis. The subjective s[ymp]toms are those of syphilis of the larynx. Tubercle bac[illi] may be found in the expectoration. The treatment is that of tuberculosis elsewhere, with applications of lactic acid and insufflations of iodoform or thymol iodide. Tracheotomy may be needed for the same conditions as in syphilis of the larynx." (Stewart's *Surgery.*)

Strangulated Hernia in Young Infants.—R. N. H. Anglin Whitelocke reports two instances of successful operation for strangulated hernia in female infants aged 22 and 17 days respectively. Several points of interest to the surgeon are gathered from the experience of these cases, as follows: (1) The early stages at which strangulation occurred, and with apparently no definite cause. (2) The unusual nature of the hernial contents: in the one case an ovary and tube as well as small intestine; in the other, an unduly mobile cecum with large appendix measuring 3½ in. (3) The successful issue in each case even after the obstruction and symptoms of strangulation had lasted for over three days. (4) The absence of postoperative shock after a general anesthetic and herniotomy, and in the younger infant after appendicectomy in addition. Herniotomy in such young infants must be exceptional, and a successful appendicectomy at the age of seventeen days is certainly so.—*British Journal of Children's Diseases.*

Miscellany.

The Collection of Disputed Claims.—Thomas F. Reilly in his book "Building a Profitable Practice" tersely discusses the principles that should guide one in the collection of a professional bill. In most States claims for services must be filed within two years. The physician must prove that he has been employed and that his services have been accepted. He must show in court the date of visits and the amount charged up each day after the visit made. This, however, is not always insisted on. If a visiting list is used, nothing should be written concerning the disease that the patient suffered from on the page where the charge is entered. In a card index one cannot legally use one side for the patient's history and the other side for his accounts, as this card index can not be presented in court. If the patient has died and left an estate the bill should be filed with his executors, or if there are no relatives or executors, the bill should be filed with the public administrator. In physicians' records of accounts arbitrary signs are of little value in courts of law. To be collectible the exact charge should be put down as "visit," "office-call," "operation," etc., and should be entered on the day of the service. Except with big bills and with people owning property it is not advisable to sue. A parent is bound to pay for medical services rendered to a minor child, and if the child is over 21 years of age the parent is not liable unless some special order is given. The husband is liable for the medical bills of his wife even though not living with her at the time. The master is not responsible for the medical attention given to his servant. If the wife calls the physician to attend the servant the master is not responsible even though the wife promises to pay the bill. A sea-captain is responsible for medical services rendered to a seaman during the voyage or until the latter is discharged. If the physician is called by anyone to attend a patient, the one calling the physician (excepting in the instances mentioned above) is not bound to pay for the services unless he states specifically that he will pay the bill. When a physician employs another physician to assist him he is entitled to recover the value of the services of the assistant. The Statute of Limitations as to the validity of an account varies in different States. In many States each new payment makes the whole account date from that time. Books of account are of variable value. In New York the physician's account book is admissible if he can show that it is his regular account book, and that no one except himself and wife made any entries. The fact that there are entries showing that patients paid bills is sufficient proof that the account book is properly kept. The books shown as evidence should be of original entry. Each item must be charged separately and a specific sum should be charged for each visit. If an operation has been performed the charge for this should be entered separately. If the account books contain any information as to the physical condition of the patient, they are in most States inadmissible as evidence, owing to the Statute of Privileged Communications. In most States a judgment secured against a patient acts as a bar against subsequent suit on the latter's part for malpractice. In collecting claims from estates the account, properly sworn to, should be presented to the administrator or executor usually within six months. If the claim is rejected an action should be brought against the administrator within three months, otherwise there is great danger that the claim will be barred. The order of collection in most States is as follows: (1) funeral expenses; (2) expenses of administration; (3) expenses of past illness; (4) judgments; (5) public debts, and (6) simple contract liabilities. In some States the physician's claim falls in the sixth class.

CLINICS, DEPARTMENT OF PUBLIC CHARITIES

CALENDAR, NOVEMBER, 1913

	MONDAYS		
City Hospital	Ophthalmology	Dr. Stronse	2:00 P.M.
	Surgery	Dr. Dawbarn	2:00 P.M.
	Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Cumberland St. Hospital	Surgery	Dr. Walmsey	3:00 P.M.
	Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
	Surgery, Oral	Dr. Shea	4:30 P.M.
	TUESDAYS		
Neurological Hospital	Neurology	Dr. Byrne	9:00 A.M.
Randall's Island Hospitol	Orthopedics	Dr. Ogilvy	10:00 A.M.
	Ophthalmology	Dr. Mulcahy	2:30 P.M.
Cumberland St. Hospital	Gynecology	Dr. Burnham	1:00 P.M.
	Surgery	Dr. Iler	3:00 P.M.
Kings County Hospital	Surgery	Dr. Bogart	10:00 A.M.
	Genitourinary Surgery	Dr. Fraser	2:00 P.M.
Coney Island Hospital	Surgery	Drs. Fiske, Bogart, Murphy and Lack	10:30 A.M.
	Medicine	Drs. Hall, Nash, Hegeman and Byington	3:30 P.M.
	WEDNESDAYS		
City Hospital	Obstetrics	Dr. Shears	2:00 P.M.
	Surgery	Dr. Dawbarn	2:00 P.M.
Neurological Hospital	Neurology	Dr. Maloney	10:00 A.M.
Randall's Island Hospital	Medicine	Dr. Steel	4:00 P.M.
Cumberland St. Hospital	Ophthalmology and Otology	Dr. Schenck	4:00 P.M.
Kings County Hospital	Orthopedics	Dr. Truslow	10:00 A.M.
	Dermatology	Dr. Winfield	1:00 P.M.
	Gastroentcrology	Dr. Lincoln	2:00 P.M.
	Orthopedics	Dr. Napier	2:00 P.M.
Coney Island Hospital	Pediatrics	Drs. Beck, McQuillan, Pendleton and Van Wart	3:30 P.M.
	THURSDAYS		
City Hospital	Gynecology	Dr. Child	2:00 P.M.
Metropolitan Hospital:			
6th	Dermatology	Dr. Dearborn	2:30 P.M.
6th; 13th; 20th	Genitourinary Surgery	Dr. Carleton	2:30 P.M.
6th	Laryngology	Dr. Foster	2:30 P.M.
13th; 20th	Medicine	Drs. Klots and Seward	2:30 P.M.
13th	Obstetrics	Dr. Storer	2:30 P.M.
13th	Ophthalmology and Otology	Dr. Boyle	2:30 P.M.
13th; 20th	Pediatrics	Dr. Wallin	2:30 P.M.
6th; 13th; 20th	Surgery	Drs. Ostrom and Harrington	2:30 P.M.
Cumberland St. Hospital	Gynecology	Dr. Burnham	1:00 P.M.
	Surgery	Dr. Walmsey	3:00 P.M.
	Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
Kings County Hospital	Surgery	Dr. Bogart	10:00 A.M.
	Obstetrics	Dr. Judd	10:00 A.M.
Coney Island Hospital	Gynecology	Drs. McEvitt, Mills, Mayne and Rankin	1:30 P.M.
	Laryngology and Rhinology	Dr. Tucker	1:30 P.M.
	Surgery	Drs. Fiske, Bogart, Murphy and Lack	3:00 P.M.
	FRIDAYS		
City Hospital	Surgery	Dr. Dawbarn	2:00 P.M.
	Laryngology and Otology	Dr. Dougherty	2:30 P.M.
	Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Neurological Hospital	Neurology	Dr. Abrahamson	9:00 A.M.
Cumberland St. Hospital	Surgery	Dr. Iler	3:00 P.M.
	Surgery, Oral	Dr. Shea	4:00 P.M.
	SATURDAYS		
City Hospital	Genitourinary Surgery	Dr. Fuller	1:00 P.M.
	Pathology	Dr. Larkin	2:00 P.M.
Neurological Hospital	Neurology	Dr. Walsh	2:00 P.M.
Kings County Hospital	Surgery	Dr. Bogart	10:00 A.M.
	Neurology	Dr. Brush	11:00 A.M.
	Pediatrics	Dr. Little	3:00 P.M.

All registered physicians, resident and visiting, and medical students are cordially invited to attend these clinics.

Cards of admission valid until October 1st, 1914, may be obtained at the Academy of Medicine, 17 West 43d St., Manhattan, and at the Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn, as well as from the secretaries of the several medical colleges.

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Original Articles.

INDICATIONS FROM THE URINE IN THE TREATMENT OF CERTAIN DISEASES OF THE SKIN.*

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THE urine is a very complex fluid and reflects the condition of the system from day to day to a surprising degree, and in a manner which is not realized as fully as it should be. If subjected to an absolutely critical analysis of every possible ingredient it is probable that no two specimens of urine passed by the same individual at intervals of some hours would be exactly alike, as has been shown by many observers, since the publication of the remarkable lectures of Dr. Bence Jones nearly fifty years ago.[1] It was this book which first seriously directed my attention to the intimate relations between the condition of the urine and various systemic changes.

It is not difficult to appreciate how or why the urine may furnish valuable indications in regard to the treatment of certain diseases of the skin when we recall the anatomical and physiological relations of the kidneys to the system. As I have remarked on another occasion,[2] "After the blood has received the elements of nutrition from the stomach and intestines, and has been prepared and modified by the various organs, including the internal secretions, it also receives excrementious substances from the tissues, largely through the lymphatic system. Then, after it has been aërated and purified by the lungs, and is on its way through the aorta to nourish the body, a small artery takes, as it were, a sample of this arterial blood to each kidney for final judgment as to its quality and for the removal from it of injurious substances, as far as possible. This relatively small portion of purified blood is then returned to the vena cava and thus again to the lungs, for further oxidation. It is to be remembered that only a relatively small portion of the blood flows at one time through the kidney (even under forced diuresis it is estimated that only one-twentieth of the blood passes through the kidneys in a minute), while the great bulk of it passes unchanged directly to nourish the brain and the rest of the body, waiting for its further purification by the kidneys. These organs might, therefore, be spoken of as the final judges of what perfect blood should be, as their function is to eliminate substances injurious to the body."

The urine, therefore, is the most perfect exponent of the catabolism and anabolism of the system, and too much stress cannot be laid upon the importance of its repeated and complete volumetric analysis in connection with the treatment of very many cases of diseases of the skin; for by it we may learn, daily if we will, much which cannot be otherwise ascertained in regard to the manner in which the nutritive processes are carried out, and the character of the blood which induces the cutaneous disorder.

It is understood, of course, that our study relates to the results of functional derangements of the urinary secretion, and not to evidences of organic disease of the kidneys; for albumen and casts, and even glycosuria, play but little part in the urinary changes which we are considering. On the contrary, very many of the abnormal conditions of the urine to be considered later have very little if anything to do with the integrity of the kidneys, but rather represent a failure in some portion of the system to elaborate perfect blood; so they would rather indicate a proper and faithful performance of kidney functions, in attempting to remedy a faulty blood state, and remove injurious elements.

These abnormal conditions, then, relate to volumetric derangements in the many constituents of urine which might ordinarily be considered normal, but which under minute analysis is often found to be, in one way or another, quite different from the standard of that belonging to perfect health. This is so constantly found to be the case among the thousands of analyses which have long been made in my laboratory in connection with private patients, exhibiting many different cutaneous ailments, that for years I have leaned very heavily on my repeated quantitative urinary analyses, in different cases, for guidance in regard to the proper internal measures required. In this brief paper I cannot attempt to analyze the mass of data collected, but I would like to so strongly impress the practical teaching that I have had from them that others will be inclined both to study the subject and also to reap the benefit which I have obtained in practice, from a close consideration of the urine in its relation to certain diseases of the skin. For this purpose I have had collected the data from some three thousand (2,952) analyses made in my laboratory since 1909, and will utilize them as best I may in the brief time at my disposal. The analyses have been made according to Purdy,[3] and his percentages have been used.

It is recognized, of course, that the condition or composition of the urine may be influenced greatly at any time by the character and quantity of the food and drink consumed, also by the amount of oxygen inhaled, by physical and mental exercise, and by the action of various organs, etc.; therefore, in estimating the importance of any particular change found in its composition, much thought and care must be exercised in order to interpret cor-

*Read at the Seventeenth International Medical Congress, London, August 7, 1913.

rectly the significance or bearings of the same upon the conditions present, whether it be on the skin or any portion of the body, and to apply the proper remedies, whether dietetic, hygienic, or medicinal.

In general medicine the relation between the skin and the excretion from the kidneys is a matter of every-day observation and consideration. Thus, all are familiar with the temporary changes which may take place in the urine from a chilling of the surface, in fever, before and after an attack of gout, etc., as also with the dry, parched skin in chronic Bright's disease and glycosuria, likewise with the relief afforded to congested kidneys by a free diaphoresis, etc. But we have been slow to recognize the relation of deficient or deranged kidney excretion to the integrity of the skin and its functions, although occasionally very strong evidence of this has been adduced by individual observers, which we cannot here dwell upon.

Unquestionably much of the failure to utilize the indications from the urine in the treatment of certain diseases of the skin has been due to the too prevalent inclination to regard all cutaneous affections as purely local conditions, or idiopathic diseases, in which the skin is alone concerned, and as due to external causes or of parasitic origin.

While I recognize fully the influence of microbic agencies in connection with very many diseases of the skin and of other organs, I also claim that it is very short-sighted to disregard, as is often done, the soil, or physical condition of the individual tissue in which the microorganism lodges and finds its nourishment. Certainly in many lines the pendulum of medical thought, if not practice, is swinging away from a purely local etiology to a recognition and study of the constitutional relations of disease: thus, in tuberculosis we are slowly coming back to recognize the truth of the teaching of Sir Andrew Clark, who many years ago used to say, "Gentlemen, do not pay so much attention to the lungs, take care of the stomach and the lungs will take care of themselves," and even in cancer there is a strong tendency to regard the perversion of cell growth as due to faulty metabolism, principally of protein elements.

It is high time, therefore, for the dermatological world to review its basis of thought, and, if necessary, to revise its method of procedure in regard to the care of many of the lesions on the skin which may require treatment. Sir William Osler has rendered great service by his careful and intelligent work along certain dermatological lines, in regard to the connection of skin lesions with internal disorders, thus showing the direction along which studies should be made if we are to arrive at a true conception of many cutaneous affections and their cause.

In the clinical study of the urine, observers of late years have commonly dwelt on the importance of making only tests of the entire urinary output of the day, insisting that percentages signify nothing unless they relate to the whole amount of urine passed in the twenty-four hours. While I grant that this is often very important, and while in many cases I have the entire daily urine saved and measured frequently, even over long periods of time, and samples of the same analyzed, in the majority of cases I find greater benefit from the older method of analyzing that passed at bedtime, or at 10 o'clock and that passed in the morning, or at 7 o'clock; in this way we get a separate estimate of the result of the work and food of the day, the *urinum cibi*, of older writers, and that passed after rest and fasting, the *urinum haustus*. The contrast between the two is often surprising, and by adding the figures from each and dividing the result, we can get a very fair idea of the character of the total output.

Bouchard, who remarks:[1] "We are only on the threshold of discoveries which remain yet to be made in the chemical analysis of the urine," has made some interesting experimental studies on the toxicity of the urine which are very instructive. He summarizes one part of his studies as follows: "What is certain is, that during the day the body forms a substance which, when accumulated, would induce sleep, and that during sleep it elaborates, instead of this narcotic substance, a convulsive substance which, when accumulated, could produce muscular twitchings and induce waking." He had previously shown experimentally that a concentration of the day urine when injected into animals, in sufficient quantity for their weight, caused death by coma, while a concentrated night urine caused death by convulsions. This subject is a most interesting one, which cannot be gone into now, but this much is given in order to support the view that the analysis of different portions of the urine, taken at various times a day, can often yield important and valuable data in regard to the functioning of different parts of the organism and the nutrition of the system, including the skin.

Quantity.—The actual quantity of the urine passed each twenty-four hours may, of course, vary greatly according to the action of the skin and lungs, and the quantity of fluid taken into the system; but we all know that there is a general average quantity which should be passed in health, about 45 ounces for a person of 150 pounds, while in diabetes and various forms of kidney disease the normal quantity may be enormously increased or diminished, as also in certain nervous states. Few realize, however, that with only functional derangement of the system the daily quantity may vary very greatly, as I have watched it in many patients with skin ailments. Thus, in a lady, weighing 160 pounds, with *lichen planus*, I have had the urine measured almost daily for many weeks, and in the weekly record it will sometimes run over 70 ounces, and perhaps the next day only 34 ounces. Another lady, weighing 163 pounds with severe *psoriasis*, passed but thirteen ounces on the day before her visit, and on other days had passed eleven and even as little as 7 ounces of urine in the twenty-four hours; and many, many instances could be given where there was very imperfect and deficient urinary secretion in those who supposed they were in good health, except for the eruption.

Specific Gravity.—While, as a rule, the specific gravity of urine is supposed to depend upon the quantity passed, and this again largely upon the amount of fluid taken into the system, this is by no means the universal rule, for it may vary at times very greatly according to the state of the system; thus, I have found it 1.041, with no sugar, and as low as 1.001, with no actual kidney disease. And it is just this variation in the quantity and specific gravity of the urine from time to time which, if quickly recognized and intelligently interpreted, will aid much in understanding the systemic and metabolic disturbances upon which many diseases of the skin depend. And as these wrong conditions of the urine are corrected by appropriate treatment, dietary and medicinal, an eruption which had previously

proved rebellious will yield favorably to local measures which had before seemed ineffective; this, of course, applies mainly to such dermatoses as *eczema, psoriasis, acne, lichen planus, urticaria*, some *bullous eruptions*, etc.

Volumetric Acidity.—Closely associated with the quantity and specific gravity of the urine, and of even greater importance as a guide in connection with the treatment of certain diseases of the skin, is the actual volumetric acidity frequently measured, which can be done quite easily by the oxalic acid and phenolphthalein test.

Bearing well in mind what was previously said in regard to the formation of the urine directly from the completed arterial blood, on its way to vitalize all the tissues of the body, it can readily be understood what an important indicator this excretion is in determining the exact state of the blood, both as to is excrementitious substances and its alkalinity. With a standard of about .300 for the average acidity of normal urine, it must certainly make a great difference in regard to the well-being of the individual, as well as in the condition of the skin, when the acidity is found to be .600 or .800, or even 1.386, as I found it recently in a very bad case of *indurated acne*, or when it is reduced to .126 or even .063, or when it is even strongly alkaline, and that without bladder complications.

Excessive urinary acidity is frequently observed in connection with many diseases of the skin, *eczema, lichen planus, psoriasis, acne*, and others, and eruptions will often be seen to be red and congested and the itching increased when there is high acidity of the urine, and to be relieved when this is reduced by appropriate treatment; for the abnormal acidity of the urine but reflects a lessened alkalinity of the blood circulating through the skin. On the other hand a greatly reduced acidity of the urine, or persistent alkalinity, not dependent on bladder trouble, may be quite as harmful; and I recall a case of *urticaria* which proved rebellious, until on analysis of the urine I found it to be .063, almost neutral, when the eruption was arrested promptly on the free administration of urotropin, bringing the acidity of the urine up to normal.

Urea.—As the principal end product of the metabolism of protein substances, urea, or its proper excretion, may be of great importance in connection with certain diseases of the skin. In perfect health, with a mixed diet, the urea should be pretty constant at 2 per cent. in the urine, and nearly an ounce should be passed each day. But careful analysis in many patients with certain skin affections shows the greatest variations, from two or three times the normal amount down to an almost total absence of urea, indicating extremes of deranged nitrogenous metabolism. In a case of *dermatitis herpetiformis* Hardouin[5] made a daily analysis of the urine of 24 hours, over a period of six months, and found that on eight occasions, at pretty regular intervals, there was a fresh eruption after a period of diminished excretion of urea; the outbreak began a few days after the lowest point of urea elimination was reached. In a second case the onset of the attack also coincided with the lowest point of urea excretion; this has been verified by others, and also in a case in the New York Skin and Cancer Hospital.

Uric Acid.—In spite of the professional discredit into which uric acid itself, as a factor in disease, has fallen, there is little question but that the work of Haig[6] has served a good purpose in directing attention to the harmful results of a faulty metabolism of nitrogenous products. While its accurate quantitative estimation in the urine is difficult, it happens that sometimes the indications from its excretion are very suggestive.

Thus, in my own personal case, as already reported,[7] the uric acid and urea in the urine were actually higher after a five days' experience with a non-protein diet of rice, bread, butter, and water than they were on the night and morning before this was undertaken; showing that without the introduction of any exogenous protein or nuclein the blood took up from the tissues effete nitrogenous elements, and made them to appear in the urine, even in a greater degree than before. With this relief to the system the extremely distressing *vesiculo-bullous eruption* on the hands, to which I had been subject for a good many years in the summer, often lasting many weeks, disappeared completely by the expiration of this five days' strenuous diet, without the use of any remedies, internal or external. The same experience has been repeated in myself with the recurrence of the eruption in summer three or four times.

Indican.—The etiological significance of an excess of indican in the urine has not as yet been clearly worked out, but it is being recognized more and more as a valuable indicator of putrefactive changes occurring in proteins, mainly in the large intestine. It is interesting to observe, however, how frequently it appears in the urine in connection with outbreaks of *eczema, urticaria, acne*, and some other skin affections, and how they will improve under the same local treatment when this urinary error is removed by appropriate measures, dietary and other. As far as I know, no satisfactory explanation has been given as to how the putrefactive changes in the intestine affect the skin, but intestinal auto-intoxication is a factor which has to be considered and overcome, in connection with many affections of the skin, and the variations in the amount of indican in the urine afford a most satisfactory means of determining the existence of this condition.

Sulphates.—These, like indican, may often prove a good indicator of the proper metabolism of proteid substances, and they may sometimes be present in excessive quantity even when no indican is found. While the normal standard here accepted is 1 per cent., we have frequently found it 2, 4, 6, and even as high as 22 per cent., especially in *psoriasis;* this would indicate an intake of nitrogenous matter far beyond the demands of the system or the power of its proper assimilation.

Chlorides.—The estimation of the chlorides in the urine sometimes affords suggestions of value in regard to the treatment of certain cutaneous affections; and while a moderate excess or diminution from the average has no great significance, being derived from the food, a great excess often indicates that the individual consumes more food than the system requires, while a great diminution may signify the need of increased nutritive matter. Among our analyses, in one case, that of a young lady of 20, with *psoriasis*, there was 50 per cent. of chlorides, and in a lady of 60 with *eczema* there was but 2 per cent. The immense importance of chloride of sodium in the economy, in its relation to the gastric secretion, blood, and tissues, would imply that a knowledge, through the urine, of its supply in the blood and its proper elimination must be of value in connection with disease, whether of the skin or other portions of the body; and our practical experience has demonstrated this to be the fact time and again in many skin affections.

Phosphates.—These being also largely derived from the food are subject to considerable fluctuations in the urine in normal persons, and some care is required in judging the results of analysis. But phosphates are known to be largely increased in the urine in certain chronic diseases, as of the bones, nervous tissue, etc., and diminished in many other conditions, and the greatest variations were continually found in our cutaneous cases, in a manner often quite inexplicable. With an accepted average normal standard of 10-12 per cent. there were many specimens in which only a trace was found, while the highest recorded was 26 per cent. Continued increased elimination will often indicate a waste of nervous tissue, which may be of the utmost importance in some dermatoses; while with a prolonged, greatly diminished excretion we have a failure of nutritive powers which is of equal importance in other skin affections.

There are other ingredients of the urine, normal and abnormal, which have not been so fully studied, but which may be of importance in some conditions of the skin; such as are the coloring matter, which has been shown by Bouchard to be poisonous, creatinin, skatol, acetone, β-oxybutyric acid, etc. The thought naturally arises that if derangement in some of the urinary elements which have been carefully observed is so important in connection with certain diseases of the skin, can it not be possible that some of these other ingredients of the urine may, by their derangement, act in the same or different manner, in inducing some of the skin lesions which are often so troublesome.

There are yet a few urinary changes observed microscopically which should be mentioned as affording indications for treatment in certain diseases of the skin.

Urates and Uric Acid.—Heretofore we have spoken of uric acid as determined by quantitative analyses, but in many cases it will be grossly represented, by masses of urates, or even uric acid crystals, soon after passing. These are always of some significance in connection with certain skin affections, but should be carefully interpreted; for like the uric acid showers after attacks of gout, they may represent the effort of nature to throw off accumulated, effete, nitrogenous matter. When such deposits persist they indicate perverted nitrogenous metabolism, which should be attended too quite as much as other urinary derangements, if the best results are to be obtained in *eczema, psoriasis, acne*, and other affections.

Oxalates.—Oxalate of lime was formerly regarded as of much more importance, as a urinary deposit, than it is at present, for it is now recognized that it may come from an excess of certain vegetables and fruits in the diet. But when excessive or persistent it signifies, a process or state of sub-oxidation which should not be neglected in connection with certain affections of the skin. Thus, in acute *lichen planus* and *pruritus ani* oxaluria is an indication for the free administration of nitric acid, which will often prove of the most signal value in these troubles.

It would be interesting and highly instructive and profitable if we could point more especially to changes in the urine which necessarily accompanied definite diseases of the skin. But unfortunately this is not possible in our present state of knowledge; we must have vastly more carefully recorded observations. Undoubtedly many have the alterations in the urine which we have mentioned, with no eruption, but the same may be said in regard to many diseases of other organs; no one doubts the connection between uratic deposits and true gout, and yet the former are continually found without the latter. *Xanthoma diabeticorum* is recognized as associated with and probably dependent upon glycosuria, and yet how exceedingly rare it is in diabetes. There are undoubtedly concurrent causes of disease, of which we as yet know but little, and it is quite possible that closer observation and analysis will show further changes in the urine, or combination of changes, which may throw light on the pathogeny of some affections of the skin. In the present communication I have only endeavored to contribute my mite to this most interesting, instructive, and profitable line of investigation, and urge its further elaboration; for, of the practical importance, along therapeutical lines, of the matters which I have presented my daily experience makes me continually more positive.

One more thought. Mention has been made of a number of more or less acute and some chronic cutaneous affections in regard to which functional disturbances in the kindey excretion have been observed to be of significance. It is not probable, therefore, that careful study will demonstrate the same to be more or less true of still other eruptions which have not thus far been investigated in this direction, and that possibly in most cases where the skin is in any way diseased there may be some metabolic errors, which may be evidenced in the urine, if sufficient time, patience, and skill are employed. The notorious rebelliousness and proneness to recur of many affections of the skin should lead dermatologists to look away from a purely local etiology, and, with a broader view of medicine, seek for the underlying causes, which, as in diseases of other organs, are often found to depend on a defective metabolism, which is commonly indicated by defective or deranged urinary secretion.

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531 MADISON AVENUE.

THE PUBLIC VALUE OF DIFFERENT MILKS.

By CHARLES E. NORTH, M.D.,

NEW YORK.

MUCH progress has been made in recent years toward the solution of the milk problem. The agitation on the milk question has spread rapidly throughout the United States and the meetings and discussions among medical men, scientific men, and the public are leading to a far better appreciation of the relation which milk bears to public health and infant mortality, as well as a better understanding of its food value. Following the ideals established by the Medical Milk Commissions in the pro-

duction and sale of certified milk, a campaign of cleanliness and for the adoption of sanitary methods has been set on foot throughout the length and breadth of the dairy industry. One of the most remarkable occurrences has been the advent and increase of the process of pasteurization and the conversion of the great majority of medical men and scientists to the belief that it has the highest value as a public health measure, and can be applied to milk without any serious damage to food value.

The net result of this agitation has been the appearance on the market of a number of grades and classes of milk bearing different names and labels, making different claims of excellence, and, above all, offered for sale at prices ranging from 7 cents to 25 cents per quart. It is not strange that in the public mind there should be considerable confusion as to just what quality and what price are the correct ones, and how to choose from the list a milk which represents the highest value at the most reasonable cost.

The public value of milk, assuming that the average chemical composition of the different grades and classes on the market is about the same, depends chiefly on three fundamental characteristics. These are safety, cleanliness and price. Safety comes first. As applied to milk safety refers to a guarantee against disease, and particularly against the bacteria causing infectious diseases, many of which are known to be transmissible by milk. That milk which contains no infectious bacteria, other things being equal, is the safest. Cleanliness is a characteristic which represents the sanitary care which has been taken of milk from the time it is extracted from the cow's udder until it reaches the consumer. Milk from healthy normal cows is excreted from the udder in a clean condition, free from foreign elements and filth. Cleanliness contributes largely, of course, to safety, but it is easy to conceive of milk which is safe but not clean, and of milk which is clean but not safe. Cleanliness is demanded by the consumer for its own sake, entirely apart from safety. Cleanliness is required for the sake of decency. The enjoyment of life includes the enjoyment of food and the enjoyment of drink, and cleanliness, therefore, contributes to a fundamental human instinct. Price, to a large extent determines the degree of usefulness of milk. High prices restrict the market, while low prices widen the market. The value to the public of the high priced milk, used only by a small percentage of the people, is not nearly so great as the value of the low priced milk used by the great majority of the people.

Safety is secured by medical inspection of dairy employees, veterinary inspection of dairy cattle, and sanitary control over milk production and milk handling, and by pasteurization. Each of these measures has its own special advocates, and each milk on the market has been subjected in some degree to some supervision and treatment which has safety as its object. The cleanliness of milk is shown most clearly by the numbers of bacteria as determined by the plate method, which gives the so-called bacterial count. Much dirt is dissolved in milk, so that the dirt test is only a very rough test for cleanliness. Furthermore, milk which has been filtered or clarified can be freed from sediment and suspended particles, although the milk itself may have absorbed much soluble dirt, but the bacteria which accompanied the dirt are not removed by these methods to a sufficient extent to prevent the detection of uncleanness by the bacterial count. Lack of refrigeration and age result in the multiplication of bacteria with damage to the compositon of milk, as well as the production of toxic products. The bacterial count is therefore recognized by the majority of sanitarians as the best index to the sanitary character of milk, which is summarized under the word cleanliness.

There is no question that the measures taken to prevent the infecton of milk and to destroy bacteria, as well as the measures taken to keep milk clean during the period of production and handling, involve expenses which more or less increase its cost. As a consequence the retail price depends largely on the safety and cleanliness of the milk. In Table 1 is a list of a number of milks showing their character with respect to safety, cleanliness and price.

TABLE 1.—CHARACTER OF DIFFERENT MILKS

Milk	Safety	Cleanliness, Bacteria	Price, Cents
Grade A	Pasteurized in bulk	200,000	10
Grade A	Pasteurized in bottle	200,000	11
Grade A, raw	Medical inspected		
	Veterinary inspected	100,000	12
	Sanitation		
Certified and	Medical inspection		
guaranteed	Veterinary inspection	10,000	15–25
	Sanitation		
Grade B	Pasteurized in bottle		
Grade B	Pasteurized in bulk	1,000,000	10
Grade B, raw	Veterinary inspection	1,000,000	9
	Daily score	500,000	9
Grade C	Pasteurized in bulk	Over 1,000,000	7

If, now, we agree that safety, ceanliness and price, by which I mean low price, are the primary characteristics by which the public value of milk can be measured, and that safety is of an importance twice as great as either of the other two, we can establish a system of measurement for milk based on a total public value of 100, of which safety counts 50 points, cleanliness 25 points, and low price 25 points. In arranging measurements for safety one can attach a different value to each of the various safeguards which are practised. For many years the medical profession has considered the medical inspection of dairy employees a sufficient safeguard against the transmission of infectious diseases from dairy employees to milk. The recent discovery of typhoid carriers, and carriers of other diseases among dairy employees, has to a great extent diminished the respect held for such medical inspection. A number of epidemics of typhoid fever have resulted in recent years from typhoid carriers, and it is now recognized that absolute protection against the infection of milk by human beings cannot be secured through medical inspection. The same general change of opinion has taken place with regard to veterinary inspection. This is particularly true in relation to inflammations of the udder. It is now certain that the udder of dairy cows is often inflamed in a manner which cannot be detected by external physical examination, and yet which produces a discharge of bacteria into the milk. On the other hand, the pasteurization of milk at temperatures which are known to destroy all of the bacteria of infectious diseases transmissible by milk gives a guarantee far greater than any we can secure by the above methods. Pasteurization by the holding method in bulk, which permits of an extension of time of heating to thirty minutes, or more, at a temperature of 145° F., has been found efficient for the destruction of infectious bacteria, and the majority of other forms,

without damage to the food value of milk. Pasteurization of milk after it is bottled is superior even to this, for the reason that chances for reinfection are reduced to a minimum. The bottling of milk often results in a considerable increase of the numbers of bacteria after the milk leaves the heaters. Pasteurization in the bottle, which is the final container, therefore, represents the maximum degree of safety now known. From our present knowledge of the degrees of safety belonging to these various measures, it is possible to construct a table, as follows:

TABLE II.—SAFETY RATINGS FOR MILK

Maximum	50
Pasteurized in bottle	50
Pasteurized by holding method in bulk	45
Pasteurized by flash method at 160° F	40
Medical inspected employees, veterinary inspected dairy cattle, rigid sanitation	30
Scoring dairy farms 68	25
Physical examination of cattle	
Health board inspection of dairy farms	20
No inspection	10

Cleanliness ratings can be arranged on the basis of the numbers of bacteria found in the raw material. It seems proper to judge of the sanitary character of milk by its condition in a raw state, whether it is to be pasteurizeed or not, for this truly represents the raw material which is handled by the milk dealer. The degrees of bacterial excellence in milk recognized by sanitarians range from 10,000 per c.c. to over 1,000,000 per c.c. I have accordingly arranged a table of values for these various bacterial standards, as follows:

TABLE III.—CLEANLINESS RATINGS BASED ON BACTERIAL TESTS OF RAW MATERIAL

Bacteria per c.c.	Ratings
10,000	25
100,000	20
200,000	19
500,000	10
1,000,000	5
Over 1,000,000	0

The market price of milk ranges in different cities in this country from 7 cents to 25 cents per quart. In most of the large cities the prevailing retail price for bottled milk is 9 cents per quart. Price does not depend entirely on quality. Volume of business and local conditions are factors of primary importance. Thus, a milk dealer with a great volume of business in a territory where local conditions make cost of doing business cheap may be able to sell milk for 8 cents, for which another dealer with a small volume of business and in a locality where conditions are unfavorable to business must charge 10 cents per quart. At the present time a better grade of milk is selling in Milwaukee for 7 cents per quart than can be bought in Baltimore or New York City for 9 cents per quart, or in Philadelphia

TABLE IV.—PRICE RATINGS FOR MILK

Lowest retail market price	25
9 cents per quart or less	25
10 cents per quart or less	20
11 cents per quart or less	15
12 cents per quart or less	10
15 cents per quart or over	0

for 8 cents per quart. The prevailing market price represents the widest use of milk and therefore, as far as price is concerned, the highest public value. Prices higher than 9 cents greatly restrict the usefulness of milk, and have correspondingly lower public values. With these things in mind it is possible to construct a table giving ratings for the various milk prices, as follows:

If we now refer to Table 1, where the various characteristics of safety, cleanliness, and price of different milks are shown, it is possible to substitute the values given in Tables 2, 3, and 4 for the characteristics shown in Table 1. Thus, taking Table 2, which gives the values for safety, we can set down opposite each milk its safety rating. In like manner taking Table 3, which shows the values for cleanliness based on bacterial counts, we can substitute these values for the bacterial counts attached to each milk in Table 1. In like manner the values shown for price in Table 4 can be substituted for prices given in Table 1. These substitutions bring out clearly the relative public values in the different milks, and are shown in Table 5.

TABLE V.—PUBLIC VALUE OF DIFFERENT MILKS

Milk	Safety	Cleanliness	Price Rating	Public Value
Maximum	50	25	25	100
Grade A, pasteurized in bulk	45	19	20	84
Grade A, pasteurized in bottle	50	19	15	84
Grade B, pasteurized in bottle	50	5	20	75
Grade B, pasteurized in bulk	45	5	25	75
Grade C, pasteurized	45	0	25	70
Certified raw or guaranteed	30	25	5	60
Grade B, raw	20	10	25	55
Grade A, raw	25	20	10	55

The pasteurization of milk in the bottle at the present time is carried out by methods which do not permit of the treatment of large volumes of milk in a short time, in the common forms of bottles and caps. The machines used are of limited capacity and many of them require special kinds of bottles and caps. These expenses add one cent per quart to the retail price. It is believed that in the near future machines will be placed on the market for the pasteurization of large volumes of milk in the ordinary bottles capped with ordinary caps. If this is true it may be possible to sell milk pasteurized in the bottle at a cost no greater than the cost of pasteurization in bulk. When this is accomplished it will increase the price rating for milk from 15 points, which is the rating assigned 11-cent milk, to 20 points, which is the rating assigned for 10-cent milk, and would give Grade A pasteurized in the bottle a rating of 89. At the present time Grade A milk pasteurized in bulk or in the bottle represents the maximum degree of safety and cleanliness with a corresponding minimum price, and therefore milk of the highest public value.

The Grade B milks, pasteurized either in the bottle or in bulk, come next in favor. They are marked down in cleanliness but are very high in safety and in price ratings. The price of 9 cents per quart is the popular price of milk. The only criticism which can be offered to Grade B milk is its deficiency in matters of cleanliness. The price is low and the safety is high.

Certified or guaranteed milks are given a rating in public value which is very low for two reasons. In the first place these raw milks are now known to be at times unsafe, and they must be marked low in safety compared with pasteurized milk. In the second place, the extremely high price of certified and guaranteed milk restricts the market, so that in the United States to-day they represent only one-half of one per cent. of the total milk supply. Prices from 15 cents to 25 cents per quart must be given a very low rating. The highest claim

possessed by these milks for public favor rests in the matter of cleanliness. Their cleanlines is extreme and must be marked at a very high rating. But this cleanliness does not offset their deficiencies in safety and in price, and consequently, they must be given a low public value.

The milk of the future will be reasonably clean and scientifically pasteurized, and will be sold at a moderate price. Such milk as Grade A pasteurized at 9 cents or 10 cents per quart is the milk toward which the industry and toward which the majority of sanitary authorities are now working.

30 Church Street.

COMMINUTED FRACTURE OF THE LARYNX—ACCIDENTAL TRACHEOTOMY—MULTIPLE TRAUMA—EXTENSIVE FROSTBITE—RECOVERY.

By D. BRYSON DELAVAN, M.D.,

NEW YORK.

The subject of this history was formerly a well-known figure in the leading throat clinics of Central Europe. While his case may have been referred to in the public press of the time it does not seem that it has ever appeared in the medical literature of this country. My own experience, both in general surgery and in that of the department of diseases of the throat, has not furnished a parallel to it. It seems well, therefore, to place it upon record. About twenty years ago the patient came to the United States with the intention of making a living by the exhibition of his throat at various medical schools and by any other means within his power. He presented himself at the College of Physicians and Surgeons, where opportunity was given us to examine him.

He was a poor Roumanian Jew of about thirty and with the help of two canes hobbled painfully into our lecture room one day, offering his throat for examination and presenting the story of his sufferings. The haggard expression of his scarred countenance and the peddler's tray with its meager outlay gave evidence of unusual hardship and poverty. He was wearing a tracheotomy tube, and came to us for the purpose of demonstrating the introduction into a stenosed larynx of the dilator of Professor Schrotter of Vienna. From Schrotter, as well as from Professor Stoerck and others of Vienna, from Professor Fraenkel of Berlin, Prof. Moritz Schmidt of Frankfurt, and several other eminent European laryngologists, he brought strong letters in which the writers said that he had been in the habit of exhibiting himself at their clinics and vouched for the truthfulness of his story. They bespoke for him the kind consideration and generosity of their colleagues in other parts of the world. As to these letters familiarity with the handwriting of many of their authors proved them beyond question genuine. Moreover, I have heard by word of mouth from several of the writers of them the details of this remarkable case. No further corroboration was necessary, however, than that presented by the scars resulting from the injuries claimed to have been received.

The history is one of unique interest, not only by reason of the extraordinary vitality shown in the face of a series of injuries any one of which might easily have proved fatal, but because of the almost miraculous sequence of incidents, each instantly essential to the immediate saving of the man's life. The patient had been a prosperous young citizen of a town in Eastern Roumania, which lay in the midst of a country, sections of which were wild and badly protected. It was New Year's time, and the tax gatherer of the district had completed his collections and, with the revenue money in his possession, attended a banquet and dance upon New Year's Eve at the fine residence of a wealthy land holder. At the close of the festivities, shortly after midnight, the tax gatherer with his treasure and a party of seven companions, including the subject of this history, departed for their town, about sixteen miles distant, in a large three-horse sleigh. The ground was thickly covered with snow, the sky brilliant with stars, and the temperature below zero. Some of the journey lay through a particularly wild and desolate region, but the party was in high spirits and apparently not suspicious of danger. The fact that they were conveying a considerable sum of money had become known, however, and in the loneliest part of the way they were attacked by a band of outlaws. The place chosen for the ambush was at the edge of a dense wood not far from the banks of a stream. The suddenness of the onslaught made effective resistance impossible and all the party were quickly massacred, except our patient, who succeeded in concealing himself for a time under the fur robes in the bottom of the sleigh. His hiding place was soon discovered and he was dragged out and stripped of his valuables and clothing. A rope was fastened around his neck and he was hanged from the limb of a neighboring tree.

The attention of the bandits was then diverted from him in their eagerness to complete the robbery of the other victims. Left to himself and thus suspended in the air, his struggles were so desperate that he not only created a multiple fracture of his larynx, but also succeeded in breaking the rope. He fell to the ground rapidly suffocating, but nevertheless able to crawl into the bushes nearby, where he hoped to find concealment. His loudly stertorous breathing, however, quickly revealed his retreat. Two of the enemy rushed upon him, one armed with a large knife, the other with a revolver. The one with the knife, evidently approaching in the direction of the victim's head and at the left side, inflicted upon him three vicious cuts. The first extended from the margin of the right jaw upward across the face and over the forehead, passing completely through the cheek, dividing Steno's duct and incising the upper eyelid, but fortunately escaping the eye itself. The second attack resulted in a transverse incision straight across the throat, passing directly between the thyroid and cricoid cartilages and dividing the cricothyroid membrane. It failed, however, to injure either the carotids or the jugulars. Through this opening, as the man's head fell backwards, air was instantly admitted to the lungs and the frightful dyspnea occasioned by the fracture and resulting collapse of the larynx was overcome. The third slash, diagonally across the abdomen upon the right side, completely opened the peritoneal cavity throughout nearly its entire extent. Through this wound the intestines at once protruded, although apparently they had not been incised. To make sure work of the murder, the revolver was then emptied into him. Meanwhile the bodies of the other victims had been carried to the bluff at the bank of the stream, there about twenty feet above its surface, and had been thrown

one by one down upon the snow covered ice below. Our patient, apparently dead, was among the last to be so disposed of. The band then departed with their rich booty.

Some time during the next morning several peasants happening to come that way saw evidences of the tragedy that had taken place and, following the bloody trail from the woods to the river, discovered the corpses of the men below. With all speed they summoned help. Examinations showed that all of the party save one were dead. In him there seemed to remain a faint spark of life, but in addition to his other injuries his hands, feet, and ears were found to be badly frozen. He was taken to the nearest hospital, where his injuries were successfully treated, the wound in the neck closed, and a silver cannula inserted through the cricothyroid opening. The effect of the frost bites was very severe, so much so that the patient was obliged to undergo a Symes amputation of the right foot, a partial amputation of the left foot, and the loss of most of the fingers of both hands. Notwithstanding all these injuries, he recovered.

Incredible as this history seemed, the best evidence of its truthfulness existed in the scarred and mutilated body of the man himself, for there was not one of the wounds alluded to that was not represented by its own terrific scar or by the loss of an important member. Laryngoscopic examination proved the serious nature of the injury inflicted upon the larnyx, for there had been a multiple fracture of the thyroid cartilage, fracture of the cricoid, probable fracture of the hyoid bone and such collapse of the interior of the larynx that the resulting stenosis had been impossible of relief by the then existing methods and the permanent wearing of a tracheal canula a necessity.

The sequence of events by which the man's life was saved are worthy of note.

Had he not slipped under the robes to the bottom of the sleigh he would have been massacred with his companions at the first onslaught. His struggles while hanging, although they fractured the larynx, released him from the rope. When he hid in the bushes certain to die from dyspnea unless relieved, the stridor of his breathing revealed the place of his concealment and called forth a murderous gash which providentially opened the one place through which the desperate need of air could be supplied. The pistol shots, while penetrating the skin, probably did not enter deeply into the body. At all events, no important organs seem to have been injured by them. From the nature of the principal wounds the man should have been quickly exsanguinated, but fright and shock must have produced nature's anesthetic, syncope, and with syncope, together with the intense cold of the occasion, pain was overcome and hemorrhage controlled. A sheer fall of twenty feet upon hard ice would have been enough to kill. But the patient's fall was broken by the presence of the snow and of the bodies of his comrades, the latter possibly furnishing sufficient warmth to keep him alive. The purity of the cold winter atmosphere saved his wounds from infection and the rest was accomplished by what appears to have been remarkably skillful surgical care. The history of the injuries to the larynx and their results are particularly instructive as far as the prevention of stenosis is concerned. The treatment by means of Schrotter's dilators, the best at that time known, was practically a failure. The employment of modified O'Dwyer tubes, after the method of Dr. John Rogers, Jr., especially if applied promptly after the occurrence of the injury, would have saved the patient a lifetime of disability and suffering.

The final history of this patient is even more tragic than what has already been related. He became successful in a modest way as a peddler, and in the course of two or three years married a young woman in New Jersey. A few years afterwards, in reading the paper one morning I saw a statement to the effect that what the robbers of his native country had failed in doing had been successfully accomplished by his brother-in-law, who, wearying of his presence, had shot him dead.

40 East Forty-first Street.

THE UTILITY OF ENZYMES IN MALARIA.

By F. W. LAMBALLE, M.B.,

Major, Royal Army Medical Corps.

I take up a recent book,[1] which mirrors accurately enough current opinion, and there I read "Quinine is the one specific for all kinds of malarial fevers as it absolutely destroys the malarial parasites." This is the general teaching of the schools, and when one first begins tropical practice one relies upon quinine as a certain cure for malaria. Some ten years ago experience led me to doubt this infallibility. In Hongkong about that time malaria was the chief cause of sickness among the troops. Speaking from memory the admission rate to hospital for malaria was about 2,400* per thousand. Quinine in various forms, orally and hypodermically, in different courses of treatment was tried, but no method could be relied upon to obviate a relapse. During my service in Hongkong I should have had no difficulty in producing many cases showing records of 7 or 8 relapses.

These relapse cases have been a matter of concern because of the ensuing inefficiency, and recently with the troops in India efforts have been made to systematize the quinine treatment, to ensure that quinine is taken in sufficient doses, and that the treatment is spread over a sufficiently long time. These measures are complete enough as the following details will show: (1) No case of fever is diagnosed as malarial until the parasite has been recovered from the blood. (2) No case of malaria leaves hospital until the peripheral blood is *negative*, showing no parasites. (3) After leaving hospital all malaria patients attend for further treatment on a "malaria register." (*a*) *Benign cases* receive quinine sulphate in acid solution, gr. x, daily for one *week*, and afterwards three times weekly until four months of quinine treatment has been completed.

(*b*) *Malignant cases* receive quinine in the same form, gr. x daily for one *month*, and afterwards thrice weekly for three months longer. And yet relapses occur. Patients return to hospital deaf from cinchonism, ill with fever, and showing parasites in their peripheral blood.

I think the impression is very general that benign cases are cured easily and relapses rarely. Here in Upper Burma there seems little distinction between benign and malignant cases as regards their curability under quinine. Relapses seem as frequent in the one infection as in the other, the only difference being in the cachexia, which is persistent

*The number 2,400 is correct. A startling number—the equivalent of *every man in garrison being a patient in hospital nearly two and a half times every year!*

and progressive in bad cases of malignant infection. Major Lelean, R.A.M.C., writing in the *Journal of the Army Medical Corps* (November, 1911), has had the same experience in the 7th Division in India. I quote his figures as they show the importance of the subject: "Statistics have been kept which show the relapses occurring among a total of 1,053 malarial patients who attended hospital at Meerut for three months subsequent to their discharge. During that period they received 15 grains of quinine on two days per week. The drug was administered in solution and in the presence of an assistant surgeon, who kept a roster of these men and strictly enforced their regular attendance. We do not know what the mean daily strength was exactly, but it must have been approximately 170 for the eighteen months during which the results were kept. In that period there were 734 recurrences among these men, *i.e.* at the rate of 489 per year. It is, of course, obvious that this is but an approximate calculation, but it shows a per mille per annum attack rate amongst these men of no less than 2,876, which affords a considerable margin for error without losing its startling character." And continuing, he reiterates in slightly different form the question I have already suggested "Within comparatively recent years it has been taught that the action of quinine upon malarial parasites was so certain that quinine could be relied upon for clinical diagnosis. Was that teaching correct?" I think not. Quinine has its sphere of usefulness, but it is an empirical remedy—a fundamental fact we have forgotten because the remedy is so time-honored.

In the foregoing I have used the word *relapse* in the ordinary medical acceptation of the term as applied to any disease—a recurrence. Colonel R. H. Firth, in the *Journal of the Army Medical Corps* (February, 1913), in speaking of apyrexial malaria wishes a distinction to be drawn between *relapse* and *recrudescence*. By *recrudescence of infection* he speaks of a recurrence of the fever due to increased schizogony of the parasite after a period of apyrexia. By *relapse of infection* he indicates a recurrence of the fever due to a reversion to schizogony after the establishment of sexual forms in the blood. Professor Minchin,[2] in his "Introduction to the Study of the Protozoa," says "in the 'incubation' period of the disease schizogony alone occurs in all probability, but when the numbers of the parasite are sufficient to affect the health of the host the reaction of the host against the parasite probably stimulates the production of the propagative phases and Schaudinn has described the changes of the trophozoites which become sporonts."

In the light of the recent work[3] of my friend, Dr. John Beard, on the occurrence of dextrorotatory albumins in organic nature and the part played by ferments in the protection of the animal body all these things find a ready explanation. Schizogony of the parasite produces the clinical disturbance we call fever, the sexual forms are harmless and the asexual growth of the parasite, as is the common feature with all asexual growths, can proceed to an unlimited number of generations or cell-divisions until checked by the natural protective ferments of the animal body. Just as the trophoblast is checked in its growth by the ferments of the developing embryo (Beard), so the natural protective ferments of the host react against the asexual phase of the parasite and sexual forms begin to appear. The varying degree of immunity, the degree to which the malaria remains dormant, is a measure of these natural protective ferments. In like manner, as these ferments are insufficient to destroy the asexual forms, the disease recurs. There is no essential pathological difference between the cases termed "relapse" and those called "recrudescence." Clinically there is a difference only as to the time which has passed since infection. Before leaving this portion of the subject reference should be made to the recent publication[5] by Prof. Emil Abderhalden on "Protective Ferments of the Animal Organism." In this work the author has gone a long way in the same direction as Dr. Beard's researches have led him.

In 1907 it was foreseen, and foretold, by Dr. Beard, that the parasites of malaria would be readily destroyed by the enzyme trypsin, and the scientific principles involved have been enunciated by him in papers published in 1907 and 1913.[3, 4] It may be of interest to cite one scientific conclusion from his recent memoir. In this Beard[3] writes: "Since the organisms underlying the chief tropical diseases, such as malignant malaria, trypanosomiasis, sleeping sickness, yellow fever, relapsing fever, kalaazar, etc., are, so far as these attack human beings, asexual generations, it follows that the natural means of destroying the organisms of such tropical diseases and of curing the patients are the use *in combination* of the powerful pancreatic ferments, trypsin, and amylopsin."

Not until January, 1913, did the opportunity come to me of putting these principles into practice in cases of tropical disease and of seeing whether under treatment by ferments these relapses in malaria were preventable. As a test for this enzyme-treatment out of about 100 the cases of severe infection and those showing relapses were selected. Clinically, the results are most marked, the change in the patient within a few hours remarkable, and the benefit permanent. As circumstances have arisen which have interrupted this work, and as I do not know when I can carry the observations further, I think that these clinical results demonstrating the utility of the pancreatic ferments in the severer forms of malarial infection should be recorded.

For a discussion of the nomenclature of the organisms of malaria reference may be made to: Doflein, F.—"Lehrbuch der Protozoenkunde," 3te Auflage, Jena, 1911, pp. 774-788. Following him and adopting *Plasmodium* as the generic name, the two forms dealt with in the following are *Laverania malariæ*, the organism of malignant tertian malaria, and *Plasmodium vivax*, that of benign tertian malaria.

The method of treatment has been by intramuscular injections of the enzymes, trypsin and amylopsin. My acknowledgments are due to Messrs. Fairchild Brothers & Foster for the injections employed in the following cases. Both ferments are supplied in glass-ampoules holding about one cubic centimeter. The injectio trypsini has a digestive value of 1,250 Roberts units and it is the most potent preparation of trypsin made. The injectio amylopsini is of maximum potency and contains 500 Roberts amylolytic units. The preparations are sterile and stable. I have kept some of these ampoules for nine months in Central India without appreciable loss of strength. Before injection the contents of each ampoule should be diluted with normal saline 1 in 5. Latterly I have found, when using these fer-

ments in other diseases, that by using *two needles*, which should be as fine as possible, the pain, which often follows injections of trypsin, may be avoided. The one needle is used to take up the injection into the syringe, the second one, which in this way has no trypsin upon it, to make the actual injection. My usual practice is to take up the contents of one ampoule of trypsin and of one ampoule of amylopsin in a 10 c.c. syringe, and then fill the syringe with sterile normal saline. This amount I usually give as a single dose. Baetzner,[9] using the same preparations in surgical tuberculosis, gives his injections hypodermically, but I prefer to give the injections intramuscularly and select the buttock, finding that patients suffer the least inconvenience in this way. Using ordinary surgical technique in giving these injections, I have made some hundreds after this fashion and no harm has ensued. The ferments diffuse slowly from the tissue into which they are injected, and some local edema remains for 12 to 24 hours, when it disappears. The local pain is little more than that due to the needle prick. The effect of the trypsin on the normal tissues at the site of injection is practically nil.

But the general effect, as seen in the cerebral type of case, is marked. The headache vanishes, the patient's restlessness ceases, the skin becomes moist and the temperature falls, the patient's aspect is changed totally in a few hours and he feels fresh and looks bright. As a rule a single injection is sufficient to clear the peripheral blood of parasites. But in severe infections I think that *three injections* given at intervals of about four days, are necessary to effect a cure. My previous experience[6] in the use of ferments in malignant disease has led me to repeat the injections, until the injections themselves cause a rise in the patient's temperature. This I have elsewhere called a "trypsin reaction." When this happens, I know that the patient is fully under the influence of the treatment. Usually this occurs in malaria with the third injection, and having proceeded so far the worst cases* I have to deal with have remained free from relapse.

Case I.—Private C., No. 9,457.—Malignant tertian malaria with hematuria. Contracted malaria in Maymyo, Burma, November, 1912. December 5, 1912.—Admitted to hospital. Temperature 101° F. *Malignant tertian rings* found in peripheral blood. Quinine gr. x thrice daily. December 6, 1912.—Morning temperature 103° F., evening temperature 102.4° F. Hematuria appeared. Quinine stopped. Arsenic given. December 7 and 8, 1912.—Temperature normal, but hematuria continuing. December 16, 1912.—Apparent recovery. Discharged from hospital, but ordered to attend daily and to receive a daily dose of gr. x of quinine for one month.

Relapse.—January 11, 1913.—Readmitted to hospital. Evening temperature 100° F. *Malignant tertian rings and crescents* found in peripheral blood. Quinine gr. x given thrice daily. January 13 to 16.—Evening temperature 100° to 102° F. each evening. January 17.—Quinine treatment stopped. *First* injection of trypsin and amylopsin. Evening temperature 100° F. January 19.—Evening temperature 101° F. Blood shows crescents. January 21.—Evening temperature 101.6° F. January 23.—Evening temperature 96° F. January 24.—*Second* injection of trypsin and amylopsin. Six hours after this injection the patient's temperature rose to 100° F., but the peripheral blood showed no parasites. January 25 and 26.—Blood negative. No symptoms. January 31.—*Third* injection of trypsin and amylopsin. Discharged from hospital. The patient was seen by me on March 16, April 27, and May 31, 1913, and he has had no further symptoms.

Case II.—Private G., No. 9,876.—Malignant malaria with relapses. Contracted malaria in August, 1912, and was treated in hospital from August 22 to September 2, 1912, *malignant tertian rings* being found in the peripheral blood. The *first relapse* occurred in December, 1912. Patient in hospital from December 13 to 19, 1912, when again *malignant tertian rings* were found. Patient had been continuously under quinine treatment from August 22, 1912, to January 2, 1913—the regulation four months' course of treatment.

Second relapse took place in January, 1913, patient being admitted to hospital on January 29. He was deaf from cinchonism, the blood-smears were repeatedly negative, showing no parasites, but the patient's temperature each evening rose to about 100° F. He was discharged from hospital on February 11 and ordered to attend daily for further quinine treatment.

Third relapse.—On March 2, 1913, patient was attending for his daily dose of quinine, when he appeared to me to look so ill that I detained him in hospital. His evening temperature was 99.2° F., and blood examination negative. March 3.—Admitted to hospital, complaining of pains all over, worst in bones and joints. March 4.—Blood showed *malignant tertian rings*. In the evening the temperature rose to 103° F. and patient became delirious, showing cerebral symptoms. March 5.—Very severe headache. *First* injection of trypsin and amylopsin. March 6.—Headache gone. Feels well. Temperature in evening 99.6° F. March 7.—No headache or other signs. *Second* injection of trypsin and amylopsin given. March 9.—Temperature normal, neither signs nor symptoms, blood negative. March 12.—Continuing normal without symptoms. *Third* injection of trypsin and amylopsin given. This was followed by a rise of temperature to 102.4° F. Blood-smear negative. March 13.—Blood-smears again taken; no parasites found. Leucocyte count: Polynuclear 50 per cent., large mononuclear 17.3 per cent., lymphocytes 24.7 per cent., eosinophile 8 per cent. The changes in the large mononuclear and eosinophile white blood cells are noteworthy. March 16.—Discharged to duty. April 16 and May 19 the patient was seen by me. No further symptoms.

Case III.—Lance Corporal J., No. 8,459.—Contracted malaria in October, 1912. Was treated in hospital between October 25 and 30, 1912, benign tertian rings being found in the blood. The quinine treatment was continued from October, 1912, to February 28, 1913, *i.e.* a four months' course. On March 8, 1913, patient had a typical attack of ague in barracks and was not seen by a medical officer. On March 10, 1913, patient was brought to hospital with a temperature of 104.2° F., and malignant tertian rings were found in the blood. March 12.—*First* injection of trypsin and amylopsin was given. March 15.—*Second* injection was given. March 18.—*Third* injection was given. March 23.—Discharged to duty. Up to June 16, 1913, patient has had no relapse and no further symptoms. Query: was this case a mixed infection of benign and malignant malaria, or a fresh infection of malignant malaria while the patient was taking quinine?

Case IV.—Private T., No. 9,141.—Benign tertian malaria. States he first had malaria in Rangoon some two years ago, and that he has been stationed in Mandalay since June, 1912, arriving in Maymyo, Burma, on March 8, 1913. While in Mandalay he had five relapses of malaria. March 11, 1913.—Detained with severe ague. Temperature 103.8° F. Benign tertian rings and gametes in peripheral blood. March 12.—Admitted to hospital. Evening temperature 103.8° F. March 15.—*First* injection of trypsin and amylopsin. March 18.—*Second* injection. Blood negative. March 22.—*Third* injection. March 25.—Discharged to duty. Up to June 16, 1913, no relapse and no further symptoms.

Case V.—Lance Corporal G., No. 6,638.—Benign tertian malaria. Contracted malaria in December, 1912. Was treated in hospital December 28, 1912, to January 5, 1913. Relapse on March 14, 1913. Temperature 102° F. Blood-smear showed *benign tertian rings and gametes*. March 16.—Temperature 100° F. March 18.—*First* injection of trypsin and amylopsin. March 19.—Evening temperature 102° F. (due to yesterday's injection). March 20.—Temperature normal; blood negative. March 22.—Temperature normal. *Second* injection of trypsin and amylopsin. March 25.—Discharged to duty. Up to June 16, 1913, no relapse and no further symptoms.

Case VI.—Private S., No. 8,561.—Malignant tertian malaria. Contracted malaria in January, 1913. Was in hospital from January 31 to February 14, suffering from a severe attack, since when he has been taking quinine regularly. March 4.—Arrived in Maymyo, attending three times a week for quinine. March 15.—Reported sick with a temperature of 102.4° F. *Malignant tertian rings* found in peripheral blood. March 17.—Temperature 101° F. in

*The following cases were all those of British infantry soldiers. Three natives (Gurkhas) were also treated, but my notes of these cases are too fragmentary for inclusion.

the evening. March 18.—*First* injection of trypsin and amylopsin. March 19.—Temperature normal. March 22.—*Second* injection of trypsin and amylopsin. March 27.—Discharged to duty. Up to June 16, 1913, no relapse.

Case VII.—Private S., No. 9,600.—Benign tertian malaria, in which quinine seemed to give no benefit. Contracted malaria in September, 1912. States that he has had three relapses out of hospital. Returned from maneuvers on March 6, 1913. March 21.—Reported sick. Temperature 102.4° F. *Benign tertian gametes* found. Quinine gr. v. four-hourly ordered. March 22.—Temperature, morning 101.2° F., evening 101.6° F. Continue quinine. March 23.—Temperature, morning 100° F., evening 101.6 F. Quinine gr. x thrice daily. March 24.—Temperature, morning 99.6° F., evening 100° F. Continue quinine. March 25-29.—Temperature normal. Continue quinine. March 30.—Evening temperature 100° F. Severe headache and joint-pains. March 31.—*First* injection of trypsin and amylopsin. Evening temperature 100.2° F. April 1-4.—Temperature normal; no symptoms. April 5.—*Second* injection of trypsin and amylopsin. April 8.—Discharged to duty. Up to June 16, 1913, no relapse and no further symptoms.

After nine days of quinine treatment in this case the parasites were still able to produce fever, severe headache, and joint pains, all of which vanished after *one injection* of the ferments, trypsin and amylopsin.

Case VIII.—Private W., No. 9,402.—Benign tertian malaria. Contracted malaria in September, 1912, being treated in hospital from October 2 to 11, 1912. Completed a four months' course of quinine treatment in February, 1913. On March 27, 1913, reported sick, with a temperature of 102° F., *benign tertian rings* being found. On April 1 and 5 he received injections of trypsin and amylopsin. On April 10 he returned to duty, since when he has had no further symptoms.

Case IX.—Lance Corporal F., No. 9,327.—Benign tertian malaria. Contracted malaria in October, 1912, being treated in hospital from November 1 to 12, 1912, and continuing the quinine treatment out of hospital until about the middle of January, 1913. On March 24, 1913, reported sick, temperature 104.8° F., and *benign tertian rings* were found. On April 1 and 5 he received injections of trypsin and amylopsin, the second injection causing a rise of temperature to 100° F. On April 10 he returned to duty, and has since had no further relapse.

Case X.—Private T., No. 8,014.—Malignant tertian malaria. First admission, severe double infection. May 19, 1913.—Headache and colic. Temperature 102.2° F. Quinine treatment begun. May 20.—*Malignant tertian rings* found in peripheral blood. May 21.—Temperature, morning 103.6° F, evening 102.4° F. Headache severe. May 22.—Temperature 104° and 102.4°. May 23, 101° and 100°. May 24, 99.4° and 100.4°. May 25, 99.2° and 99.2°. May 26, 98.6° and 100°. Quinine treatment stopped. *First* injection of trypsin and amylopsin. Compared with the eight days of treatment with quinine the progress made after one single injection of trypsin and amylopsin is marked. May 27.—Better and brighter. Evening temperature 98.6° F. May 28 to June 3.—Temperature normal. No further symptoms.

Case XI.—Private T., No. 9,660.—Mixed infection with debility. Patient a tall lank phthinoid subject. Contracted malaria in January, 1913. March 16.—Admitted to hospital with pneumonia of right base. March 22.—Temperature 101° F. Blood examination showed numerous *benign tertian rings and malignant tertian rings also*. Quinine treatment begun. April 8.—Discharged from hospital, but continuing the quinine treatment as an out-patient.

Relapse.—April 15, 1913.—Admitted to hospital. Temperature 103.8° F. Malignant tertian rings in great numbers. April 16.—*First* injection of trypsin and amylopsin. April 17.—Evening temperature 100.6° F. April 18.—Temperature normal. April 19.—Temperature, morning 98.6°, evening 100° F. *Second* injection of trypsin and amylopsin. April 28.—Temperature continuing normal. Blood negative. *Third* injection of trypsin and amylopsin. May 3.—Returned to duty. Seen June 15, 1913. No relapse and no further symptoms.

Case XII.—Private H., No. 9,535.—Malignant tertian malaria with cerebral symptoms. First admission. Severe cerebral type of case and double infection. May 12, 1913.—Detained. Temperature 102° F. at noon, 104° F. at 3 p. m. Blood-smear negative. May 13.—Temperature, morning 101.6°, evening 104° F. May 14, 100° and 102.4°. May 15, 99.6° and 105°. May 16, 98° and 103°. May 18.—*Malignant tertian rings* found. Quinine treatment ordered. May 19.—Transferred to my care. Headache very severe. Restless. Continuing the quinine treatment. May 20.—Headache and restlessness more marked, and patient became comatose. *First* injection of trypsin and amylopsin. May 21.—Headache gone. Patient looks fresh and eyes bright. Temperature now 99° F. All symptoms vanished. May 26.—*Second* injection of trypsin and amylopsin. June 5.—Discharged from hospital to duty.

"If a doctrine be challenged," said Pasteur, "it happens seldom that its truth or falsehood cannot be established by some crucial test. Even a single experiment will often suffice either to refute or to consolidate the doctrine.[7] Again, the great investigator, Emil Fischer, set up the doctrine of "lock and key" regarding the action of ferments by two experiments, and two only. The first experiment was to observe the fact, the second to confirm it.[8] In the foregoing pages twelve experiments are set forth and every single one of these confirmed the scientific conclusions, which led to their being made. For, as Carl Ernst von Baer wrote long ago, "That which always repeats itself cannot be conditioned by chance or passing caprice, but must depend upon a necessity."[10]

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THE FUNDAMENTAL PRINCIPLES OF BIOCHEMISTRY, THEIR APPLICATION IN THE STUDY OF COLLOIDAL MINERALS, AND THEIR RESULTING USE IN MEDICINE.*

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The Chemistry of Life.—So old and yet so new; so simple in expression and yet so mysterious in operation and profound in meaning. Who knows what Life in all its phases really is? We note its characteristic manifestations in the mineral kingdom, in the vegetable kingdom, in the animal kingdom, and in the human kingdom. We are even intuitively conscious of a still higher form of life.†

*Read before the Section on Pharmacology and Therapeutics of the American Medical Association at the Minneapolis meeting in June, 1913.

†See recent Presidential address on "Continuity," delivered at Birmingham, before the British Association, September 10, 1913, by Sir Oliver Lodge, F.R.S., D.Sc., LL.D., principal of the University of Birmingham.

What are the various elements in nature which enter into our physical conception of Life? The intellectual giants of Science, Philosophy, and Religion in all ages have grappled with this same problem, and yet, with all our heritage of knowledge and wisdom, the problem awaits a complete solution.

The mechanistic[1] cellular theories of the biologist and physiologist, along with the nebular[2] and planetismal[3] hypotheses of the geologist and the physico-chemical[4] interpretations of the physicist and chemist, have brought forth many illuminating ideas regarding the appearance of organic life upon this globe of inorganic matter, and have developed much experimental data explaining the various properties of living matter.

The phenomena of spontaneous movement[5], irritability[6] or response to stimuli, assimilation and disassimilation (metabolism)[7*], and even the processes of growth and reproduction,[8] which are considered to be the peculiar characteristics of living matter, have all been singularly imitated by artificial means in the scientific laboratory.

However similar some of these artificial manifestations of living phenomena may be, they are not actual duplications of life or living material.[9] There appears to be some element or principle present in the living protoplasm of nature which is not present in the artificial protoplasm of the laboratory. All of these experiments point to the fact that the chemistry and physics of the living organism are essentially the chemistry and physics of nitrogeneous colloids—true organic or vitochemical compounds.

A vitochemical substance or preparation is one which consists of a colloidal mineral element or compound chemically associated with native organic substances—proteins, fats, carbohydrates, etc. —in that form of refinement of particle and degree of activity as most nearly approaches the form and combination of true organic vegetable or animal tissues. Prof. E. A. Schäfer, in his recent article on "The Nature, Origin, and Maintenance of Life," expresses the advanced views of contemporary Physical Science on the chemical constitution of living substance,[10] when he says: "Living substance or protoplasm always, in fact, takes the form of a colloidal solution. The elements composing living substance are few in number. Those which are constantly present are carbon, hydrogen, oxygen, and nitrogen. With these both in nuclear matter and also, but to a less degree, in the more diffuse living material which we know as protoplasm, phosphorus is always associated. Moreover, a large proportion, rarely less than 70 per cent., of water appears essential for any manifestation of life, although not in all cases necessary for its continuance, since organisms are known which will bear the loss of the greater part if not the whole of the water they contain without permanent impairment of their vitality. The presence of certain inorganic salts is no less essential, chief among them being chloride of sodium and salts of calcium, magnesium, potassium, and iron. *The combination of these elements into a colloidal compound represents the chemical basis of life,* and when the chemist succeeds in building up this compound, it will without doubt be found to exhibit the phenomena which we are in the habit of associating with the term life."[11]

Wolfgang Pauli[12] took for the foundation of his treatise on "Physical Chemistry in the Service of Medicine" the extensive parallelism between the laws which govern changes in the colloidal state in vitro and in the living organisms.

A rational explanation and understanding of these biochemical elements and principles necessitates a brief consideration of Nature as a whole as a basis for the larger conception of a chemistry which deals with Life itself. Nature embraces certain fundamentals which are classified as ultimates, and which appear to be universal in time and space. These ultimates are five in number. Three of these—Matter (the universal property of Nature), Energy (the universal mode of Nature), and Life (the universal element of Nature)—command our especial attention at this time. A careful study of these universals reveals another stupendous fact—viz., that our whole system of evolutionary growth and development is brought about by the operation of a great fundamental law or principle of Nature acting through and upon these five ultimates.

This great fundamental principle, which operates through all the kingdoms of Nature, is known to chemists as the Law of Chemical Affinity. It has been variously known at different times as the Law of Universal Intelligence, the Law of Motion and Number, the Law of Integration, the Organic Principle, the Law of Life, the Law of Polarity, the Law of Growth, and the Constructive Principle in Nature. "It is, in fact, that Principle in Nature which impels every entity to seek vibratory correspondence with another like entity of opposite polarity."[13]

This great law is refining in principle, evolutionary in growth, harmonic in operation, vibratory in activity, and constructive in effect. In short, it is Nature's universal formula for evolution, which refines matter, increases its vibratory activity, and generates life.

Every scientist devises for himself certain concrete pictures of the nature of the fundamental units with which his specialty deals, in order that he may express his thoughts in concrete form. He must, however, be ever ready to shift and change and modify his ideas in accordance with the development of his science. The bigotry and skepticism of the past and the dogmatism of the present must not be allowed to fetter his reason and conscience and limit him in the acquirement of Truth, no matter from whence it may come nor how simple in form.

The biochemist, from a careful study of the broad field of Natural Science, takes the data of the chemist and physicist, of the anatomist and physiologist and pathologist, out of which he constructs an imagery of his own, dealing not with atoms and molecules as such, but with the conceptions of the physical and chemical nature of protoplasm, in the processes of reaction-velocity, catalysis and ferment activity, equilibrium, viscosity, osmotic pressure, colloidal mutability, allotropic transmutations, and electrolytic dissociation in vegetable and animal tissues. He must first, however, recognize and study the operations and manifestations of certain fundamental governing elements which co-ordinate the multiple phases of mineral and cellular activity, and appear to magnetize, vitalize, animate, and vivify respectively the four great kingdoms of nature—viz., the Mineral, the Vegetable, the Animal, and the Human kingdoms.

*The terms "assimilation" and "disassimilation" express the physical and chemical changes which occur within protoplasm as the result of the intake of nutrient material from the circumambient medium and its ultimate transformation into waste products which are passed out again into that medium; the whole cycle of these changes being embraced under the term "metabolism."

These governing elements, which are four in number and also appear to be universal in time and space, we may designate as the Life Elements. The science of chemistry is principally concerned with only two of these life elements, which are defined as follows: (1) Electromagnetism; (2) the vitochemical life element. It appears that one or more of the four life elements magnetizes, vivifies, vitalizes, or animates all physical matter, including the mineral atom, the plant, the animal, and the man. It would seem, then, that what we know as magnetism in minerals, vitality in vegetation, and physical life in the animal and man, are, in fact, certain temporary relations established between physical material and the finer and more subtle life elements.[13]

The withdrawal of the life elements in each kingdom appears to produce the same result—viz., devitalization and death. Physical matter is, therefore, negative to and subject to the more positive life elements. The principle of affinity or polar attraction appears to inhere in the vital elements themselves, and not in the solid particles of physical matter. Each life element is also assumed to display dual and yet differing powers and capacities of positive and receptive energy.

In the mineral kingdom the constructive and integrating principle of Nature operates through the electromagnetic life element alone. Upon this single element, therefore, the union, cohesion, integration, and growth of minerals depend.

All the beautiful crystalline forms in Nature are simply the expression of the electromagnetic element in matter. These chemical compounds are also the offspring of the electromagnetic energies in Nature.

In the vegetable kingdom the constructive, integrating principle of Nature operates through two life elements instead of one. That is to say, it operates through the electromagnetic and the vitochemical life elements. Of these two life elements the vitochemical is the dominating one in the vegetable organic process. It controls those higher functions of Nature associated with the properties of organization, growth, and reproduction.[14] The entire plant kingdom is an expression of the vitochemical element in Nature.

The operation of the law of polarity through the life elements upon the individual units, whether between the mineral atoms or the vegetable cells, is a ceaseless effort to establish vibratory correspondence and an equilibrium of forces in a perfect union. The result of these ceaseless activities of the individual particles upon each other is a refinement of the atom and an increase in vibratory activity of the atom in the compound.

There comes a time when a portion of the mineral substance is raised to certain ratios of correspondence with the vibratory action of the next higher element of vitochemical life, which appears to lie universally and coextensively in time and space with the lower element of electromagnetism. When the mineral atom has been thus raised it becomes susceptible to the essence and co-ordination of the higher life element. Impregnation occurs. The vitochemical life element is inducted into mineral substance and the mineral atom becomes a vegetable particle endowed with vitochemical or vegetable life. Is it not reasonable to suppose that by this evolutionary process, guided by Nature's constructive principle, all life is generated upon this planet?

A familiar application and manifestation of the electromagnetic element is to be found in the ordinary dry cell or electric battery. In general, such a cell consists of an outer cylindrical cup forming the zinc electrode, which is lined with thick absorbent paper and packed with pulverized manganese dioxide and carbon mixture surrounding the central carbon rod. The whole is saturated with ammonium chloride solution and sealed with pitch to keep it from drying out.

The anatomist would describe such a cell as consisting of a vessel of some sort of material containing a black powder, which was separated from the outer vessel by a white fibrous layer, and which surrounded a hard brittle rod in the center of the vessel, the whole mass being moistened with a fluid and sealed with a gummy waxlike substance, the outer vessel being connected with the inner black rod by a reddish strand. Such an analysis is obviously imperfect. It would never lead us to discover that the cell is capable of producing an electric current. The physiologist, who deals with the functions of things, would study the current produced by such a cell, its external and internal resistance, its effects, etc., but this would tell us nothing concerning the cause of the generation of the current. The analytical chemist, on the other hand, would tell us that the dry cell consists of a certain percentage of zinc, manganese dioxide, carbon, moisture, ammonium chloride, copper, brass, cellulose, etc., information very useful in its way, but of no more value to a comprehension of the generating activity of the cell than that of the physiologist and the anatomist. Something else besides these three kinds of knowledge is essential to the complete understanding of the simple "dry cell." A knowledge of the electromagnetic life element is necessary.

If all inorganic chemical compounds are the offspring of the electromagnetic element in Nature, is it not reasonable to suppose that these potential electromagnetic energies may be liberated from substances under certain conditions of chemical activity, and that electricity is one of the manifestations of this most simple of life elements?

Again, consider the properties and activities of vegetable protoplasm with its combined potentialities of electromagnetism and vitochemical energies. Take for example one of the simplest forms of vegetable life—the yeast cell. This cell, microscopic in size and possessing the simplest anatomical structure, and consisting simply of a colloidal solution of mineral salts in true organic or vitochemical form, is capable of growth and reproduction, and of carrying out many complex reactions. The yeast cell is capable of elaborating certain nitrogenous colloids called enzymes or ferments which convert sugar into alcohol, carbonic acid and water. Under certain conditions the yeast cell converts sugar into glycogen, which it may store for a long time within itself, or which it may soon reconvert into sugar and then into alcohol. Under other conditions it may oxidize alcohol. It synthesizes protein and cellulose. It forms glycerine, succinic acid, and amyl alcohol. It may reduce sulphur to sulphureted hydrogen. It generates electricity. It performs, undoubtedly, a whole series of cleavages, syntheses, oxidations, and reductions, and yet, examined under the microscope, it appears fairly homogeneous. No structure is visible capable of explanation as to how, in this small space, so many processes can go on side by side in an orderly fashion without interfering with each other. This multiple phase activity is manifestly impossible in a test tube.

Much experimental data[15] and many interesting and clever theories have been advanced to demonstrate and explain the multiple activities of the simplest of living cells. These studies have all led to one fundamental principle—viz., that *co-ordination* is the great characteristic of life. Anything which intermixes protoplasm and thus disturbs its phases of activity destroys co-ordination, and protoplasm dies. In other words, when the vitochemical life element escapes, co-ordination ceases, plasmolysis ensues, oxidation, hydrolysis, and the various other processes of the cell run riot, devitalization results, and we no longer have living material.

When we consider all the wonderful phenomena which have been demonstrated as a result of our knowledge and control of the simplest of the life elements—the electromagnetic—in the manifestations of electricity, for example, and that we are even now just at the threshold of greater possibilities in our understanding and use of this element, we cannot without some astonishment think of the almost unlimitable scientific possibilities in store for us when we come to understand and control the forces, activities, and processes of Nature inherent in the vitochemical life element.

It is toward a clearer understanding and a scientific application of the vitochemical life element that the biochemist of to-day must direct all his efforts and apply all his knowledge of physical and chemical science if he would ever bridge over Nature's gulf between the mineral and the vegetable worlds and that between the vegetable and the animal worlds.

It was my desire to present at this time some preliminary experimental data on the application of the vitochemical principle in the preparation of various colloidal mineral salt combinations in true organic and vitochemical form. In consideration of the detailed nature of this line of research work and the limitations of a general discussion of this nature, it was thought advisable to reserve the experimental material for another paper and concentrate the effort in this discussion to a careful presentation and analysis of the underlying elements and principles of the work, as a necessary foundation for a proper interpretation of the experimental results to follow.

A simple experiment will demonstrate the action of the vitochemical life element by producing within a few minutes what looks like a profuse vegetable growth. The experiment is carried out by introducing into a colloidal solution of sodium silicate (sp. gr. 118) crystals (about the size of a pea) of salts of the heavy metals, such as ferric chloride, ferrous chloride, copper chloride, uranium nitrate, silver nitrate, gold chloride, cobalt nitrate, manganese sulphate, etc. One is then witnessing the actual transmutation of the coarse crystalline inorganic form of matter to the more refined colloidal form. Similar results may be obtained by dropping into a fairly concentrated solution of potassium ferrocyanide little pills (size of a pea) made of copper sulphate or other heavy metal salts, and sugars.[16]

A study of protoplasm leads one to conclude that the phenomena of "organic life" appear to be the manifestations of the universal vitochemical life element through colloidal matter.

Having thus endeavored to classify the vitochemical principle and to suggest its application in the refinement of nitrogenous colloidal mineral substances, which form Nature's bridge between the crystalline inorganic and the cellular organic worlds of matter, let us next consider the nature of these colloids and their use in medicine.

Among the pioneers in this great field of colloidal chemistry, which is already commanding recognition as the new pharmaceutical chemistry, are recorded the names of Thomas Graham, Michael Faraday, Berzelius, Francesco Selmi, Carey Lea, Zsigmondy, Siedentopf, and Hermann Hille. The names of Faraday, Graham, and Hille are inseparably connected with this subject. Faraday made[17] colloidal solutions of gold by putting small pieces of yellow phosphorus into dilute solutions of gold chloride, some years before Graham invented the name *colloid*. Faraday was the first to use the term vitochemical, and it may be that in so doing he sensed the possible bridge between the mineral and the vegetable kingdoms. In 1862 Thomas Graham[18] observed that such substances as common salt, copper sulphate, potassium nitrate, and other substances of a crystalline nature, diffused through a parchment membrane almost as rapidly as if no membrane were present, while other substances, such as hydrated silicic acid, hydrated aluminum, starch, dextrin, and the gums; also caramel, tannin, albumin, gelatin, vegetable and animal extractive matter, and other substances of a non-crystalline, plastic form, possessed the common property of low diffusibility through such a membrane. To the former class of substances he gave the name Crystalloids, and to the other class the name Colloids.

Hermann Hille has recently claimed to have demonstrated the fact that colloidal minerals are Nature's bridge from the mineral kingdom to the vegetable kingdom. He is the first to make a successful application of the vitochemical principle in the study of colloids and the preparation of minerals and mineral salts in "true organic" form. He is the first to point out and demonstrate that true organic substances are colloidal forms of matter, and are, therefore, allotropic modifications of inorganic substances—the crystalline forms of matter.[19]

All physical nature is divided into the inorganic world of mineral matter and the organic world of vegetable and animal matter. Chemical analysis reveals the fact that the inorganic world is composed of the same elements that are found in the organic world. From the viewpoint of chemistry of today, therefore, the difference between organic and inorganic is not chemical in character, but a difference in structure only.[20] The characteristic structure of the inorganic world is rigid and crystalline; its basis is the crystal. The characteristic structure of the organic world is plastic or colloidal; its basis is the cell. Thomas Graham classified inorganic matter as "crystalloid" and organic matter as "colloid." Organic substance (the colloidal form of matter), therefore, is an allotropic* modification of inorganic substance, the crystalline form of matter.

For example: Diamond and charcoal and the carbon of protoplasm, in a purely chemical sense, are the same, so far as we know. They are allotropic forms of the element carbon. The diamond is crystalline or inorganic; charcoal is an amorphous or semiorganic form of carbon, whereas the carbon in protoplasm is the true organic or cellular modification.

The yellow, poisonous, crystalline phosphorus is an inorganic form; the nonpoisonous red phos-

*By allotropy is understood the property which certain chemical elements have of existing in two or more distinct forms, each having certain characteristics peculiar to itself.

phorus is an amorphous, semiorganic form, whereas the phosphorus of protoplasm is a colloidal or true organic modification of the same element. The results already obtained in colloidal chemistry make it safe to proclaim that every known substance can be raised from the crystalline to the more refined colloidal form.

One of the most widely used and best known colloids is soap, which plays such an important part in the household as a detergent and disinfectant. To the same class belong liquor cresolis compositus, U.S.P., lysol, creolin, etc.

Experiments with colloidal metals by Fillipi, Henri, Stodel, Ascoli, Izar, and others demonstrate that colloidal metals are as powerful in their bactericidal action as their inorganic salts, but very much less poisonous, if at all, in their effects upon ferments like pepsin, trypsin, pancreatin, etc. The effect of colloidal metals upon the enzymes of autolysis, or autodigestion, has been found to be accelerating and beneficent.[21] In fact, colloidal metals in themselves possess ferment action which can be retarded or entirely annihilated by traces of poisons like hydrocyanic acid, bichloride and cyanide of mercury, arsenous acid, carbon monoxide, etc. In other words, colloidal metals can be poisoned like other organized substances.

The ferment action, or catalytic effect, of colloidal metals is powerful. Bredig and his pupils found that colloidal platinum still exerted a perceptible decomposing action upon hydrogen peroxide in a dilution of one part of colloidal platinum in 70,000,000 parts of the liquid. Because of their catalytic action, Bredig called the colloidal metals "inorganic ferments."[22]

Not only the metals and other elements can be produced in the colloidal form, but their salts and other combinations as well. It is invariably found that the colloidal form is very much less poisonous and injurious than the crystalline form. For example: Colloidal copper arsenate is said to be one million times less poisonous than crystalline copper arsenate.

The reason why most of the so-called organic salts of silver, mercury, iron, etc., are not much more efficient nor much less poisonous than their purely inorganic salts appears to be due to the fact that most of them are merely loose associations of the inorganic, poisonous metal with organic substances like albumin, casein, sugar, etc. In order to become truly organic, or vitochemical, the mineral part of the combination must be colloidal in Nature.

All of our wholesome, natural food is colloidal in its nature. Milk, butter, cheese, eggs, meat, vegetables, fruits, honey, etc., are all colloids—not only their protein, carbohydrate, and fat constituents, but also their mineral bodies. These mineral bodies in true organic or vitochemical form, which have been almost totally ignored in medicine and dietetics, appear to be of such vital importance that "not one of the vital processes of the human organism is possible without them." Progressive physicians are beginning to recognize that the mineral salts of our food, which were formerly considered more or less unimportant, or secondary in importance to the three main classes—proteins, carbohydrates, and fats—are of the first importance.

The natural mineral salts are not only of the first importance as tissue foods, but are also the chief waste eliminators in human metabolism. To get some idea of the promptness with which the body acts in the elimination of waste matter and to emphasize the importance of taking our mineral salts in true organic form, wherein they will act as foods rather than as irritants to protoplasm, try the following experiment: Eat a tablet of lithium citrate. Then take a clean platinum wire, hold it in a colorless flame of a bunsen burner and note that it gives no coloration to the flame. Now pass the wire along the skin of the forehead, or after rinsing the hand in distilled water draw the wire across the palm and again hold it in the colorless bunsen flame. Note the beautiful yellow color due to the presence of sodium. Next take the blue glass and observe the same yellow flame through this; the cobalt glass absorbs the yellow sodium rays and the lilac flame of potassium now shows. About a half hour after taking the lithia tablet make the same test as above with a clean platinum wire. The vivid red flame of lithium is now obtained. In one short half hour the lithium entering at the mouth has been absorbed into the blood and carried to all parts of the body and is being excreted through the skin.

Is it not true that if the physician can control nutrition he can control disease? If it is true, and I believe it is, then a thorough knowledge of the mineral salts in true organic or vitochemical form—both in their native occurrence in our natural foods and in their synthetic forms—is necessary.

The soil, in order to produce vegetation which will support the higher kingdoms of animal and human life, must contain the following sixteen elements: Potassium, iron, calcium, sodium, magnesium, manganese, oxygen, hydrogen, nitrogen, carbon, chlorine, fluorine, sulphur, phosphorus, iodine, and silicon. These elements and their inorganic compounds cannot be utilized as foods by the higher kingdoms until they have been transmuted by the subtle alchemy of the vegetative process into true organic or vitochemical form. The human body is made up of these same sixteen elements in the following general proportions: Water, 70 per cent.; solid matter, 30 per cent., of which 6 per cent. is mineral salts and the remainder proteins, fats, and carbohydrates. Every one of these sixteen elements is necessary for a normal, healthy person, and we must depend upon our vegetable and animal foods to furnish them to us. Not only are the colloidal mineral elements themselves necessary, but certain enzymes which accompany them are of vital importance and must not be removed or destroyed. For example, wheat and potatoes, two of the most universally consumed food products, are robbed of their mineral salts either through the process of manufacture in the case of our patented flours, refined cereals, etc., or through the improper preparation and cooking of potatoes wherein the skins are removed and the water drained from them after boiling. All of our refined breakfast cereals, white sugars, processed fruits, and most of our canned materials, either have been demineralized or their ferments have been destroyed.

An interesting conclusion in connection with the relative value and importance of vegetable and animal foods in the human economy may be drawn from the following facts: As a general rule the chemical changes in plants are progressive or constructive; in an animal, regressive or destructive. Some cleavages are brought about in plants and some syntheses are carried on in animals. Animals take up the organic vegetable substances which have been synthesized by plants, assimilate them and excrete waste products which are identical, or nearly so, with those substances serving as food for plants.

Animal food will, therefore, contain its own waste materials, which will be so much extra inert and poisonous material for the human organism to eliminate. In the case of plant foods we do not have this extra waste material to take care of.

The facts of modern science, with their references, bearing upon the important subject of mineral starvation and disease, have been comprehensively reviewed in a recent article by Hermann Hille in the MEDICAL RECORD of June 15, 1912. Dr. Hille draws the following significant conclusions: First, that the primary cause of disease, from a purely physical viewpoint, is chiefly mineral starvation, and, second, that minerals in inorganic form cannot be utilized by the human organism as directly and effectually as can true organic minerals.

Dr. H. Packard, in a recent article on "The Possible Factor in the Causation of Cancer," in the February issue of *Surgery, Gynecology and Obstetrics,* writes as follows: "In view of the apparently well established fact that in the vegetable world an adequate supply of the earth salts—phosphorus, potassium, iron, manganese, silica, sodium, etc.—act as a distinct deterrent on parasitic life, and make for vigorous, virile, disease-resisting, healthy life, may we not assume as much for the animal world?

Since a critical examination of the habits of life of civilized cancer-plagued people, in comparison with the habits of primitive cancer-free people, shows that the main difference is in a dietary poor in organic mineral salts in the case of the cancer victims, and a diet rich in these same food salts in the case of those who are free from cancer, the most logical and rational course is to establish this truth as the keynote in cancer treatment. A well-balanced dietary must be adopted, including not only protein, carbohydrates, and fats, but also food salts." For a more detailed discussion of the facts connected with the great subject of mineral starvation and disease, the reader is referred to a recent excellent discussion along this line by Alfred W. McCann in his "Starving America."

The possibilities of the application of colloidal chemistry in medicine are suggested, not only by some of the colloidal preparations mentioned here, but also by the results obtained by Prof. Martin H. Fisher, whose recent publications, "The Oedema"[23] and "Nephritis"[24] and their subsequent discussions[25] by William J. Gies and others are of value to every thinking and progressive physician.

A clearer understanding of colloids and a more intimate knowledge of the facts of colloidal chemistry and of the vital importance of the colloidal forms of matter for the manifestations of organic life and in the elimination of pathological conditions will not only accomplish a much needed simplification of materia medica, but will also facilitate a rational understanding of the primary causes of disease and will thereby elevate the uncertain art of healing to the dignity of an exact science. It would enable the physician to know why a remedy ought to be colloidal or organic, and why crystalline or inorganic remedies are foreign matter to the human organism and act as poisons and irritants instead of foods.

A careful study of the vitochemical principle in Nature, and its application in biochemical research, will revolutionize our chemistry of today and give us a new materia medica for the future.

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33 INWOOD PLACE.

DESCRIPTION OF A NEW METHOD OF REPAIR FOR VAGINAL HERNIA, WITH A REPORT OF ONE HUNDRED AND FORTY CASES IN WHICH IT WAS USED.

By HENRY ALBERT WADE, M.D.,

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ATTENDING GYNECOLOGIST TO THE WILLIAMSBURGH HOSPITAL; ATTENDING SURGEON TO THE BETHANY DEACONESSES' HOSPITAL.

The method of repair for vaginal hernia which I describe in this paper has been extensively tested by me in the Williamsburg and Bethany Deaconesses' Hospitals and in private practice. I have selected for illustrative report only the cases operated on in the Williamsburgh Hospital, for the reason that the clinical histories of those cases are there filed so as to be readily accessible. This series of Williamsburgh Hospital cases numbers one hundred and forty and covers two and a half years. One hundred and ten of these cases I have been able to follow up and keep under my personal observation. Previous to the completion of my investigation as to the most effectual method of repairing a vaginal hernia I had tried out the various methods in general use, with more or less unsatisfactory results. Therefore, encouraged by the indifferent success which attended my work with these cases, I sought for other lines of procedure, being convinced that thus far the essential point which would determine the ultimate success in the treatment of cases of this character had been missed and that there must be some one better method than those so generally employed; but where look for and how determine the defect?

First, what is the principle underlying and guiding the treatment of thees cases? From my point of view they are to be regarded as a form of hernia and treated according to the same general principle as those which guide the general surgeon in repairing an inguinal, femoral, or other hernia, the

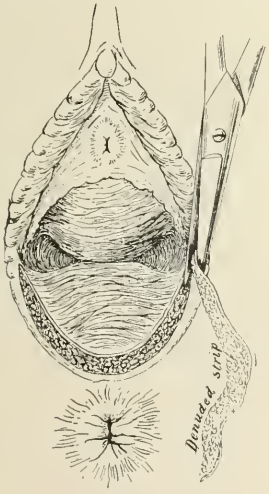

Fig. 1.—First Step.

essential here being to bring together and anchor the fascial layers.

I have observed in all cases of retrodisplacement of the uterus, when the displacement is not due to inflammatory processes, a separation of the deep fascia of the perineum. This separation may be the result of trauma after childbirth or due to a loss of tone of the surrounding structures, this latter being found in women who have never borne children and also in virgins. Viewing these cases then as hernias, the most common forms are:

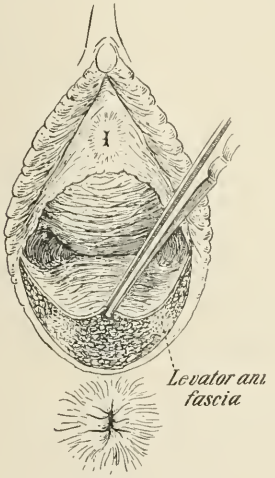

Fig. 2.—Second Step.

1. Enterocele (exceedingly rare),
2. Rectocele,
3. Cystocele, and
4. Ptosis, of varying degrees, of the uterus and its appendages.

It is with these latter, and especially retrodisplacements of the uterus, that the gynecologist is most concerned, and which demand from him his best judgment and skill in their correction. A retroflexion or retroversion of the uterus is frequently the first step in its ultimate and complete prolapsus, unless early and effectual treatment be instituted. *It is futile to endeavor to correct these displacements permanently by any method whatsoever done exclusively by the abdominal route.* The secret of success lies in the permanent strengthen-

Fig. 3.—Third Step.

ing of the pelvic floor, and by no other means can the desired result be obtained. This applies to vaginal hernias following childbirth and due to lacerations, trauma, etc., and also to hernias in virginal vaginas where the lesion is due to a loss of tonicity of the parts.

Fig. 4.—Fourth Step.

Preparation of the Patient for Operation.—The preparation of the patient begins forty-eight hours prior to the time of operation and is as follows: one ounce of castor oil, a light, soft diet; twelve hours previous to operation the patient receives an enema, a general bath, the parts are scrubbed and shaved and irrigated with alcohol and then with water. A vaginal douche of lysol, one dram to the pint, and a bichloride dressing, 1-5000, applied to the vulva. One half-hour before the patient is taken to the operating room she is catheterized and the genitals are irrigated with bichloride solution, 1-2000. After the patient has been anesthetized and placed on the operating table, the field of operation is painted with a 50 per cent. solution of tincture of iodine. I have never seen any corrosive effect subsequently from the application of the iodine.

Technique of the Operation.—The patient is placed in the lithotomy position; an incision is made beginning at the lateral mucocutaneous junction of the posterior aspect of the vaginal outlet. The amount of tissue that, without too much tension, may be brought up to the urethra, is estimated, and then the mucocutaneous junction at this point is grasped with a mouse-tooth forceps, and with slight traction a curved incision is made with the convexity directed toward the anus, extending to a point at the same level on the opposite side of the vaginal outlet. A flap of mucous membrane is now dissected upward, and with a clamp held clear of the field of operation. This flap is allowed to remain, and subsequently acts as an umbrella to protect the plastic work done below from the irritating discharges above. By means of the fingers the dissection is continued laterally on either side until a firm fascial layer is made out. Then these layers of fascia, not muscle, are brought together and held with a continuous suture of No. 2 chromic catgut. The superficial fascia is similarly united with the same strand of catgut. The skin is dissected free from the superficial fascia. This is particularly important, as without the dissection it will frequently be found impossible to bring the skin edges together with the Mitchelin clips. A clamp is placed at the posterior angle of the skin incision and the wound is securely sealed with from four to seven clips. The clips are removed at the end of six to nine days. If the clips are new ones and properly placed there should be no trauma from their pointed ends at the end of the seven days and there should be very little trouble experienced in removing them.

During the denudation and suturing, the field is swabbed frequently with a solution of mercury bichloride, 1-5000.

While the patient is convalescing no vulva pads are used. This rule is adhered to even though there be considerable bleeding per vaginam.

In the 140 Williamsburgh Hospital cases it has never been found necessary to place a finger in the rectum to act as a guide, and never has the rectum been entered while either denuding or suturing. Personally I believe there is more danger of entering the cavity of the rectum while suturing than there is while denuding. In old tears of the vagina with much scar tissue I have experienced no difficulty, much to my surprise, in separating the mucous-membrane flap.

Interrupted sutures of chromic catgut No. 2 were used in the first twenty-two cases during the year 1911. Catgut brought the skin and mucous membrane as well as the fascial layers together. The results were not satisfactory, mild infections and sloughing being of frequent occurrence.

In the next thirty-seven cases (1912) a continuous suture was employed, and skin and mucous membrane were brought together with a subcuticular stitch, employing the same piece of catgut throughout. The results were better, but difficulty

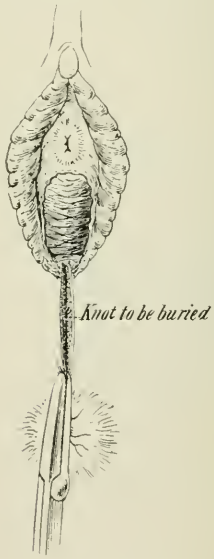

Fig. 5.—Fifth Step.

was experienced in burying the knot by the skin, and at this point healing was generally by granulation.

In the last eighty-one cases included in this report, *i.e.* those cases operated upon from January 1

to August 15 of this year, a continuous suture of No. 2 chromic *catgut* was used in bringing together the deep and superficial fascial layers. This piece of chromic catgut was threaded upon a full curved Hagadorn needle. The skin was dissected free from the superficial fascia for a distance of one-

Fig. 6.—Sixth Step.

eighth inch and the wound was sealed with Mitchelin clips. In ten of these cases where the clips have been removed at the end of the third day the skin wound has opened and healed subsequently by granulation. Where the clips have been allowed to remain from six to seven days the wounds have healed kindly and with a hair line skin scar.

The distinguishing features of this operation:

1. Fascia repair; we have a fascia and not a skin perineum subsequently.

2. The mucous-membrane flap protects the sutured tissues from the irritating discharges from above (acts as an umbrella) and the operation may be done in the presence of active bleeding from the uterus, after an incomplete abortion, and within four days after delivery in a full term pregnancy.

3. The catgut is entirely buried, by sealing the wound with Mitchelin clips. No catgut perineum can be a success if any catgut is allowed to be exposed after the completion of the operation.

4. The operation is a simple one and may be completed in from six to ten minutes.

I wish to thank my assistant Dr. Thurston Welton for the illustrations and my House Surgeon, Dr. David Feiner, for his help in searching the hospital records in the preparation of this paper.

495 Greene Avenue.

SOME OBJECTIONS TO MATERIA MEDICA STANDARDIZATION, WITH REFERENCE TO THE U. S. PHARMACOPEIA.*

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The text of my sermon will be found in the *Journal of the American Medical Association* for November 30, 1909, page 1645: "A thoroughly up-to-date Pharmacopeia—one which will truly reflect the best medical practice of the present time—will contribute more to sane drug therapeutics than any other one thing."

To prepare a new materia medica product for introduction into the United States Pharmacopeia it is necessary first to give it a name conformable with scientific nomenclature (the first step in standardization). This is objected to by certain commercial interests desiring to own the name of each new product for the purpose of creating lasting monopoly in its manufacture and sale.

The next step consists in the free discussion of each new drug in medical and pharmaceutical journals, societies, schools, and colleges. Certain objectors are entirely in accord with such discussion provided the discussion is favorable to the therapeutic claims they make for their controlled products. But free and impartial discussion, when it results in diminishing sales, is not viewed with equanimity by commercial introducers after they have spent possibly a hundred thousand dollars in advertising.

The next step is the fixing of tests for identity and purity and enforcing standards thus evolved by pure food and drug laws. Honest manufacturing houses favor this kind of standardization. It is only dishonest manufacturers who object.

The standardization of galenical products to fit them for a place in the Pharmacopeia includes determination of botanic source, physical and chemical structure, pharmacodynamic and therapydynamic properties, and therapeutic uses. Manufacturers depending upon concealing one or more of these factors to obtain and retain monopoly of sales, object to such standardization.

Again, manufacturers depending upon fictitious demand created by misleading advertising object to standardization.

Another objection to standardization is that standardization means *leveling* of all materia medica products to common standards, thus taking away from commercial introducers the advantage to be derived from advertising their products as better than those of their competitors.

What the medical profession must know in order to treat the sick properly are the side effects, limitations, and comparative value of new products in their relation to each other and to older and better known products employed as therapeutic agents in similar conditions. It is just this kind of levelization that the medical and pharmaceutical professions must insist upon if we are ever to restore public confidence in drugs as remedial agents.

Suppose that the manufacturers of potassium iodide were able to and should organize a campaign against the newer syphilitic remedies because their success means injury to sales of potassium iodide. Suppose the manufacturers of quinine should endeavor to prevent the killing off of mosquitos because malaria is carried by mosquitos and the sale of quinine is dependent upon the existence of malaria. Such action on the part of the manufacturers would be bitterly resented by the public. Yet this kind of opposition to the therapeutic standardization of new materia medica products is actually going on at the present time.

Demand created by advertising false claims represents unfair competition. Business taken away from competitors in this way is stolen. The rem-

*A paper read before the Section on Education and Legislation of the American Pharmaceutical Association at Nashville, Tenn., Aug. 17-20, 1913.

edy for unfair competition is to be found in drug standardization. It is not surprising that those guilty of unfair competition object.

Let me quote the exaggerated claims made for a certain alleged new remedy by way of illustration. I have coined the name "Antigonensis" to describe the advertised product.

"Antigonensis is a powerful and harmless systemic antiseptic in the most varied medical and surgical infections. It checks beginning sepses and often effects brilliant recoveries in desperate ones. Recent investigations show that with its direct bactericide energy it exerts a marked electrolytic and leucocytogenetic action, and thus greatly aids the natural protective forces of the body.

"Used topically, by mouth, rectally, intravenously, or by munction, Antigonensis forestalls the development of sepsis from accidental or operative wounds or childbirth, arrests beginning medical and surgical infections, and often achieves brilliant recoveries in apparently hopeless cases."

It is evident that pharmaceutic and therapeutic standardization would soon *levelize* this product and rob the manufacturer of the advantage to be obtained by claiming it to be better than competing products.

The true ideal of pharmacological practice includes cooperation between the medical and pharmaceutical professions and the manufacturing houses supplying them with materia medica products, to prevent misleading advertising. This cooperation can never be secured until all concerned are willing to consider the public health as of greater importance than the making of money. It is admitted that the making of money is absolutely necessary for the existence of the doctor, druggist, and manufacturer. The doctor must live on his fees, the pharmacist on his sale of medicines, and the manufacturer on the profit obtained by selling his wares. But dishonest commercialism should be abolished. The principle expressed by the motto "caveat emptor" (let the purchaser beware) is a very dangerous principle applied to medicine or pharmacy.

Objections to materia medica standardization come from manufacturers of commercially controlled materia medica products of all kinds. For the purpose of obtaining a clear conception of the objections and objectors let us classify the objectors into their classes as follows:

1. Secret Medicine Manufacturers.

(a) Retail druggists supplying medicines of their own make, which they recommend for self-medication, trusting patients to make their own diagnoses for the most part, but sometimes venturing to make a diagnosis for them.

(a) So-called "patent" or proprietary medicine manufacturers, who prescribe medicine at wholesale without diagnosis.

2. Manufacturing chemists and pharmacists dealing in commercially controlled specialties.

(a) Manufacturers of medicinal mixtures of secret formula for doctors to prescribe.

(b) Manufacturers of mixtures concerning which the medicinal ingredients are published, but the working formulas are suppressed.

(c) Manufacturers of chemical synthetics protected by patent and by registered names.

The objectors to standardization are as varied as the character of the manufactures. Behind the objections are motives equally complex. All object because they do not want to part with their monopolies. Some object because in addition to that reason they desire to create a demand by misleading advertising.

"How can inventors protect capital invested in the working and development of new inventions from interference and competition, if inventors publish full knowledge of their inventions for the benefit of scientific classification and standardization?" This question is frequently asked by pharmacists and reputable manufacturers engaged in the pharmacal and pharmacochemical industries.

The answer is to be found in that clause of the Constitution of the United States that gives Congress the power "to promote the progress of science and the useful arts, by securing, for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries."

Inventors of new and useful arts, machines, manufactures, and compositions of matter, may obtain proper protection by patenting their inventions.

There are good reasons for believing that the proper application of the patent law to medical inventions would promote progress in medical science and in the useful arts of pharmacy and drug therapy. But to accomplish this object it would be necessary to establish some kind of a commission, board of control, or bureau of materia medica working with the Patent Office and the courts to limit the patenting of materia medica products to substances new and useful in fact; also to act as experts in infringement cases requiring higher knowledge of medical and chemical science and arts than is possessed by the legal fraternity.

The patenting of new materia medica inventions under such a board of control would promote materia medica standardization. For the statute exacts, "That, before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the Commissioner, and shall file in the Patent Office a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms, as to enable any person skilled in the art or science to which it appertains, to make, construct, compound, and use the same."

It may be answered that the prejudice against patenting materia medica inventions, manifested by the medical profession, is a serious hindrance. This is true. However, this prejudice might, in all probability, be overcome by the adoption of some plan to prevent dishonest exploitation of new materia medica products by commercial introducers, also to secure free and impartial discussion of commercially controlled products by the medical and pharmaceutical press.

Much has been done in this direction by the Council on Pharmacy and Chemistry of the American Medical Association, and much by the pure food and drug laws. The Shirley amendment to the national pure food and drugs act, aimed against misleading advertising, if properly enforced, will be of great service. Similar bills advocated by "Printers Ink" are being passed by the States, and as they are backed by the advertising fraternity and their agents, we have a right to expect salutary reform. But we need some kind of strong central board of control in which the various interests involved may be represented and have a voice in the administration of affairs.

"But," say some of the objectors, "the seventeen-year limit provided by the patent law is not long

enough to get our money back. It requires an investment of at least one hundred thousand dollars in advertising a new product before the investment becomes remunerative. And it must also be considered that a certain proportion of ventures prove unprofitable. That is why we devised the scheme of patenting our products under their chemical names, and registering coined names as trade marks to be advertised as the names of the products. By forcing the coined names into the common language as nouns and retaining ownership in them we are enabled to extend our monopolies indefinitely."

This plan for defeating the object of the patent law was set aside by the decision of the Supreme Court of the United States in the Singer Sewing Machine case in 1895. According to this decision the name of a patented article cannot be commercially controlled after the patent expires.

"Then why patent materia medica products at all?" say the objectors. "Why not 'trade-mark' them and keep the process of their manufacture secret? A trade-mark never expires and the manufacturer, by controlling the name of the product, possesses a perpetual patent."

The weakness of this argument is apparent when one considers that any person who discovers by legitimate means how to make the same product has the right to do so and advertise the fact. He also has the right to employ its currently used name either as the title of the product or as a synonym. For example, what is to hinder any manufacturer of hexamethylenamine from using on his label as synonyms all of the fourteen so-called trade names or trade marks?

"We are perfectly willing to aid the government in fixing standards for our products and placing them in the Pharmacopœia, if we can still maintain monopoly," say the objectors. "What we desire is to secure the advertising advantage of having our products listed in pharmacopœia, dispensatories, medical dictionaries, text books, and other medical and pharmaceutical literature. We also desire discussion in professional journals and societies. We want the medical colleges to teach the students how to use our products. But we want to hold on to them."

That is the same as saying that these objectors want the medical and pharmaceutical professions, colleges, societies, and press to do their detail work without pay. "No," say the objectors, "we are willing to pay for the work if we can get it done in this way. What we object to is giving up our monopoly."

To this medical scientists reply that to do the work for pay would be the same as going into partnership with the manufacturers in a commercial business, and the turning of the educational machinery of the profession into a great advertising bureau for the commercial exploiting of alleged "new remedies." Those engaged in materia medica commerce are no longer in a judicial position in relation to the materia medica, and what they say about them must be received *cum grano salis*.

If this objection is true then the professional ideal taught by the colleges of pharmacy is false and there can be no profession of pharmacy.

But is it true? I do not believe it. It becomes evident that pharmacy should be a profession when it is considered that the proper introduction of new materia medica products requires the cooperative work of physicians, pharmacists, chemists, botanists, bacteriologists, and other professional men learned in the knowledge of their respective branches and expert in technique. Cooperation on the part of the professional societies and press is also required. The result of this cooperative work belongs to the workers, not to individuals. It must be contributed to the common fund for the benefit of all concerned. This means that the introduction of new materia medica products should be changed from a commercial or monopolistic plan to a professional or cooperative plan.

Now we are in position to consider the question of patenting new materia medica products in connection with a professional system. It seems to me that the question is one for the professions of pharmacy and medicine to decide. If they are willing to consent to it as adapted to the promotion of progress in medical science and in the arts of pharmacy and drug therapy, then let it be done.

But it is evident that it is unfair to ask any one person or manufacturing house to do business on a professional basis while competitors are doing the same business on a commercial basis.

Until manufacturers are willing to place their business upon a professional basis they have no right to expect professional cooperation. I believe that the profession is willing to endorse and cooperate with manufacturers under the protection of the patent law, just as they are willing to cooperate with the publishing houses under the protection of the copyright law, provided medical science and arts can be promoted thereby.

The object of the copyright and patent laws is to promote progress in science and useful arts by securing to authors and inventors the right to prevent others copying their respective writings and discoveries for limited times. The object of the trade-mark law is to protect all concerned from the counterfeiting of labels and brand marks. But all plans for obtaining and fostering perpetual monopolies are a hindrance to science and stand in the way of progress in civilization. Monopolies of this character ought to be opposed by all patriotic citizens and especially so by physicians and pharmacists.

It is evident from the above why a thoroughly up-to-date pharmacopœia will contribute more to sane drug therapeutics than any one thing. The U. S. Pharmacopœia is preeminently the standard for medicinal drugs, chemicals, and pharmaceutical preparations in the United States. It is the basis upon which rests all materia medica literature, including the dispensatories and text books. The information contained in the Pharmacopœia is taught in the medical and pharmaceutical schools and colleges and circulated throughout the country in the literature of pharmacy, chemistry, and therapeutics.

The U. S. Pharmacopœia is "the law of the land," not only for interstate commerce, but also for State commerce in most of the States. Whatever goes into it is placed there after mature consideration by a convention of representative physicians, pharmacists, and chemists who collectively decide its policy and appoint a committee for its decennial revision. The influence of the Pharmacopœia upon the pharmaceutic, pharmacochemical, and therapeutic arts is therefore incalculable.

To prepare new materia medica products for admission to the Pharmacopœia their standardization is necessary. Materia medica products cannot be properly standardized except by the cooperative work of the medical, pharmacal, and chemical pro-

fessions, whose function it is to determine for each product its nomenclature, source of genesis, physical and chemical properties, pharmacodynamic and therapydynamic actions, therapeutic applications, and proper methods of preparation. This function is being constantly exercised by the committee having charge of the revision of the U. S. Pharmacopœia.

To obtain a thoroughly up-to-date Pharmacopœia the commercially controlled materia medica must be considered. The rule adopted concerning the admission of controlled materia medica products to the Pharmacopœia is as follows: The committee was authorized to admit "any synthetized product of definite composition which is in common use by the medical profession, the identity, purity, or strength of which can be determined. No compound or mixture shall be introduced 'if the composition or mode of manufacture thereof be kept secret, or if it be controlled by unlimited proprietary or patent rights.'"

Some of the synthetic products still controlled by patents were admitted because the patents were about to expire. So-called "trade names" were not admitted. Abbreviations for long chemical names were coined and adopted.

In the light of the above facts it is evident that the rule adopted by the committee, which was doubtless the best that could be devised under circumstances then existing is not adequate to secure proper standardization. Something should be done to clear up the question of nomenclature so that a new product may be admitted under its currently used name, the same to be adopted either as the official title or as a synonym. Also the question of ethics in regard to patenting new materia medica products, either as to product or process or both should be decided, and proper action taken in the premises.

The proper application of the patent law to materia medica inventions, the same to be administered under the advisement of a board of control, representative in character, working with the Patent Office and the courts, would probably result in securing the object of the patent law in this connection, *i.e.* the promotion of progress in medical science, and in the useful arts of pharmacy, chemistry, and drug therapeutics.

The personnel of such a board of control is well exemplified by the U. S. Pharmacopœia Revision Committee. It is truly representative in character and is already engaged in the work of standardization. If to this committee Congress would give advisory authority to act in expert capacity in conjunction with the patent office and the courts, and provide sufficient appropriation to meet the necessary expense, all objections to drug standardization on the part of inventors and manufacturers would disappear, also the ethical problem would be solved, and an embarrassing situation relieved.

The Differentiation of Organic and Functional Heart Block.—A. F. Hecht states that this may be accomplished with the aid of atropine. In a case of diphtheria in which by means of the electrocardiograph manifestations of heart block were detected the administration of atropine did not change the conduction mechanism and increased simply the sinus frequency. The disturbance in the conducting mechanism persisted unchanged for four months. In a case of measles with symptoms of heart block the disturbance in the conducting mechanism disappeared entirely upon the administration of atropine. In eight days the heart's action was almost, and in three weeks entirely, normal.—*Zeitschrift für Kinderheilkunde.*

INFANTILE ECZEMA.

By BENJAMIN F. OCHS, M.D.,

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Among the many dermatoses affecting the infant, the most common is eczema, and then it is the weeping variety of that disease. We are reminded in our text books that it is caused by irritation; either from tight garments, from too frequent bathing, or from the use of a poor quality of soap.

Few authors mention overfeeding or indigestion as a causative factor. We have repeatedly noticed that children suffering from an attack of eczema are, as a rule, patients who *do not vomit*. Bottle-fed and breast-fed babies are very apt to have food given them whenever they cry or are peevish, and as this is not digested properly and as these children do not vomit, a toxemic condition is produced, causing in some children diarrhea, in others a reflex symptom, namely, infantile eczema.

This absence of vomiting has been forcibly impressed on us when taking the history of cases of infantile eczema. We have therefore come to the conclusion that an autotoxemia is produced and is the etiological factor in many of these cases. In fact, here the eczema is only a reflex symptom and really not the disease. In line with this reasoning, we have abstained from prescribing lotions or salves in all cases of infantile eczema until we have satisfied ourselves that the eczema is not due to autotoxemia. For that reason, when a child is brought to the dispensary suffering from an attack of eczema, we first cut down the amount of food and the number of feedings, and prescribe small and repeated doses of calomel. Many times this suffices for a complete cure. If, after a week's treatment, the child is not improved or well, we then look for some other cause and prescribe accordingly.

It has been our good fortune to find that toxemia, caused by over, or too frequent, feeding, has been the cause of the eczema, and we have been able to relieve these children promptly.

We do not believe too much stress can be laid on the fact that these children *do not vomit,* and this is really the cause of eczema. We would advise in all cases of infantile eczema to set aside lotions and salves until the above plan of treatment had been given a fair trial; and if it is found that the eczema yields to the simpler form of treatment, it is safe to assure the parents that there was but an autotoxemia, and that these cases will never become chronic. The mother is then advised how to feed the baby so that there be no future outbreak of the disease.

One fact we wish to emphasize particularly—and that is that these babies with infantile eczema *rarely, if ever, vomit,* and in getting the history of this class of cases the absence of vomiting should be a clue to the correct form of treatment.

310 Convent Avenue.

The Azurophile Granulations of the Lymphocytes in Infectious Diseases.—E. Mondolfo reports the results of his study of this subject. He finds that in normal individuals azurophilia of the lymphocytes is only an occasional or accidental phenomenon. In infectious diseases there is generally a mild degree of azurophilia. In measles however this condition is constant, and of phenomenal degree.—*La Riforma Medica.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE PROBLEM OF THE URINARY CHLORIDES IN CANCER.

VERY little clinical importance has as yet been attached to the quantitative variations of the excretion of chlorides in the urine. In former years a slight diagnostic and possibly prognostic significance was attached to the diminution in the urinary chlorides in pneumonia and other diseases accompanied by a pronounced exudation from the blood, but of late there has been a tendency to discount the clinical value of this phenomenon. Ten years ago Santini found that the diminished excretion of chlorides in pneumonia gives no indication of the severity of the disease and is of no prognostic moment. In conditions accompanied by starvation, as in carcinoma of the stomach, there is a reduction in the amount of chlorides excreted, but this results naturally from the diminished intake of these salts. There is a wide latitude in the excretion of chlorides in healthy persons, the elimination varying from six to twenty-two grams in the twenty-four hours.

The opinions regarding the urinary output of chlorides in cancer have been varied. Beneke, Jaccoud, and others noted a marked diminution in this excretion and attached to this a certain degree of diagnostic value. Müller believed that in cancerous individuals the destruction of the organs poor in chlorides is more active than that of the circulating albumin. Blumenthal found no differences in the urinary excretion of chlorides between normal and cancerous individuals. The latest one to investigate this subject is Albert Robin, who reports his results in the *Bulletin Général de Thérapeutique*, September 30, 1913. His work consisted in the study of thirty-six patients suffering from cancer of different organs. He found that neither the existence of cancer nor its location exercises any influence upon the elimination of chlorides or upon the relation of chlorine metabolism to the metabolism of other substances. Both the chloride elimination and the chloride metabolism are, however, closely related to the dietetic intake of chlorides.

All cancerous individuals are classified by Robin into three groups, according to the output of total nitrogen, chlorides, and inorganic residue. In the first group all of these are normal. The cancerous affection is a localized one, and if repeated examinations of the urine show a persistence in the urinary syndrome, the probability is that the progress of the cancerous process is a slow one. In the second group of cases the chlorides reach a low figure, while the total nitrogen remains at the same height as in well-nourished cancerous individuals. The high nitrogen output is explained by the fact that large metabolic demands are made on the tissue proteins by a disease associated with a rapid destructive process. In the third group of cases all the three elements are diminished to a parallel degree. The patients are living solely upon their own tissues, and present the same excretory phenomena that are manifested in other victims of cachexia and inanition.

A dietetic therapy that may be of some palliative value in the management of cancerous individuals is deduced from the above studies. Patients belonging to the first and above all to the second groups require an abundant and a mixed diet. At the same time there may be administered drugs, such as quinine and arsenic, that seem to exercise a moderating influence upon nitrogenous disintegration.

In cases of cancer that undergo a rapid course there is a retention of chlorides in the liver, but there is no such retention in slowly progressing cases. The retention is probably the result of the greater hydration of the tissues that is present in rapidly advancing cases of cancer, and may incidentally explain the diminished excretion of urinary chlorides in these cases. In cancer of the digestive tract there is apparently a tendency to a chloride retention in the blood, but the same characteristic is found in chronic gastritis, and for this reason loses all diagnostic value. This retention may be the result of the diminution or suppression of the secretion of hydrochloric acid by the stomach. Anemia may also play a rôle, for the retention is more marked in cases of chronic gastritis accompanied by a pronounced degree of anemia.

The investigations carried out by Robin, although producing results that are largely negative with respect to the chloride excretion in cancer, nevertheless place at our disposal a number of practical points in relation to this subject.

THE STATUS OF THE TRACHOMA QUESTION.

ALTHOUGH trachoma has long been recognized as a disease entity, but not so clearly defined clinically as now, yet our present knowledge of the etiological agents at the root of this disease is practically nil. The gravity of the disease from its effects on vision, and the attempts, therefore, to combat the disease have naturally centered all efforts in determining the causative agents. In other words, the bacteriology of this disease is now receiving a great deal of attention, but thus far none of the finds has been lasting and every new one has been promptly abandoned as not meeting the requirements of proof. In 1907 Halberstaedter and von Prowaczek discovered an intraepithelial diplococcus

in the scrapings from trachomatous lids. A little later Miller found an influenza-like bacillus. Williams' hemoglobinophilic bacillus could not be differentiated from the influenza-like bacillus, and therefore added nothing to the list of bacterial agents. When, however, Clausen identified the so-called "trachoma bodies"—round bodies surrounded by an areola—they were thought to be surely the causative agents. Since then many investigators have found these trachoma bodies, particularly Noguchi and Cohen, in this country, but as they have been found in other conjunctival conditions, it is now agreed that the significance of the trachoma bodies is not known. Certain it is that they are not peculiar to trachoma. Noguchi found them in only 9 out of about 250 clinically positive cases of trachoma.

The contagiousness of trachoma is much in dispute and cannot, of course, be positively settled till the causative agent is determined, and until it has fulfilled Koch's postulate—that the agent can be isolated from the disease, cultivated in pure culture, and when again introduced into the body cause the disease. Clinically the evidences of its communicability are beyond dispute, and the mere fact that not all exposed are infected does not disprove it since many admittedly communicable diseases behave that way; nor is its communicability disproven merely because one eye may be infected and the other remain free, for the same unilateral limitation may occur in pulmonary tuberculosis in which one side is involved and the other, even though communicating, remains uninvolved.

The pathology is everywhere understood as being a subepithelial infiltration of white or connective-tissue cells of the adenoid or lymphoid tissue of the conjunctiva with a tendency to cicatrize in a manner characteristic of no other disease-islands of infiltrated tissue surrounded by scar tissue. And because of the absence of this tissue in the conjunctivæ of very young children, the disease is not found in them. In clinical appearance the trachoma granules resemble such admittedly infectious granulomata as those found in syphilis, tuberculosis, and leprosy. The disease is self-limiting in that it ends only on complete scarring of the conjunctiva. The invasion of the corneal conjunctiva by this process and also the irritation of the cornea by the granules on the lid, which causes pannus, are active factors in the injury to vision. Clark estimates that untreated cases of trachoma have a prognosis of 90 per cent. injury to vision, of greater or lesser extent.

The object of treatment is primarily to hasten cicatrization, and thus to limit the course of the disease, to prevent the mechanical effects of the disease, and to treat complications as they arise. Various methods have been advocated for hastening cicatrization. All of them amount to scarification of the lids by one method or the other, and continuing this scarification after the reactions have subsided until complete cicatrization. Recently indolent areas have been actually excised. These methods have brought good results, as is evidenced by the increasing number of the cured in early life, and in the absence of visual complications. A large part of the credit for this advance in treatment is due to our own immigration exclusion laws, which have compelled the countries from which these cases come to treat them. And thousands of persons are undergoing treatment at foreign ports in order that they may pass the rigid examination here.

POLITICS AND PUBLIC HEALTH.

According to Dean C. Worcester, for thirteen years Secretary of the Interior in the Philippine Islands, a very grave danger threatens the inhabitants of those Islands in the expressed intention of Burton Harrison, the new Governor-General, to "play politics" there. The *New York Times* quotes him as predicting trouble through placing inexperienced natives in positions of trust and responsibility, old and tried officials being ousted to make room for them. Regarding changes in the land office, the bureau of printing, etc., physicians as such have no concern, but they have much to apprehend from the threatened removal of the Director of Public Health. His position was offered to a surgeon who knew well how to use the knife but had only a general idea of sanitary matters. Realizing his limitations, this surgeon very wisely declined the appointment, but the next man to whom Mr. Harrison offers the place may not be so sensible or, not having a good income from a surgical practice, may covet the salary.

Concerning Dr. Heiser, the present incumbent, Mr. Worcester, who has observed his work and its results at close hand, has the following to say: "No living sanitarian has a better record for ability and efficiency in coping with great sanitary problems than Victor C. Heiser of the United States Public Health Service, who has been Director of Public Health in the Philippines for nine years. He has practically eliminated smallpox, bubonic plague, and cholera, and has excluded beriberi from public institutions; has built the best general hospital in the tropics, and has isolated the lepers while arousing only a minimum of opposition by so doing. He has reduced the death rate of American officers and employees to less than five in 1,000, and among Filipino officers and employees to four in 1,000; he has made Manila more healthful than many of the larger cities of America and has materially reduced the death rate throughout the islands. His place simply cannot be filled for years. Should Dr. Heiser be transferred to make way for a politician, he doubtless would heave a sigh of relief, but it would be a sad day for the Philippines."

And is a man of this character, having the sanitary training of an officer of the Public Health Service and the experience of nine years as Director of Public Health in the Philippines, to be deposed because some politician wants the small salary that goes with the position? It makes one wonder whether a Department of Public Health with its head a political appointee, changed with each change of administration in Washington, would, after all, be a desirable thing for the country.

Contagious Abortion in Man.

Veterinarians have long been familiar with the diseases of cattle known as contagious abortion and in 1896 the *Bacillus abortus* was discovered by Bang and Stribolt and identified as its cause. It has more recently been recognized as extremely prevalent and the complement deviation test has been used successfully in its diagnosis. It has been found also that cows which have been infected excrete these bacilli in their milk. It has been held, however, that man was immune to this organism and that therefore the infection of the milk was of no moment. Moreover, after a cow has aborted several times as a result of this infection she may become immune and thereafter appear to be in perfect health. E. C. Schroeder, in the course of an investigation on the relative value of raw, pasteurized, and boiled cow's milk as a food for unweaned animals (*Am. Jour. Dis. Children*, 1913, vi.), found that the animals fed on boiled milk did better than those who got only raw milk. In autopsying some of these animals he found the lesions of infectious abortion and was led to conclude that perhaps it might be well to boil all cow's milk before feeding it to children. Larson and Sedgwick (*loc. cit.*) examined the blood of 425 children by means of the complement-fixation test, using the *Bacillus abortus* as antigen, and found it positive in 73 instances. The work was controlled in every possible way and agglutination and absorption tests were also made. It thus seems that man is susceptible to infection by this organism and Larson and Sedgwick observed cases of abortion in women who had come into contact with herds in which contagious abortion was prevalent and in whom syphilis and injuries could be excluded. This disease is said to be the most prevalent of all animal diseases and therefore the importance of determining man's susceptibility can hardly be exaggerated. It is to be hoped that the investigation along these lines will be continued.

Serotherapy of Croupous Pneumonia

It was once firmly believed that croupous pneumonia should be one of the first infections to yield to antibody treatment; for the events of the crisis appeared to depend purely on some phenomenon of chemical union, akin to the combination of a toxin with its antitoxin. As serotherapy failed utterly at the outset many plausible explanations were given for the unsuccess; while believers in specific therapy began to modify their sera accordingly. At a recent session of the Medical Society of Nürnberg Feith considers this subject. He prefers to rely upon Römer's serum, as constantly modified. The serum is polyvalent not only because of the number of strains of bacteria comprised, but because several different sera are utilized (from the horse, cow, sheep, etc.). Whenever this serum is injected into a pneumonic patient the immediate results are euphoria and fall of temperature. There is no influence exerted on the crisis or extension of the process. There is undoubted improvement in the sputa. The author is certain that the treatment has some positive effects. Of seven severe cases (double pneumonia or involvement of upper lobes) but one resulted fatally. The author admits, however, without any qualifications, that we have in Römer's serum no "therapia sterilisans magna."

News of the Week.

American College of Surgeons.—The convocation exercises of the American College of Surgeons were held in the Gold Room of the Auditorium Annex, Chicago, November 12, 1913. The names of the surgeons who were made members of the college were read by the secretary, Dr. Franklin H. Martin, Chicago, and the president, Dr. J. M. T. Finney, Baltimore, pronounced them fellows of the college. The number of fellows admitted was 1,050. Sir Rickman Godlee, president of the Royal College of Surgeons of England, read a message to the members of the college from the Council of the Royal College of England. In the message felicitations were conveyed to the Americans and hopes expressed that the college would grow and prosper and that by its influence the ideals and standards of surgery in America would be advanced and maintained on a high plane. The following were made honorary members of the college: Dr. W. W. Keen, Philadelphia; Dr. William S. Halsted, Baltimore, and Dr. J. Collins Warren, Boston. President Finney in his address urged every member of the college to assist in raising the ideals of the profession and to erase the blots which now disfigured the escutcheon of the business of surgery. One of the most important functions of the college, he said, is to wage a relentness war against the evil practices with which the profession is tainted, chief among which is the pernicious practice of fee-splitting and giving commissions.

The Knapp Memorial.—The Herman Knapp Memorial Eye Hospital, New York, was recently opened in its new location on the corner of 57th Street and Tenth Avenue. This hospital was founded in 1869 by the late Dr. Herman Knapp, and under the name of the New York Ophthalmic and Aural Institute—its activity has continued since that time. During these forty-four years over 420,000 patients have been treated. Its new home is in a specially constructed, seven-story, fireproof hospital building, with complete modern equipment for the treatment and study of diseases of the eye. The occasion of the removal of the hospital to a new building in a new location has been deemed by the Board of Managers a proper time to change the name of the Institute so as to make it a memorial to its honored founder.

Sea View Hospital.—The new Sea View Hospital on Grymes Hill, Staten Island, New York, which has accommodations for 1,000 tuberculosis patients, was formally opened November 12. The hospital, which is a city institution, has been under erection for the last three years, and when entirely finished will have cost about $3,500,000. The eight large buildings comprising the group are arranged in a semicircle on a high hill in the open country and will always have a surrounding of clear land. The opening of the hospital adds almost 50 per cent. to the provision made in the city, through both public and private means, for the care of tuberculosis sufferers. Dr. Edward S. McSweeney, formerly in charge of the Tuberculosis Sanatorium at Otisville, has been appointed superintendent of the new institution.

New York Dispensary.—The new building of the New York Dispensary at 34 Spring street, New York, was opened on November 17. While similar in many respects to the old, the new home of the dispensary shows some improvements. Scientific ventilation, flooring designed to deaden all noise,

and large window space are among the architectural features deserving notice. Rooms have been added also for the use of the social service department. The dispensary was founded in 1790 in the Five Points district.

City Death Rate.—For the week ending November 8, the death rate in New York City was 12.44 per 1,000 persons, as compared with 13.13 for the corresponding week of last year, the total number of deaths being 1,281 and 1,303 respectively. This decrease of 22 deaths occurred in spite of the fact that during the week there were 114 deaths from violence, or 20 more than during the same week of 1912.

Diphtheria in Paterson.—An epidemic of diphtheria in Paterson, N. J., has spread to several of the public schools and has caused some alarm among the health authorities. In a number of small towns about Paterson also there have been many cases of the disease and in most of these towns the schools and other public buildings have been ordered closed.

Plague Still Prevalent.—Fifty-two new cases of bubonic plague were reported in Guayaquil, Ecuador, on November 12, and the epidemic is said to be spreading through the outskirts also. A contract for the sanitation of the city is under consideration.

Pellagra Death Record.—The Board of Health of Spartanburg, S. C., recently published a report on the vital statistics of the town, showing that pellagra has been the cause of more deaths than any other disease, even tuberculosis. Of the 340 deaths in the town during one year, 31 were due to this disease, and more than 600 cases were reported throughout the county. With the onset of colder weather the epidemic, however, shows signs of subsiding, and the physicians from the medical corps of the army and navy, the Public Health Service, and the New York Post-Graduate Hospital, who have been studying the disease, are preparing to leave, with the expectation of returning next year. Congress now has under consideration a bill appropriating $300,000 for the building of a Government hospital at Spartanburg for the treatment of pellagra.

Effects of Salvarsan.—In order that fuller information may be gained as to the effect of salvarsan, Dr. Dreuw of Berlin, Germany, has undertaken the collection of statistics covering cases of blindness, deafness, convulsions, paralysis, etc., and of death following the injection of the drug, and he asks that physicians using it send to him reports of all such cases. Such reports will be kept entirely confidential. Dr. Dreuw believes that many cases of serious or fatal consequences following the use of salvarsan have not been reported, and that the present literature is therefore too inadequate to serve as a basis for conclusions as to the value of the treatment. He hopes to receive the support of physicians in the collection of these statistics and asks that reports be addressed to Dr. med Dreuw, Berlin, Potsdamerstrasse 31 a, Germany.

Sterilization of Criminals.—Dr. Francisco M. Fernandez, a member of the House of Representatives, introduced into the Cuban Congress on November 15 a bill providing for the sterilization of criminals. There is some concern among sociologists in that country over the noticeable increase in the number of criminals in recent years.

Gifts to Cornell.—Official announcement was made on November 16, by President Schurman of Cornell University of the gift of $4,350,000 to the Cornell Medical College, New York. Although the gift is classed as anonymous, it is generally understood that the donor is Col. Oliver H. Payne, who has previously contributed largely to the support of the school. The money is not to be used for buildings, the present equipment of the school being ample, but the income, amounting to about $200,000 yearly, will be used entirely for the current running expenses of the institution. The rumor that such a gift had been made was denied by President Schurman a few weeks ago.

Tuberculosis Day.—Sunday, December 7, has been designated as "Tuberculosis Day" by the National Association for the Study and Prevention of Tuberculosis.

Gifts to Charities.—By the will of the late Nathan Herrmann of New York, the sum of $15,000 is bequeathed to Beth Israel Hospital, while Mount Sinai Hospital and the Montefiore Home receive $5,000 each.

Nobel Prizes.—In addition to the award of the Nobel Prize in Medicine to Prof. Charles Richet of Paris, as noted some time ago, the committee now announces the award of the Prize in Chemistry to Prof. Alfred Werner of the University of Zurich, and of the Prize in Physics to Prof. H. Kamerlingh Onnes of the University of Leiden.

State Statistics.—The report of the Department of Health of the State of New York for the month of September, 1913, gives the principal causes of mortality as follows: Tuberculosis, 1,101 deaths; Bright's disease, 822 deaths, and cancer, 755 deaths.

To Regulate Sale of Mercury.—The Board of Health of New York has under consideration two amendments to the Sanitary Code, which are designed to lessen the frequency of cases of bichloride poisoning. The first amendment reads: "Bichloride of mercury, otherwise corrosive sublimate, shall not be offered for sale or sold at retail in dry form, except in a flat, triangular, or three-cornered tablet, colored blue, and the same shall be dispensed in a blue or amber-colored corrugated bottle conspicuously labeled "Poison" in red letters." The second amendment reads: "Bichloride of mercury, otherwise corrosive sublimate, shall not be offered for sale or sold at retail, except upon the prescription of a regular licensed practitioner." It is understood that the adoption of either or both of these amendments will be announced shortly.

The "American Journal of Surgery" will present in January an issue devoted exclusively to fractures and their treatment. The number will include papers by Drs. F. J. Cotton, Boston; Lewis A. Stimson, New York; Fred Albee, New York; John C. A. Gerster, New York; W. H. Luckett, New York; James K. Young, Philadelphia; Charles Elsberg, New York; William L. Estes, South Bethlehem, Penn.; E. S. Van Duyn, Syracuse, N. Y.; and E. P. Magruder, Washington.

Hospital at Lynn.—Plans have been accepted for the erection of the proposed children's hospital in Lynn, Mass., made possible by the gift of $100,000 from Henry A. Pevear. The plans provide for a three-story building, measuring ninety by thirty-five feet, and constructed of brick and stone.

Medical Examinations.—At the October examinations of the Louisiana State Board of Medical Examiners, sixteen candidates were successful and were duly licensed to practise medicine.

Memorial to Dr. Stewart.—On November 15, there was unveiled in the Pathological Laboratory

of the College of Physicians and Surgeons, New York, a tablet erected in memory of the late Hugh Angus Stewart, M.D., assistant professor of pathology, by his students and colleagues. A memorial address was delivered by Prof. William S. Thayer of the Johns Hopkins Medical School.

Dr. Jay F. Schamberg has been elected dermatologist to the Philadelphia General Hospital, in succession to Dr. E. S. Gans, resigned.

Dr. Herbert M. Goddard has been appointed laryngologist to the Jewish Hospital of Philadelphia.

Dr. James Persons Simonds, professor of preventive medicine in the State Medical College, Galveston, Texas, has been appointed assistant professor of pathology in the Medical Department of Northwestern University, Chicago. He will assume his new duties about March 1, 1914.

Dr. Francis B. Hart of Brooklyn has been appointed coroner's physician by the Board of Coroners of Queens County, New York.

Texas State Homeopathic Medical Society.—The annual convention of this society was held in Dallas on October 28 and 29, the following officers being elected for the ensuing year: *President,* Dr. C. C. Bowes, Greenville; *Vice-Presidents,* Dr. Solomon W. Cohen, Waco, and Dr. Jessie L. Givens, Bowie; *Secretary,* Dr. Julia H. Bass, Austin; *Treasurer,* Dr. W. D. Gorton, Austin.

Obituary Notes.—Dr. Archibald Dixon, Jr., of El Paso, Tex., a graduate of the Bellevue Hospital Medical College, New York, in 1891, and a member of the State Medical Association of Texas, and the El Paso County Medical Society, died at his home on October 31, aged 44 years.

Dr. John B. Longshere of Camden, N. J., a graduate of the Pennsylvania Medical College, Gettysburg, in 1846, died at his home on November 11, aged 92 years.

Dr. Wilson A. Long of Frederick, Md., a graduate of the College of Physicians and Surgeons, Baltimore, in 1882, and a member of the Medical and Chirurgical Faculty of Medicine and the Frederick County Medical Society, died from pneumonia, at Baltimore, on November 3, aged 52 years.

Dr. Gurley D. Moose of Mount Pleasant, N. C., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1907, died at Asheville, N. C., from tuberculosis, after a long illness, on November 9, aged 30 years.

Dr. Ira K. Gardner of New Hampton, Ia., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1870, and a member of the American Medical Association, and the Iowa State and Chickasaw County Medical Societies, died at his home suddenly from apoplexy, on November 4, aged 67 years.

Dr. John Martin Cameron of North Yakima, Wash., a graduate of the Medical Department of Victoria University, Toronto, in 1887, died at his home recently.

Dr. Hugh Logan of The Dalles, Ore., a graduate of Washington University, Medical Department, St. Louis, in 1872, and a member of the American Medical Association and the Oregon State and Wasco County Medical Societies, died at his home, from pneumonia, on October 27, aged 63 years.

Dr. Archelaus M. Winn of Lawrenceville, Ga., a graduate of the Atlanta Medical College in 1867, died at his home after a long illness, on October 25, aged 68 years.

Dr. William Royal Engel of Charlotte, N. C., a graduate of the Jefferson Medical College, Philadelphia, in 1906, formerly director of the North Carolina State Tuberculosis Sanatorium, Montrose, and more recently in charge of the Thermal Belt Sanatorium at Tryon, died on October 27, after a long illness, aged 35 years.

Dr. Amy Brush Clark died at Philadelphia on November 4 at the age of 54 years. She was graduated from the Woman's Medical College of the New York Infirmary for Women and Children, in the class of 1884.

Dr. Rudolph C. Mollman, formerly of Reading, Pa., died on November 6 at Longport, N. J. He was graduated from the medical department of the University of Pennsylvania in the class of 1900.

Dr. George W. Armentrout of Letts, Ia., a graduate of the College of Physicians and Surgeons, Keokuk, in 1889, died suddenly at his home, from heart disease, on November 2, aged 50 years.

Dr. Peter Fisher of Edwardsville, Ill., died at his home on October 30, from uremic poisoning, aged 74 years.

Dr. Simon J. O'Neil of New York, a graduate of the New York University Medical College in 1887, and a member of the Greater New York Medical Association, died at the Nassau Hotel, Long Beach, N. Y., after a long illness, on November 13, aged 52 years.

Dr. Zachariah Taylor Miller of Pittsburgh, Pa., a graduate of the Hahnemann Medical College and Hospital of Philadelphia in 1877, and professor of anatomy in the Carnegie Institute of Technology, Pittsburgh, died suddenly at his home from rheumatism of the heart on November 14, aged 66 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

COMPLICATIONS OF HYSTERECTOMY—PRIZE DAY AT ROYAL NAVAL MEDICAL COLLEGE—ROYAL COMMISSION—SANITARY WORK IN INDIA—FACIAL SPASM—ROYAL INSTITUTE OF PUBLIC HEALTH—TROPICAL MEDICINE AND SIR P. MANSON—MISSING ANTIVIVISECTION SECRETARY—OBITUARY.

London, October 31, 1913.

Sir John Bland-Sutton on Monday opened a discussion at the Medical Society of London on the visceral complications met with in hysterectomy performed for fibroids and the best methods of dealing with them. His contribution to the subject was a model of what such an introduction should be, stated tersely his own clinical experience and the opinions he had formed, as well as the points on which it was desired that the views of other operators should be elicited. He excluded pelvic complications, such as ovarian cysts, pregnancy, pyosalpinx, and the like as being frequent and well understood. But the experience of surgeons who do hysterectomy for fibroids was sought regarding complicating conditions as heart disease, goiter, diabetes, renal disease and intestinal cancer. As to these he related his own experience. To-day the operation seems quite common and the mortality in London ranges from 1 to 5 per cent. There are surgeons among us who can count their hysterectomies by hundreds and they should be willing to give information as to the complications they had met with and their mode of dealing with them.

Cardiac disease was found in many women on whom operation was proposed, but there was nothing peculiar as to its influence on fibroids. Sir John Bland-Sutton has removed the uterus containing large fibroids when valvular lesions were present, but competent physicians had pronounced compensation satisfactory. One woman with a large ovarian cyst and a fibroid the size of a football suffering from dyspnea, so that the anesthetist would not risk general anesthesia, was operated on under intradural injection of novocain. Convalescence was rapid, the cardiac symptoms soon disappeared and she soon became robust and led an active life. He attributes some cases of sudden death to chronic heart disease rather than to the pulmonary embolism often blamed, but which should only be admitted when the embolus is found post mortem. He has recently published statistics indicating the danger of too free use of buried sutures in this connection.

On three occasions Sir John did hysterectomy for fibroids on goitrous patients and six months afterward was surprise to find that their thyroids were much smaller. Any form of surgical operation is notoriously more dangerous when the patient is affected with exophthalmic goiter. Nevertheless he hysterectomized one such in 1908, but she died fifty-six hours after. Meantime it was noticed that in twenty hours the thyroid had decreased and the eyeballs were less prominent, and after forty-eight hours, though the condition was desperate, there was still further decrease.

Diabetes is another contraindication to surgery. But though it is a very serious responsibility, it must sometimes be necessary to operate on a patient with sugar in the urine. One woman of forty-three, with five grains per ounce of sugar, ready to face any risk, was operated on and made a rapid recovery. Another, with ten grains per ounce of sugar, with large fibroid and a suspicion of cancer, was subjected to a subtotal hysterectomy, a mass the size of a tennis ball removed, fibroid and cancerous, and the patient was active and well eight years afterward. Nevertheless Sir John said he was sure it was wise to abstain from operating on diabetics, especially young ones.

Renal complications arise from the close relationship with the uterus, bladder, and vesical segments of the ureters. Traces of albumen are common, but disappear after the tumor is removed. The colon bacillus was found in the urine within thirty-six hours after pelvic operations, but no explanation has been found. So obstetricians do not know how it reaches the urine in pyelonephritis of pregnancy. Wound of one or both ureters is serious if detected and repaired during operation, but much more so if undetected until the nurse's report draws attention to the emptiness of the bladder, which follows. Sir John quoted Lockyer's case and his great resourcefulness, which was rewarded by the patient's recovery. He mentioned also a case he witnessed when a gynecologist cut three inches out of a ureter, mistaking it for an adhesion, but tied the proximal end and the patient recovered. Dr. Barney's collected reports of injury to the ureters showed that most of them occurred in hysterectomy. If gynecologists would tell how they treated cut ureters this discussion would not have been useless.

Bowel complications were not common, but on several occasions he had met cancer of the sigmoid flexure. After completing the hysterectomy he excised the cancer in the colon and joined the cut ends of the bowel by end-to-end anastomosis. Once when adjusting the parts before closing he detected a cancerous focus in the sigmoid. He did not think the patient's condition fit for excision then. She recovered, and two months later he excised the bowel. She was in good health two years afterward. Gallstones he had dealt with in three cases during hysterectomy by removing the gall bladder. In two cases he removed it six months later. If a woman were deeply jaundiced by a stone in the common duct he would prefer to remove the stone first because cholemia is well known to predispose to hemorrhage, so that hysterectomy in a patient with persistent jaundice would put her life in great peril from post-operative hemorrhage.

In conclusion Sir J. Bland-Sutton said he was sure, small as the risks of hysterectomy for fibroids have become, we have not reached the irreducible minimum.

Surgeon-General Sir Havelock Charles on Wednesday, surrounded by a galaxy of surgeons-general and other officers, presented the prizes to the successful students at the Royal Army Medical College. The commandant (Colonel Skinner) reviewing the 106th session of the junior class, the twenty-third held in London, bade godspeed to the late professors and welcome to their successors. As to the class, he had only praise, for the young officers composing it had been most assiduous. The prize men had done remarkably well, some brilliantly.

Sir Havelock Charles directed his address especially to those about to go to India, assuring them that the greatest of all assets is character. He remembered thirty-one years ago asking Sir Joseph Fayrer's advice how to get on in India. Sir Joseph looked at him a few seconds and then said: "Do what you are told; do not grumble and go where you are sent." Of course, he continued, young men going to India have troubles, like every one else—even like the doctor with a brass plate on a door in Harley Street. But they were going to what in his opinion was the most interesting country in the world. So might the best of luck go with them. He would close with the wish of the Persian poet: "May the sweet waters of contentment spring up where'er you place your feet."

The Royal Commission indicated as probable by Lord Morley at the dinner given by the government to the representatives of the International Medical Congress in August has been duly appointed, Lord Sydenham to be chairman. The commission will inquire into the prevalence of all forms of venereal disease in the kingdom—not merely that which has lately occupied public attention—and into the effects of these diseases on the public health, and the means of alleviating or preventing these effects. But the question of returning to the policy of the Contagious Diseases Acts, 1864-66-69, is not to be considered. The commission consists of sixteen members. Six of these hold medical qualifications, viz.: Sir J. Collie, Sir M. Morris, Drs. F. W. Mott and A. Newsholme, Mr. J. Ernest Lane, and Mrs. Scharlieb. One of the first difficulties confronting the commission will be the lack of reliable statistics, for, although many writers on these diseases have published such statistics as they could collect, they generally have to confess that they are not trustworthy. For fifteen years, if not more, the appointment of a royal commission has been advocated by the colleges of surgeons and other bodies and there

was an International Congress at Brussels on the subject in 1899 at which resolutions were passed urging the various governments to appoint commissions of inquiry, at the same time declaring opposition to anything in the nature of the Contagious Diseases Acts. The recent declaration in favor of a commission signed by the presidents of the Royal Colleges of Physicians and Surgeons, the Regius Professors at the universities, and presidents of medical societies, made an impression in Parliament, members of both houses indorsing it.

A blue book circulated during the week respecting sanitary work in India shows that the improved health of the European army previously reported continued during 1911, the last year for which returns are completed. Cholera and head-stroke increased the death rate a little (4.66 to 4.89 per 1000) over 1910, but the hospital returns were lower than last year, as to admissions, those remaining sick, and invalids. The cases of enteric fever were the fewest on record. There were twenty-one deaths from cholera, an advance over seven in 1910. Anti-enteric inoculation was adopted by 85 per cent. of European troops. The hospital admissions for enteric among the inoculated equalled 1.7 per thousand of the strength; of deaths, 0.17. Of the non-inoculated the corresponding figures were 5.9 and 1.15.

Dr. E. F. Buzzard, in a paper at the Medical Society on "Facial Spasm," said he did not intend to deal exhaustively with every variety, but provide some help in diagnosis and treatment. The first duty of the medical man confronted with a case was, he said, to make up his mind whether it was psychogenic, cortical or peripheral in origin, and subsequently to distinguish between a tic, hysteria, cortical lesion, reflex irritation, post-paralytic contracture, chronic facial spasm, and fibrillotonic facial spasm. The diagnosis established, the proper line of treatment was, he said clearly indicated.

The Royal Institute of Public Health has accepted an offer by Prof. William R. Smith to present annually a gold medal of £20 value "for conspicuous services rendered to the cause of preventive medicine within the British Empire." The award is to be confined to medical officers of health and other medical officials—naval, military, or civil—in the empire.

At the annual dinner of the School of Tropical Medicine last Friday it was said £70,000 of the £100,000 asked for had been received. It was intended to devote £15,000 to the extension of the buildings, further sums to research, to the endowment fund, and in conjunction with the Seamen's Hospital to aid men returned in ill health from the tropics to secure the help of those who understood their diseases.

Sir Patrick Manson was then presented with two portraits of himself subscribed for as a testimonial of their gratitude for what he had done for the school. It was owing to Sir Patrick's inspiration, said Mr. A. Chamberlain in presenting them, that both the London and Liverpool schools came into existence.

The secretary of the Antivivisection Society has disappeared. The Hon. Stephen Coleridge says that an investigation of the society's position showed that a sum of £5,000 was not clearly accounted for and the secretary when called upon for explanation left the office.

Dr. Frederick Dale died suddenly on Oct. 25. He had been out shooting with some friends and returned to his home in his motor car looking quite well. But on entering his house he collapsed and died at once. He was much esteemed, was a J. P. for Yorkshire, honorary surgeon to the Scarborough Hospital and the Sitwell Convalescent Home.

Surgeon-Lieutenant-Colonel H. W. Kiallmark, late of the Army Medical Reserve, has died in his 81st year. He qualified at the R. C. S. Eng. in 1855. At one time he was a staff surgeon in the Ottoman Army.

Surgeon-Lieutenant-Colonel John O'Neill, Indian Medical Service, has also died, aged 65. He was in the Ashanti Expedition, 1873-74, for which he was awarded the medal. In 1875 the civil and jail surgeon, Ferozephur. Retired in 1875. He took M. D., R. University, Ireland, 1870.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE HOSPITAL CARE OF TUBERCULOUS INDIVIDUALS—BOVINE TUBERCULOSIS NOT A GREAT FACTOR IN HUMAN INFECTION—TUBERCULOUS INFECTION IS WIDESPREAD—DECREASE IN TUBERCULOSIS MORTALITY IS ONLY APPARENT—IMPERFECTION OF KNOWLEDGE AS TO EXTENT OF TUBERCULOSIS MORBIDITY—ISOLATION THE ONLY EFFECTIVE MEASURE IN COMBATING THE SOCIAL MENACE OF TUBERCULOSIS—UTILIZATION OF PRESENT SANATORIA FOR THIS PURPOSE—THE COST NOT PROHIBITIVE.

Berlin, October 15, 1913.

Among the papers read during the past summer there was one that aroused considerable discussion, namely, a paper by Ulrici presented before the Society for Social Medicine, Hygiene, and Medical Statistics, and entitled "The Campaign Against Tuberculosis Through the Hospital Care of the Infectious Cases." Ulrici dwelt first of all upon the difference between the human and the bovine types of the tubercle bacillus, and accepted the conclusion arrived at by Weber that the ingestion of tubercle bacilli with milk only exceptionally causes human infection. According to Weber bovine tuberculosis is a menace to human beings, for it may cause a fatal infection, but in comparison with tuberculous individuals as a source of infection it recedes into the background.

Naegeli's pathological investigations and the biological methods of testing apparently healthy individuals have shown that tuberculous infection is widespread among the race and that the majority of those infected overcome the bacterial invasion without at any time showing the least clinical evidence of any morbid process. Granting the tendency to spontaneous recovery there remains the question whether we have succeeded by our therapeutic efforts in reducing the mortality from this disease. This question may be decisively answered in the affirmative for the mortality from tuberculosis in Prussia fell from 32 per 10,000 in 1875 to 14.5 in 1912. Nevertheless a number of weighty objections have been advanced against this conclusion. Thus there can be no question that even in Prussia the causes of death given in death certificates are frequently deceptive. Moreover, the total mortality has diminished, so that using this as a basis of comparison the reduction in tuberculosis mortality has been 9.5 per cent. instead of 12.3 per cent. That the reduction in the tuberculosis mortality is not dependent on a reduction in the tuberculosis morbidity may be explained on the basis of the fact that the workmen's invalidity insurance measures have tended to prolong the course of the

disease, and also on the basis of the fact that nowadays many wasting conditions that were formerly diagnosed as tuberculous are as the result of more refined methods of diagnosis no longer regarded as such. Besides it is remarkable that since the discovery of the tubercle bacillus there has been a pronounced rise in the mortality from nontuberculous diseases of the respiratory organs. The diagnosis of tuberculosis is not welcomed by the people in general, and is frequently avoided intentionally. From all of these facts Ulrici concludes that it is quite possible that tuberculosis mortality has run parallel with the general mortality, and that no valid proof yet exists that the tuberculosis mortality has diminished to any greater degree than the general mortality. Another source of error in the mortality statistics resides in those pertaining to infantile tuberculosis. The Prussian statistics show a mortality of 2.3 per cent. while the reports from autopsies on children show a percentage as great as 15.

If the extent of the mortality is determined with difficulty, all the greater is the difficulty in estimating the extent of morbidity. Ulrici estimated the number of infective tuberculous individuals in the German empire as 350,000. He reaches the following conclusions: (1) Tuberculosis results from a direct infection from person to person. The source of infection is almost exclusively pulmonary tuberculosis. (2) Only a small percentage of individuals who have attained the fifteenth year of life escape tuberculous infection, but only a relatively small proportion of those infective show any evidence of tuberculous disease. (3) The incidence of tuberculosis is dependent on the mode of infection, particularly upon the number of bacilli taken in, on the one hand, and the resistance of the individual on the other hand. Children are particularly endangered by infection. (4) Tuberculosis mortality as well as general mortality has diminished, but it has not been proved that the diminution in the former has been any greater than the diminution in the latter. (5) No reliable data are yet available regarding the morbidity from tuberculosis.

There are three measures of combating infection: the safeguarding of all children, the improvement in the natural powers of resistance, and the sanatorium treatment of incipient cases. For the last purpose there have been expended in Germany during the last twenty years 100 million marks. A further yearly expenditure of twenty million marks is required. The results of the sanatorium treatment are good as far as the individual cases are concerned, but provide no satisfactory relief from the social damage that is inflicted by tuberculosis. The strengthening of the individual's powers of resistance by improving home conditions, by combating alcoholism, etc., may diminish the social menace of tuberculosis, but will have little effect upon the disease itself. The latter can be controlled only by preventing the massive infection, particularly of children, by effecting the isolation of all open cases of tuberculosis. This may be accomplished by enlarging the present tuberculosis sanatoria of which there are 800 in the empire. Compulsory isolation could be carried out in connection with the national workmen's invalidity insurance system.

Hitherto little has been done to bring about this isolation. Ulrici believes that in the sanatoria only one per cent. of the patients are isolated. Only 30 per cent. are bacillus-free. The hospitals accomplish still less in the matter of isolation. On an average the advanced victim of phthisis stays in the hospital from six to seven weeks, as a rule, before he dies. It is quite impossible to isolate the patient in his home. The only effective means for accomplishing isolation is to provide for the care of all tuberculous individuals in institutions. This is practically impossible at the present day. These cases, however, can be specially looked after in which children are exposed to infection in the home. Severe cases can be provided for in special institutions. The establishment of such institutions is far more important than the building of new sanatoria. It would be a good plan to at once provide for the admission of some of the advanced cases to the present sanatoria. The prospective cost is not prohibitive.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

HUMAN PLAGUE TRACED DIRECTLY TO THE RAT—CHOLERA—FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE—MEASLES ON A TRANSPORT—PERSONALS.

MANILA, P. I., September 27, 1913.

DURING the past week there occurred a death from plague in Manila in which it was possible to trace the origin of the infection in a much more satisfactory manner than is the case in the majority of instances. On September 6 a plague rat was discovered in the block between Calle Echague and the Pasig River immediately above the Santa Cruz Bridge. An active campaign for the eradication of the rats was immediately begun and most of the area had been covered. The work consisted in rat trapping, and a general cleaning up by a gang of laborers especially employed for this purpose. Woodpiles were taken down and repiled so that there was a clear space under and behind them. Old hay, straw, etc., were removed. Many rat nests were destroyed in this way. Among the places that had not yet been reached was the Stewart Building, in which were located the offices of the Manila *Daily Bulletin*. The editor of this paper was taken violently ill on September 19 and on September 20 his case was definitely diagnosed as one of plague. On September 22 he died of typical bubonic plague and subsequent necropsy and biological findings were positive for that disease. In carrying out the insecticidal and other antiplague measures in his office a mummified rat was found in a drawer of his desk. There were in the drawer a number of fleas. One of these was captured and identified at the Bureau of Science as a *Pulex cheopis*. Stained microscopical specimens from this flea showed bipolar organisms that were identical with those of plague. On account of the fact that the flea had been transferred to the laboratory in alcohol, it was impracticable to make animal inoculations. The mummified rat, however, was ground up and inoculations made into healthy laboratory rats resulted in typical cases of plague. The important deduction in connection with this experience is the fact that the rat had been dead for at least two weeks, and probably much longer, still there were live fleas hovering about the carcass in which plague organisms were still present and the carcass of the rat contained undoubted virulent plague bacilli. This death also affords an excellent illustration and offers strong proof as to the close connection between rat and human plague.

During an examination made of the storehouse of a grocery store which is on the first floor of the

above building four other dead rats were found, and a Chinese employee of the warehouse died on September 20, after one day's illness. He was certified as having been ill for four months and as having died from pulmonary tuberculosis. The health authorities had the body exhumed and it was definitely ascertained that he had not died of pulmonary tuberculosis and the laboratory examinations that are now under way indicate that in all probability the death was due to plague.

After the two cases of cholera which occurred on August 25 no further cases were found until September 13. During the week ended September 20 there were three cases; during the week ended September 27 there were also three cases. All of them occurred in widely separated sections of the city and it has not been possible to trace any connection between them. The first case, which occurred on September 13, was in the person of a Filipino carpenter, who worked at the corner of Calle Padre Faura and Calle Taft, with a large number of laborers and lived a few blocks from the place at which he worked. This is in the Malate district and is one of the best residence sections of the city and miles removed from where the last case occurred in August. The second case occurred at Pasay, which is again several miles from where the last case occurred, and was in the person of an American who was employed in the Quartermaster's Department. There has been no satisfactory explanation offered as to the cause of the outbreak. It was apparently not introduced from abroad.

The Far Eastern Association of Tropical Medicine will hold its third biennial session at Saigon from November 8 until November 13, under the presidency of Dr. Clarac, who is the inspector of the Sanitary Service of the Colonial Troops. Practically all of the Oriental countries will be represented. The Philippine Government has detailed four representatives and it is likely that the Army and the Navy will each send a delegate.

In connection with the transmission of measles, it may be of interest to report that on the trip of the U. S. Army transport *Thomas*, which ended in Manila on April 11, an outbreak of measles took place during the voyage, which was confined entirely to steerage passengers. The last case occurred on April 10. On the vessel's arrival at Manila careful daily examinations were made of the passengers, but no further cases could be detected. On April 16 a child that traveled in the first cabin complained of malaise and was found to have slight fever. On the 17th and 18th there were no symptoms. On the 19th there was coryza with fever and Koplik spots, and on the morning of the 20th there was marked eruption.

Lt.-Col. Paul F. Straub, who has been on duty at Camp Stotsenburg, has been transferred to Manila as the assistant to the chief surgeon of the division, Vice-Lt.-Col. Henry A. Shaw, who has been transferred to the United States.

Surgeon W. A. Korn of the Public Health Service has been relieved from duty in Manila and ordered to report for duty at Hongkong in the office of the American Consul.

Dr. H. F. Smith was one of the successful candidates at the examination held in Manila during June for entrance into the U. S. Public Health Service, and he has now been appointed as an assistant surgeon in that service, and directed to report for duty to the chief quarantine officer for the Philippine Islands.

POTASSIUM NITRATE IN BRIGHT'S DISEASE.

To the Editor of the Medical Record:

Sir:—In recent years I have treated successfully thirty cases of Bright's disease with potassium nitrate. All cases except one came under observation incidentally. It is my rule to examine the urine of every patient, and I found those cases of Bright's before the disease had developed to a serious state. I comprehend under Bright's disease chronic and acute nephritis; more than half of the thirty cases treated were chronic. I give potassium nitrate in doses of from 0.5 to 1.0 gram, dissolved in 15 c.c. of water every two hours till the casts disappear and the albumin is reduced to a trace, then the same dose three times a day for several weeks after the urine is normal.

Potassium nitrate does not disturb the stomach or intestines and has no bad effect on the patient; it is taken best in a half cup of milk. In some cases causes constipation and this action has to be neutralized by some natural aperient water taken every morning. In a case of ten years' duration the action of the remedy was made very clear. When the albumin had been reduced to 0.08 per cent. potassium nitrate was not taken for two weeks and the albumin increased to 0.3 per cent. with reappearance of hyaline casts. In the following two weeks of regular treatment the casts disappeared and the albumin went down to 0.15 per cent. The following six weeks the patient took the remedy occasionally and the albumin did not increase; when during the next two weeks potassium nitrate was taken regularly every two hours the albumin went down to 0.08 per cent.

I will not say that the disease is curable in the last stage, but I am convinced that it is possible to stay the disease and prolong life.

J. Vassalli, M.D.
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Progress of Medical Science.

Boston Medical and Surgical Journal.

November 8, 1913.

1. Progress and Problems in Preventive Medicine. M. J. Rosenau.
2. The Surgical Taeatment of Pulmonary Tuberculosis. Mary E. Lapham.
3. Orthopedics and the Sanatorium. H. J. Hall.
4. Hereditary Chorea with Report of a Case. W. A. Boyd.

1. **Progress in Preventive Medicine.**—M. J. Rosenau refers in his Ether Day address among other things to some hygienic fallacies of the past. Fomites play but a small rôle in the transmission of infection. Nowadays the sanitarian pays little heed to aerial infection except to the extent that this may be conveyed by droplets from the nose and mouth. Ozone has no useful disinfecting power in occupied rooms. The sanitarian doubts the advisability of artificially raising immunity by means of bacterial vaccines as a wise measure for the population at large. He believes that it would be much better to fight typhoid fever and tuberculosis along the lines of hygiene and sanitation, even though it may take a long time to conquer these infections, but once conquered along these lines the victory will be enduring.

2. **Surgical Treatment of Pulmonary Tuberculosis.**—Mary E. Lapham believes that all the good results of artificial pneumothorax can be obtained by the establishing of a permanent opening in the pleural cavity. If this could be done without the production of a fistula or the infection of the cavity there would be many signal advantages over the present methods. The nitrogen is a

foreign body, it takes up space in the thorax, it alters the negative pressure upon which the successful mechanism of the thorax depends, and it interferes with the action of the other lung, the return circulation and the gastrointestinal circulation. It forces the diaphragm down, impedes the expansion of the other side of the thorax and creates many difficulties that have to be overcome in order to obtain results. By transmitting atmospheric pressure to the periphery of the lung until the intrabronchial pressure is balanced, we can prevent the expansion of the lung simply by destroying the principle upon which this depends. The lung would collapse but there would be no distention of the pleural cavity, no pressure upon the return circulation, no interference with digestion, and no crippling of the other lung. In every way this condition would be far less trying than the compression of the lung with a closed pleural cavity. The mechanical conditions are different and much less trying to the patient than an artificial pneumothorax. This method could be used in cases of bilateral involvement when the better lung is hardly able to stand the strain of a pneumothorax. The author has as yet had no opportunity to test the clinical value of this method.

3. **Orthopedics and the Sanatorium.**—H. J. Hall details the advantages of orthopedic or postural methods in the management of various types of nervous exhaustion. After a few days to a few weeks of complete rest in a darkened room, with frequent feedings, massage, and electricity, the patient, if requiring postural treatment, may be given direct treatment by the use of a simple device called the floor pad. This consists of a thin and narrow mattress laid upon the floor and made available as a corrective apparatus by bundles of sticks or wedges of wood placed underneath in such a way as to modify the bodily curves of a person lying upon it. With this pad it is possible to maintain correction or overcorrection of lateral or faulty anteroposterior curves for hours together with little tax upon the patient's strength.

4. **Hereditary Chorea.**—W. A. Boyd reports a case of this condition in a woman in whom the first symptoms developed at the age of twenty-six years. This is much younger than the average age at which the choreic symptoms appear. The first account of hereditary chorea appeared in Dunglison's "Practice of Medicine" in 1842, being an account by C. O. Waters of Franklin, N. Y. In 1863 J. W. Lyon wrote a description of this disease, calling it "migrims." The most thorough study of hereditary chorea was made by George Huntington, who published in 1872 a paper on this disease which is now commonly referred to as Huntington's chorea. His study was based upon many cases occurring in his father's and grandfather's practice, and upon three cases occurring in his own practice. All of the patients lived in or near Easthampton, L. I. According to Huntington the disease is confined to a few families and is transmitted from generation to generation. It never skips a generation. If a child does not inherit the taint, descendants will also be fact that a tendency to insanity and sometimes to suicide is marked. A third characteristic is the fact that the disease comes on, at least as a grave disease, only in adult life.

New York Medical Journal.

November 8, 1913.

1. The Dangers and Disadvantages of Spinal Anesthesia. W. W. Babcock.
2. Preventive Medicine and the Family Doctor. A. H. Wright.
3. Surgical Experiences During the Last Servian-Bulgarian War. R. J. Behan.
4. A Case of Fracture of Pelvis in a Child Aged Seven. P. G. Skillern, Jr.
5. Infantile Paralysis. E. P. Magruder.
6. If Certain Conclusions of the Freudian School Were True. M. Solomon.
7. Blood Ptosis. C. W. Crampton.
8. The Reflex or Protective Phenomena of Angina Pectoris. W. J. Pulley.
9. Supplementary or Accessory Placenta. A. Sterling.

1. **Spinal Anesthesia.**—W. W. Babcock states that the morbidity of spinal anesthesia as expressed by nausea, vomiting, headache, backache, postoperative pain, and albuminuria is less than that from ether. Ocular palsy may result from spinal anesthesia where contaminated or deteriorated solutions are used. A lateral deviation of the needle with injury to a nerve root may be followed by severe neuritis and secondary palsy. Secondary degeneration of the spinal cord from the chemical action of free from it. A second peculiarity of the disease is the stovaine, properly introduced for purposes of spinal anesthesia is doubted. Functional or neurotic symptoms occur after spinal anesthesia as they do after etherization, and may, to the annoyance of the surgeon, be attributed by the patient to the injection. If a steel needle is used it may be broken under the skin during the injection. Danger symptoms may follow if the patient is moved immediately after the injection or if the proper posture to prevent the anesthetic from reaching the upper nerve roots is not maintained for at least one-half hour after the injection. Repeated intradural injections seem to be harmless. Spinal anesthesia is dangerous in circulatory subtension, conditions greatly depressing the respiratory centers, and shock, collapse, advanced myocardial disease, and large intrathoracic effusions. It is more dangerous in operations upon the upper abdomen than in those upon the lower. It does not obviate the danger of sudden cardiac arrest in operations for large uterine fibroids. The newer methods of anesthesia, including spinal anesthesia, nitrous-oxide-oxygen, and intravenous anesthesia should have their use restricted to selected patients by those who are properly qualified. If the patient cannot be properly watched for one hour after the injection, if the operator does not understand the dose and mode of diffusion of the drug, or if he is unprepared to meet emergencies, then spinal anesthesia should not be employed. For general indiscriminate use ether remains the standard anesthetic despite its many drawbacks.

3. **Surgical Experiences in the Servian-Bulgarian War.**—R. J. Behan, an American who served as surgeon to the Fourth Reserve Hospital, Nish, Servia, during the recent war, states that the wounded were of all types. Of 177 cases selected at random, there were five scalp wounds. Of these one was a very severe laceration. There were two skull injuries with fracture; eight face injuries, one with destruction of the eye, three with fracture of the lower jaw, and one with persisting parotid fistula; five neck wounds; seventeen chest wounds, in which empyema developed in five with subsequent operation; six abdominal wounds, all of which recovered without operation; sixteen upper arm wounds with four fractures of the humerus and one of the clavicle; twenty-one wounds of the forearm with two fractures of both radius and ulna and one fracture of the radius; twenty-two wounds of the hands; twenty-seven wounds of the thigh with two fractures of the femur; twenty-four wounds of the leg with four fractures of the tibia; and twenty-four wounds of the foot. Most of the cases except the fractures and infected cases were discharged in about a week or ten days. Of the 177 soldiers, fourteen had been wounded in two or more places, and twenty-four were more or less severely infected. The mildly infected cases, in which the wounds were superficial, were not counted. Of the 154 soldiers of whom there were records, fifty-six were wounded by shrapnel, ninety-four by bullets, two by grenades, and two by bayonet. There were evidences of the cruelty of the Bulgars. There were in the hospital the only four survivors of a body of thirty men of the Fourth Reserve, whom the Bulgars after capturing grouped into a solid mass, forming a ring about them with fixed bayonets, and then dancing around the cowering mass in the center, advancing and retreating from them. Each time that they

approached they prodded the victims one or more times with bayonets. After the dance was over the writhing human mound in the center was left to its own anguish. Of the thirty only four were found alive, and were sent to the reserve hospital. Of the four, three had been castrated. One of these died the same night. Of the three others, one who had a bayonet wound of the back penetrating into the rectum and pelvis died in two days. The other two recovered.

7. Blood Ptosis and Test of Vasomotor Efficiency.—G. W. Crampton has devised a test which records the efficiency of the vasomotor system in responding to the necessity of raising the blood pressure upon rising from the recumbent to the standing position. In the perfectly normal vigorous male the blood pressure will rise from eight to ten millimeters of mercury upon assuming the standing position. In one damaged by disease, overwork or unhygienic living, or weakened by inactivity, the blood pressure will fail to rise and may fall as much as ten millimeters of mercury. The heart rate acts in exactly the opposite fashion, rising in proportion to weakness as much as forty-five beats a minute, but only in exceptional cases falling. These two adjustments are interdependent, one often masking the failure of the other, and both must be considered and balanced. If blood pressure were alone considered many cases showing a high heart rate would be given a good rating when it should be poor, and *vice versa*. In the perfectly normal individual there occurs upon rising from the recumbent position a vasoconstriction effort which squeezes these veins and raises blood pressure which more than overcomes the added hydrostatic load. In the subnormal this vasoconstriction effort is relatively weak and ineffective and does not raise the blood pressure in the upper body, but allows it to fall under hydrostatic pressure. There is a blood ptosis due to the relative failure of vasomotor tone. This may be mild, merely a failure to raise the pressure or a fall of the systolic pressure five or ten millimeters, in which case one may still call the patient fairly normal. It may be a more complete failure, allowing the systolic pressure to drop to forty or fifty, at which point the patient faints from cerebral anemia. This is the familiar picture seen when a convalescent patient with an impaired vascular tonus rises prematurely from a sick bed, and, robbing the splanchnic veins of mechanical support by emptying the bladder, falls to the floor. It would then seem to be necessary merely to observe the amount of rise or fall of the systolic pressure at a convenient point in the upper body to determine the efficiency of the vasomotor system and its reverse, the amount of blood ptosis. The author has devised a scale which provides a convenient and intelligible method of recording and reporting cases and permits a numerical statement of the function in question.

8. The Protective Phenomena of Angina Pectoris.—W. J. Pulley discusses the views of Mackenzie on this subject. The latter states that angina pectoris is an evidence of an exhaustion of the function of contractility. Pain and reflex muscular contraction are the symptoms which are reflexly produced and protective in their action. That these reflex phenomena are due solely to an impairment of the contractile function of the heart does not explain the entire situation, for there must of necessity be present with it a great distress of the function of tonicity, if not a beginning impairment. The pains are protective, in that they cause the patient to cease most muscular efforts, and tend to rest the heart by taking just that much extra work off it and give it a chance to regain some of its lost reserve. The fear produced in the patient by these attacks also has a protective tendency, in that it causes the patient temporarily to cease worries and excesses of all kinds thereby tending to lower vascular supertension and rest the heart. The flushed face, in the other class of cases, is due to reflex stimulation of the vasodilators of the superficial capillaries, which also tends to reduce vascular supertension. The contraction of the intercostal muscles is protective, in that it tends to prevent deep breathing, and to act as a splint to protect the already stretched and weakened walls of the aorta. Deep inspirations tend to increase the arterial tension.

Journal of the American Medical Association.

November 8, 1913.

1. Neurasthenia an Increased Susceptibility to Emotion. H. T. Pershing.
2. Progress in Public Health Work. G. L. Kiefer.
3. Experiences of a Health Officer in Porto Rico. E. F. Otis.
4. Ureterovesical Cysts. An Operative Procedure for Their Relief. J. R. Caulk.
5. Untoward Results of Nephrolithotomy. M. Krotoszyner.
6. The Implantation of the Ureters into the Large Bowel. C. Beck.
7. The Repair of Defects of the Ureter. D. N. Eisendrath.
8. Studies of the Necrosis Following Injections of Salvarsan and Neosalvarsan. H. E. Robertson.
9. Decidual Reaction in the Appendix in Intra-Uterine Pregnancy. G. W. Cuterbridge.
10. Infantile Paralysis Affecting the Lower Extremities; Its Surgical Treatment and Possibilities of Cure. A Preliminary Report. E. P. Magruder.
11. Causes of Error in the Diagnosis of Diseases of the Joints. W. R. Townsend.
12. The Passing of the Family Doctor. G. W. Guthrie.
13. Verruga Peruviana, Ovoya Feher, and Uta. R. P. Strong, E. E. Tyzzer, C. T. Brues, A. W. Sellards, and J. C. Gashaburn.
14. The Transmission of Verruga by Phlebotomus. C. H. T. Townsend.
15. Report of an Instructive Case of Snakebite. F. C. Day.

1. Neurasthenia and Emotional Susceptibility.—H. T. Pershing defines neurasthenia as a functional nervous disorder, not dependent on organic disease of any kind, not amounting to insanity, and not hysteria, manifested by irritability, early onset of mental fatigue and a great variety of unpleasant and, to the patient, alarming sensations, chiefly in the head, but also in various other parts of the body. As regards its etiology the idea of fatigue, especially mental fatigue, is forced on one, but a critical examination of the facts shows that this cannot be the chief factor in the causation. Under favorable circumstances the neurasthenic can often do a large amount of bodily or mental work to advantage as is shown by Dr. Hall's work-cure at Marblehead, Mass. Patients are often worse on Sundays or other holidays and are usually worse in the morning than in the evening. The essential fact is that they are especially subject to emotional disturbances, not that these are so overintense, but they are constantly recurring. The condition is analagous to anaphylaxis. The part of the cortex where emotional processes start has become sensitized so as to react with less cause than in the normal brain. It may be described in the technical language of physiology as a lowering of the emotional threshold.

4. Ureterovesical Cysts.—J. R. Caulk describes the cystic dilatations of the lower ureter, impinging on the cavity of the bladder, which have been more observed of late years since the use of the cystoscope, and reports six cases, five in women and one in a man. These cases show that not all of these cysts are congenital as has been claimed, but appear to be more often acquired. One of the six was due to inflammatory changes secondary to tuberculosis. One appeared in the course of a long-standing calculus pyonephrosis. One gave the history of the passage of two stones from the kidney; and one was secondary to a healed ulcer. In all there were symptoms of vesical irritability, and in one there was obstruction. Two of the patients were operated on by total resection of the cyst under the guidance of the cystoscope, a method which the author says gives very satisfactory results, and in his cases offered no particular obstacles. The suprapubic operation, whether slitting the orifice longitudinally with suture of the two mucous surfaces or a circular amputation of the cyst with suture of the two surfaces, or the hernia operation employed by Young, are more radical

measures and possibly offer better curative results. The author thinks, however, that the chances of recontraction are about as great with these methods as the operation he employed in his two cases of total resection, with denudation of a large area around the ureteral orifice. His results show that it may offer relief for two years or more, and since the operation is a minor one, done without general anethesia, and is simple in technic and non-dangerous, it should be the operation of choice in many cases. The endovesical operation he says gives no permanent benefit and the suprapubic operation seems too radical as the initial one in most cases.

5. **Untoward Results of Nephrolithotomy.**—M. Krotoszyner states that while the operative results of lithotomy have been very satisfactory at the hands of most renal surgeons, and it has been the operation of choice for renal calculi for the past twenty years, nevertheless he sees in it some dangers which, he thinks, ought to lessen its popularity. The most important of these is postoperative hemorrhage, which lends to it an almost ominous aspect. Perirenal infection and the still graver septic nephritis are risks incurred in nephrolithotomy. An infected stone-kidney and fistula of shorter or longer duration is the rule and in many cases relieved only by a secondary nephrectomy. Cases are reported of these complications and the author thinks they are a serious drawback to the operation. Posterior pyelotomy for aseptic and moderately infected cases, and for the majority, nephrectomy, are advocated by him as the safest and best. He concludes that nephrolithotomy is connected with serious immediate and remote untoward results. It should be, wherever feasible, replaced by posterior pyelotomy. Nephrectomy is the simplest, quickest, and safest curative method for pyonephrotic stone-kidney, provided the function of the other kidney is satisfactory.

7. **Repair of Defects of the Ureter.**—Dr. N. Eisendrath concludes that one can transplant portions of the bladder to take the place of segments of the dog's ureter. These transplanted segments will preserve their vitality even though they have no vascular connection with the bladder. It is immaterial whether the dividend ends of the ureter are brought into exact end-to-end approximation with the transplant or are sutured to its inner surface in the manner described. Even though the bladder mucous membrane is accustomed to the presence of urine, it will undergo cicatricial changes in the same manner as other structures, as artery vein, appendix, bowel, horn of uterus, which are lined with endothelium or mucous membrane, not accustomed to presence of urine. Even though union of the transplant occurs, it soon becomes transformed into connective tissue drawing the two ends of the ureters together with resultant stenosis of the ureter and hydronephrosis and hydroureter.

9. **Decidual Reaction in the Appendix.**—G. W. Outerbridge reports a case of the occurrence of decidua in the appendix after delivery, the second case as far as he is able to ascertain ever reported of the reaction in this locality, though the occurrence of tissues of this histological description in various other situations outside of the uterus has been described. The origin of such formations is discussed. The author rejects Taussig's theory of its being due to surface irritation by cellular detritus from the placenta passing out through the lumen of the tubes, and favors that of Loeb of the influence of a sensitizing hormone from the corpus luteum.

13. **Verruga Peruviana, Oroya Fever and Uta.**—R. P. Strong, E. E. Tyzzer, C. T. Brues, A. W. Sellards, and J. C. Gastiaburn record the results of an expedition to investigate various tropical diseases occurring in South America. In Peru the diseases particularly investigated were verruga peruviana, Oroya fever and uta. The history and literature of these conditions are discussed. The general opinion among physicians of Peru is that verruga begins as a fever lasting from fifteen to thirty days with profound anemia, prostration and a high mortality. If the patient does not die in this stage the fever begins to abate and the eruptive stage commences. It is said that if the eruption is abundant the patient is sure to recover. The authors conclude that Oroya fever and verruga are two distinct diseases. The latter is due to a transmissible virus, whereas the former is due to an organism parasitic in the red blood-corpuscles. So far this organism has not been successfully transmitted to the lower animals. It is quite evident that verruga is an entirely distinct disease and that it is not a form of frambesia or syphilis. The inoculation period in rabbits is from ten to twenty-two days; in dogs and monkeys, cutaneous and subcutaneous, and sometimes intraperitoneal, inoculation has given rise to symptoms after from eleven to seventeen days. The localized reactions and lesions have sometimes resembled closely those observed in man. The Wassermann reaction was negative with one exception in the cases of oroya fever which were examined. Moreover no fixation of complement can be obtained when a specific antigen is substituted for the antigen used in the routine Wassermann reaction. The patients were vaccinated against verruga and it seems hopeful that a successful means of vaccination against verruga may be obtained. The authors were able to show that uta is due to a species of Leishmania; the flagellate stage of the organism was obtained and animals have been successfully inoculated from a human case.

British Medical Journal.

October 25, 1913.

1. The History of the Invention and Discovery of Spectacles. G. H. Oliver.
2. The Influence of Time on Red Glass. C. H. Würtzen.
3. The Operation for Inducing Artificial Pneumothorax. H. de C. Woodcock.
4. A Case of Influenzal Meningitis. A. Ross and A. E. Moore.
5. The Effects of Emetine on Abscess of the Liver. R. L. Spittel.
6. Hemorrhage in a Newly Born Infant. S. D. Clippingdale.

1. **The Invention of Spectacles.**—G. H. Oliver states that there is ample evidence to show that biconvex lenses were used by the ancients as burning glasses. Pliny relates that glass balls filled with water were used by physicians for burning, and were to be bought from medicine dealers, and, perhaps, formed part of the armamentarium of the practitioner. That glasses were invented at the end of the thirteenth century in Italy is abundantly shown by the great majority of contributors to the history of this subject, and either by Armati and Spina together or independently of each other. At the same time in Germany and Flanders old people were using glasses. The first medical man to mention glasses was Bernard Gordon, educated at Salerno, and professor in Montpellier. He said that they were not necessary, thanks to his remedies for eye complaints, which so excelled that they made those whose sight was failing able to read small print without the use of glasses. Guy de Chauliac, body physician to Popes Clement VI, Innocent VI, and Urban V, also lauded his own eye lotion, but added: "If this doesn't relieve you, then try eyeglasses." No one at this time knew anything at all about the refraction of light, hence the senseless talk about the various remedies. The laws of optics, relating to glass lenses, have been known only since the time of Maurolycus (A. D. 1494-1575) and the immortal Kepler (A. D. 1571-1630). The physician who first ordered glasses in a professional capacity was one Montanus, a teacher in Padua. He ordered protecting glasses, reading glasses, and, some say, prisms. Physicians at this time evinced great hostility to the wearing of glasses, and owing to the way in which they dissuaded the people from their use, it was not to be expected that it would spread very rapidly. In early times men were

strongly opposed to this custom, as at first glasses were ill-shaped and most disagreeably striking in appearance, and, more than this, they directed the attention to a physical disability. Patients wearing glasses were made fun of, and not altogether in a very tender manner. Their prohibitive costliness rendered the wide adoption of spectacles impossible. At the end of the sixteenth century the price per pair, expressed in terms of present-day value, was from fifty to a hundred dollars. From this circumstance glasses which frequently had costly ornamental fittings were seldom seen, and then in the possession of wealthy people only. The history of the development and use of the concave lens is very different from that of the convex variety; it came on the scene much later. There is no mention whatever of concave glasses by the ancients, though short-sightedness was well known, not as an error of refraction, but as a weakness of the eye. One can assume with a fair degree of certainty that concave glasses came into use about the middle of the sixteenth century.

4. Influenzal Meningitis.—A. Ross and H. E. Moore report a case of this condition and note that as regards the diagnosis of influenzal meningitis nothing has yet been noted which can enable the observer to differentiate it from the post-basic type. It is true that in some instances wild delirium is marked, but this seems by no means common. In the case recorded by the author the sudden "fitting" with rapid transition to rigidity was striking, and perhaps important clinically, since one of the cases noted by Batten began in the same way. From the statistics available, the prognosis is undoubtedly very bad, and is certainly the more severe the younger the patient. Sanger's example of a boy aged nine, who recovered, was for some time the youngest recovery recorded, but Batten's case of a child fourteen months old, who was improving long after the acute stage had passed off, shows that even at the earliest age a fatal prognosis should not be absolute. The cases that survive are so few that ultimate prognosis is very difficult. In the last instance mentioned there had been blindness, which was gradually passing off at the time when Batten published his paper. A patient of Sayce was ill six months, and developed a flaccid paralysis, while Mya, in 1902, had a case which recovered, but was left with a hemiplegia. Treatment seems to have little effect upon the disease. Vaccines have been given, but the results do not appear to be encouraging. The patient aged fourteen months, to whom Batten refers, was given 10 grains of urotropin every four hours, and recovered. In the case described by the authors urotropin was used, but the dose was much smaller.

5. Emetine in the Treatment of Liver Abscess.—R. L. Spittel favors Rogers' method of dealing with liver abscesses—namely, to aspirate them, inject emetine hydrochloride (1 grain to 1 oz. of water) before withdrawing the cannula, sealing the puncture with collodion, and repeating the procedure on a further occasion if required. The post-mortem findings of the case recorded by the author suggest that emetine besides having a specific action on the amebæ may also be an organizing and cicatrizing agent of some value. In Rogers' words, the abscess will be found to dry up.

Münchener medizinische Wochenschrift.

October 21, 1913.

The Abderhalden Seroreaction in Epilepsy.—Binswanger as a result of numerous investigations, reduces this subject to a series of questions. First, does there occur in completely developed epileptic convulsions a so-called paroxystic disintegration in the cortex? Blood was drawn at various intervals after an attack—immediately, after two days, after five days, etc. The number of cases tested was not large, but in every case Abderhalden's test was positive, as shown by disintegration products of the cerebral cortex. In one test two weeks after an attack the test was negative. The next subject for investigation had to do with the interval attacks. The author has now done away with the neurosis theory of genuine epilepsy and regards the entire disease in whatever manifestation as organic. This harmonizes with its chronic progressive course. Twenty-two cases were tested in the interval. The results were variable, quite a number being cleanly negative. When the results were positive there was a suspicion of associated dementia. In such cases, therefore, prognosis should be unfavorable, or one should think of the possibility of overlooked nocturnal attacks. Individual cases are given at length in which the test proved of the greatest value. Hysteria and affect epilepsy should read negatively, and this is readily demonstrable; but some cases of mixed type posing as hysteria, etc., may be found to be epileptic. The author's procedure is as follows: In all cases, whether or not typical, we make two groups of positive and negative findings. If in the intervals the "defensive ferments" are absent from the blood it shows that the "progressive anatomical process," as expressed by an attack, is not immediately impending, this also including psychical attacks. What therapeutic deductions are apparent here? The moment is favorable for treatment. Nothing new is suggested —simply the time-honored procedures, with special reference to operative possibilities. Naturally the serodiagnosis should not antagonize, but confirm our older resources for diagnosis. This test seems to be what has converted the author to the "panorganic" theory of epilepsy, and without this resource such a view would fall to the ground.

Pathology of the Liver.—Gunderman, who was studying the pathology of the omentum, occupied himself for a time with the rationale of gastrointestinal hemorrhage following resection of that structure. Animal study shows that ligation of the omental vessels causes ulcers of the stomach and necroses of the liver. The author repeated and amplified these studies by ligating the left branch of the portal artery which presides over three-fourths of the liver. Many of the animals did not survive the intervention, while in others the liver underwent compensatory hypertrophy and survived. The animals which succumbed showed subnormal temperatures, apathy, and, at times, convulsions. Death seems to have been due to acute uremia. Even in the survivors there were evidences of nephritis. Autopsies proved that a pure uremia had been set up by the intervention in the omentum and liver. Also gastric and duodenal ulcers were found in connection with gastroenteric hemorrhage. The author asks himself the old question as to whether uremia is the direct result of dysfunction of the liver. Detached facts of all kinds support this view. With the liver eliminated, poisons of all kinds may reach the blood. If the choledochus is ligated we obtain the clinical picture of cholemia, a condition much resembling uremia.

Choreiform Manifestations in Poliomyelitis.—At the recent French congress of pediatrists Netter and Ribadeau-Dumas reported the case of a six-months-old infant who presented the following manifestations of poliomyelitis: paralysis of both legs, one arm, and the upper part of the other arm; nystagmus; choreic movements of the facial muscles, and protraction of the tongue. Lumbar puncture showed a lymphocytosis. The infant died in the course of a complicating bronchopneumonia. Autopsy showed the characteristic lesions of poliomyelitis. Choreiform movements are frequently observed in the course of experimental poliomyelitis in the monkey, but are exceptional in the human cases.—*La Presse Médicale.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SELF-SELECTION (CONCLUDED).

The few remaining forms of self-selection are exercised subsequently to the date of the examination. A brief description of those which are important will complete the discussion of the subject.

Self-Selection in Delayed Payment of the Initial Premium.—The agents have positive instructions not to deliver policies until they receive the first premium. When it comes to the payment of this premium, a good many applicants find it inconvenient to do so, or have grown lukewarm and reluctant to complete the transaction. In either case there is considerable doubt as to whether the policy will be placed. The agent is allowed a certain length of time, varying from thirty to sixty days in the different companies, to collect the premium and deliver the policy. This period is long enough for some illness to develop or accident to happen, in which event those who have procrastinated or have even decided not to take the policy, may change their mind and become anxious to pay the premium and get possession of the document. In order to forestall a plan of this kind it becomes necessary for the companies to insert a restrictive clause in their application blanks whereby the applicant agrees that the proposed policy shall not take effect unless and until after the first premium shall have been paid during the applicant's continuance in good health, and unless the policy shall have been delivered to and received by the applicant during his or her continuance in good health. When a binding or conditional receipt has been given to the applicant by the agent in exchange for the initial premium in cash, however, the insurance goes into force as soon as the application is approved and the policy issued.

Self-Selection Exercised When Policies Mature.—Under some policies the holders are entitled to exercise certain options either before or when the contract matures. For instance, when a twenty-payment life policy matures the holder may draw the accumulated reserve and the surplus in cash, or he may continue the policy with the addition of the accumulated reserve and surplus as paid-up insurance, no more premiums to be paid. If he were in good health at the time, he would be apt to draw the cash; but if, on the other hand, his health were questionable, he would choose the paid-up insurance, thereby selecting against the company. To provide for this contingency a policy holder who expects to take the paid-up policy must signify his intention a stated period of time, usually two years, before the date of maturity, and, failing to comply with this requirement, must undergo a physical examination. The privilege under many term insurance contracts to change to other forms of policies answers as another illustration. A term contract terminates at a stated time. If the holder may change to a life plan a short time before the date of termination and thereby continue his insurance in case he happens to be in uncertain health at the time, he will naturally do so and select against the company. If, however, he believes that his health is good at the time he will allow the insurance to terminate. The abuse of the privilege for changing the plan is prevented by restricting it to the first part of the life of the policy.

Self-Selection in Extended or Continued Insurance.—In the event of default in payment of the premium, provided at least three full years' premiums have been paid, and there is no loan thereon, it is stipulated in many policies that they may be continued for the amount insured and any existing additions for a definite time stated in the contracts. The continued insurance goes into effect automatically, whether the discontinuance is intentional or unintentional.

There is some contention as to the actual amount of self-selection exercised in this direction by holders of policies who, threatened with some lingering illness, will avail themselves of the privilege and escape paying any more premiums up to the time of their death. It is believed by some that adverse selection is common among those deciding to take up continued insurance. According to a paper by Mr. Rhodes, read before the Actuarial Society of America, in about 35 per cent. of these cases in his company the insured were fully aware of the precarious state of their health; furthermore, that there were proportionately five times as many suicides under extended insurance as there had been in his company's general business. On the other hand, some policyholders cease paying because they become poorer, or because the motives which led them to insure have become less powerful.

In a general way, it may be accepted that few policyholders have enough knowledge of insurance to enable them to select against the company in this way, and that, furthemore, most of the companies are fairly well protected from the effect of self-selection as extended insurance does not participate in the profits and as there is usually a surrender charge against the reserve on the policy.

The mortality experience of a company is affected unfavorably by the withdrawal of sound lives as well as by the carrying of those whose health becomes impaired. Every effort should be made to keep the sound lives on the books. This does not mean, however, that any reputable company would make the slightest effort to rid itself of impaired risks as long as they keep up to the terms of their contract.

Combined Life and Accident Insurance.—The Hamburg-Mannheimer Insurance Joint Stock Co., and the Albingia (both of Hamburg) give an outline of the popular accident and death payment insurance as effected by them in concert, this practice having been recently approved of by the Government Inspectors of Private Insurance. The accident-risk was covered by the Albingia, while the death payment end was taken care of by the fellow company, which also assumed all the business management. The combination is known as the U. S. Insurance Co., U. standing for Unfall or accident and S. for Sterbegeld or death payment. Payments are to be made weekly. When a risk dies from an accident or becomes a total invalid, this naturally involves a different state of affairs than is present in natural deaths. Hence a series of combinations which affects the premiums and claims. Thus a man pays 20 pfennig weekly for a policy of 1000 marks for death or complete invalidism, of 25 to 800 marks for partial invalidism, and of a death payment of from 100 to 800 marks, depending on the length of survival. The highest weekly payment is 2 marks. The insured must wait one year before his policy goes into effect.—*Zeitschrift für die ges. Versicherungs-Wissenschaft*, xiii, 4, 1913.

Book Reviews.

Über die Behandlung der Kinderkrankheiten. H. Neumann's Briefe on einen jungen Arzt. Sechste gänzlich veränderte und erweiterte Auflage, bearbeitet von weil. Prof. D. H. Neumann, Berlin, und Dr. E. Oberwarth, Berlin, mit einem Bildnis H. Neumanns. Price 12 marks. Berlin: Oscar Coblenz, 1913.

The death last year of the well-known German pediatrist, Professor Neumann, occurred just before he had completed the sixth edition and revision of his work on the Treatment of Children's Diseases, printed in the form of a series of letters to a young practitioner. Fortunately he had already collaborated with E. Oberwarth in the preparation of this edition, so that the latter was able to carry the work to a successful completion. Like the former editions, this represents a clear and practical exposition of the subject of the therapeutics of infancy and childhood, is strictly up-to-date, the inclusion of such subjects as Eiweiss-Milch, etc., and is remarkably complete.

Heart Disease, Blood Pressure, and the Nauheim Treatment. By Louis Faugères Bishop, A.M., M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University School of Medicine, New York City; Physician to the Lincoln Hospital; Late Chairman of the Section in Medicine of the New York Academy of Medicine; Member of the American Medical Association; American Therapeutic Society; New York Pathological Society; Alumni Association St. Luke's Hospital, etc. Fourth Revised Edition. Price, $3 net. New York and London: Funk & Wagnalls Company, 1913.

The principal change in this edition consists in the addition of a chapter on "The Construction and Use of Blood-Pressure Instruments." The volume presents to the student a very lucid description of the clinical aspects of blood pressure, and of its management, including the Nauheim treatment. The chapter headings amply indicate the scope of the subject matter. They are as follows: Alterations of pressure in the blood vessels; primary low-pressure cases; the management of primary low-pressure cases; high-pressure cases; the management of high-pressure cases; some obscure symptoms of circulatory disorders, with a consideration of their significance; the management of secondary low-pressure cases; general considerations; the estimation of blood pressure and the use of the nitrites for its modification; the blood-vessel tone-maintaining function of the brain; hypertonia vasorum idiopathica; Nauheim-Schott treatment; description of the Nauheim-Schott treatment; remarks on the nature and cause of heart disease; symptoms of heart disease and practical advice to heart patents; the Nauheim-Schott treatment in New York; typical cases with favorable clinical results recorded in American literature; the construction and use of blood-pressure instruments.

A Guide to the Description of Microscopic Sections of Pathological Tissues. (Part II A of a "Code System for the Hospital Pathological Laboratory.") By O. C. Gruner, M.D. (Lond.), Assistant Professor of Pathology McGill University, Montreal; Pathologist to the Royal Victoria Hospital, Montreal. Price, 35 cents. Montreal: Miss Poole's Bookroom, 1912.

The purpose of this pamphlet is to simplify the explanations necessary for those who write reports on surgical tissues. The rules are also applicable in classroom work in histology. As a systematic guide for the student of histology and for the worker in the pathological laboratory there can be no doubt that this pamphlet fills a distinct want.

Minor and Operative Surgery, Including Bandaging. By Henry R. Wharton, M.D., Surgeon to the Presbyterian Hospital and the Children's Hospital; Consulting Surgeon to St. Christopher's Hospital, the Bryn Mawr Hospital, and Girard College; Fellow of the American Surgical Association. Eighth Edition, Enlarged and Thoroughly Revised, with 570 Illustrations. Price $3.00. Philadelphia and New York: Lea & Febiger, 1913.

This is one of the very few books in which minor surgery receives anything like adequate consideration. At the same time, the general practitioner will find in this volume almost all the surgery which he is likely to want in his daily work. As the book is now in its eighth edition there is no need to enlarge on its merits; but in the next revision we would like to see included a description of Schäfer's method of artificial respiration. The proof-reading needs a little more care than it has yet received; on one page (309) we notice "dilitation," to "dilatate," and "mucus membrane."

The Narcotic Drug Diseases and Allied Ailments. Pathology, Pathogenesis, and Treatment. By Geo. E. Pettey, M.D., Memphis, Tenn., Member Memphis and Shelby County Medical Society; Tennessee State Medical Association; American Medical Association; Tri-State Medical Association of Mississippi, Arkansas, and Tennessee; also Mississippi Valley Medical Association, Southern Medical Association, and of the American Society for the Study of Alcohol and Narcotic Diseases. Illustrated. Price $5.00 net. Philadelphia: F. A. Davis Company, 1913.

In spite of the dedication, which would lead one to infer that the present volume is intended for the perusal of the patient, the physician will find this a most useful book. It differs from most of the current medical literature in that it is founded on the experience of the author. Throughout the book the author insists that it is both cruel and unscientific to treat the habitual users of narcotic drugs as if they were criminals or vicious; the condition under discussion is as much a disease as is typhoid or meningitis. The methods of treatment of previous writers are quoted and freely criticized, and the views of the author are then given in detail. The methods advocated by Wilson, Hare, Lambert, and others are adversely commented upon. For the general practitioner this is a valuable monograph, and it will serve as a companion volume and a corrective to any work on the practice of medicine.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S.; Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital, and F. F. Burghard, M.S. (Lond.), F.R.C.S., Surgeon to King's College Hospital, and Consulting Surgeon to the Children's Hospital, Paddington Green. New Edition, Entirely Revised and Largely Rewritten with the Assistance of T. P. Legg, M.S. (Lond.), F.R.C.S., Surgeon to the Royal Free Hospital; Assistant Surgeon to King's College Hospital; and Arthur Edmunds, M.S. (Lond.), F.R.C.S., Surgeon to the Great Northern Central Hospital; Assistant Surgeon to King's College Hospital. In Five Volumes. Vol. IV. The Treatment of the Surgical Affections of the Jaws, Tongue, and Alimentary Canal. Philadelphia and New York: Lea & Febiger, 1913.

The successive volumes of this important work appear with commendable promptness. In the volume before us we have authoritative methods of treatment for the various surgical affections of the jaws, nasopharynx, tongue, floor of the mouth, pharynx, tonsils, esophagus, abdominal wall, stomach, intestines, omentum, mesentery, rectum, and anus. Further, there are chapters on laparotomy, methods of examination of the stomach, appendicitis, the "acute abdomen," hernia, enteroptosis, and chronic constipation. As in the previous volumes, the authors make no attempt at giving all the methods of treatment that have been devised; and in some instances there is room for various opinions as to which is the best method. But what is given here can be relied upon as safe, and as having met with the approval of men of experience. For the man who has to do surgery at times only, and who does not limit his practice to surgery, this work should prove of unusual value.

A Text-Book of Biology for Students in Medical, Technical, and General Courses. By William Martin Smallwood, Ph.D., Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University. Price $2.75; Philadelphia and New York: Lea & Febiger, 1913.

The earlier chapters of this work take the student through a consideration of the organism as a whole, the structure and functions of organs, the structure and properties of tissues, and the parts of the cell and their work. An elaborate chapter on the biology of cells acts as a background for the rest of the work, which is devoted to the biology of various plant and animal genera. There are chapters given to adaptation, heredity, evolution, and psychology and some biological factors of disease. Of course in a volume of this size it has been necessary to treat the various subjects in an extremely condensed manner, but the essential things are there and the book is an excellent structure on which to build a thorough course in biology. Nearly all of the illustrations have been intentionally selected from material which will not be a part of the regular laboratory work. This removes from the student the temptation to copy the pictures in the book and furnishes additional material for instruction. The book can be unreservedly recommended.

Society Reports.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

Fourth Annual Meeting, Held in Chicago, November 10-14, 1913.

(Special Report to the MEDICAL RECORD.)

DR. GEORGE EMERSON BREWER, PRESIDENT, IN THE CHAIR.

Monday, November 10—First Day.

THE opening meeting of the fourth annual session of the Congress was held at Orchestra Hall, Chicago, at 8:15 P.M. There were approximately 4,000 members in attendance.

Dr. E. W. ANDREWS, chairman of the committee of arrangements, welcomed the members of the association, after which he introduced Sir RICKMAN GODLEE, President of the Royal College of Surgeons of England, who said that he had had the opportunity of seeing the work that was being carried on by the Congress. He was impressed with the enormous amount of clinical material which he saw at all of the hospitals he had visited, and was greatly struck with the methodical way in which instruction was carried on at these institutions.

Dr. MURRAY MCLAREN, president of the Canadian Medical Association, congratulated the officers and members of the Congress upon the remarkable success which had attended the organization from its inception. It was a happy circumstance that its membership embraced both the profession of the United States and of Canada. Medical science knew no territorial limitations. Canada might not care for reciprocity in trade, but she welcomed the closest association and intermingling of the peoples of both countries. The progressiveness, the enthusiasm, broad views, broad education, well trained able minds and skilled hands had all had their effect in placing American surgery on an eminently high plane. They in Canada looked to American surgeons and received freely from them much information, much suggestion, much instruction, and always accompanied with kindliness and courtesy.

Professor KRÖNIG and Dr. C. J. GAUSS of Freiburg, Germany, referred to the great work that was being accomplished by this gathering of surgeons.

Presidential Address: A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastroenterostomy.—Dr. GEORGE EMERSON BREWER of New York City reviewed the various methods of pyloric closure which had been suggested in the past; and referred to a series of experiments lately published by Tappliner, showing that all simple methods of closure, as by ligature with or without contusion, the employment of a submucous plastic, a pedunculated sero-muscular flap from the anterior abdominal wall, or closure by infolding suture, were not to be relied upon to bring about a permanent stenosis. Ligature by means of a strip of fascia taken from the rectus sheath, as suggested by Wilms, seemed to have better results; but in the opinion of the author, the only safe method was the unilateral pyloric closure suggested in 1895 by Von Eiselsberg. This rather complicated operation could be relied upon to permanently exclude from the duodenum any stomach contents, but it had the disadvantage of being a difficult and prolonged procedure, often requiring from thirty to forty minutes for its performance. Dr. Brewer emphasized the fact that the present desideratum was for a method which could be as quickly and simply executed as simple ligature, and at the same time be as permanent in its results as the prolonged operation of Von Eiselsberg. His method consisted in constriction of the pylorus by an aluminum band, which was easily passed around the tube at this point, and quickly rolled with the fingers into an unyielding ring with sufficient compression to obliterate the lumen of the tube, but not to compromise the vitality of the compressed tissues. Nine experiments upon dogs were reported, and the specimens thus obtained shown by lantern slides. From a study of these experiments, it was evident that this method of closure produced a complete occlusion of the pylorus, as proven by the fact that water would not pass the constricted point when the stomach was distended; and also by the fact that sections through the pylorus and aluminum ring showed by gross and microscopic examination, not only that the pylorus was closed, but that the vitality of the tissues was not impaired. A second series of experiments showed that the same method could be applied to the pyloric antrum, and also that the pylorus which had been closed for some months could have its function again restored by a second laparotomy and removal of the aluminum band. Although Dr. Brewer had not employed this method in the human subject, the animal experiments were so conclusive, that he believed it to be the simplest and safest method yet proposed for these cases.

Report of a Series of 156 Gasserian Ganglion Operations.—Dr. HARVEY CUSHING of Boston reported 150 cases of operations upon this ganglion with two fatalities. These fatalities occurred in the earlier cases. In one hundred consecutive cases operated on there were forty-six males, and fifty-four females. The neuralgia affected the right side in sixty-two cases; the left in thirty-six cases. Both sides were involved in two cases. He stated that it was the impression that these neuralgias occurred very much more commonly on the right side, but in the last fifty cases there had been an unusual number of left sided neuralgias which had brought the percentage up to thirty-six, whereas previously the ratio between neuralgias of the right and left side was about three to one. Two of the patients operated on were eighty and ninety years of age respectively. The average age at operation was fifty-five years, the youngest twenty-six, and the oldest eighty-six. The average age at onset was forty-five years, the youngest eighteen years, the oldest seventy-four years.

Dr. JOHN B. MURPHY of Chicago said that two monuments should be erected to Dr. Cushing, one for his courage for leaving the promising field of general surgery and taking up the unpromising field of tumors and surgery of the brain, and one for his final achievement of success in this line of work. When Dr. Cushing reported 119 consecutive operations without a single death it was an achievement of which he and the medical profession of the world should be proud. The speaker had done twelve of these operations with four deaths. In the future he would not endeavor to remove the Gasserian ganglion but would adopt the method of extracting the root which involved a little more work, a little more risk in the way of time and patience, but which gave splendid final results, as reported by Dr. Cushing.

Tuesday, November 11—Second Day.

Gastric Hemorrhage.—Dr. JOHN B. DEAVER of Philadelphia said gastric hemorrhage or the copious effusion of blood into the stomach was, as a rule, followed by hematemesis, and resulted from a number of disturbing factors in the mechanism of the upper abdominal circulation. In the minority of cases the blood was not at once ejected but was passed subsequently by the bowel in the form of tarry stools. Cases of gastric hemorrhage fell into two groups, the surgical and the non-surgical or medical. It was as great a mistake to operate on non-surgical cases as it was to withhold operation in surgical bleeding. The exploratory operation, therefore, was not available for diagnosis, and successful treatment demanded a high degree of diagnostic skill in deciding for or against operation. Profuse and even fatal hematemesis without demonstrable ulceration of the stomach had been observed in a considerable number of cases, both at autopsy and at operation. Dieulafoy had described a variety of hemorrhages due to the formation of minute mucous erosions, single or multiple. Such erosions had been observed as linear or stellate fissures in the act of bleeding during the operation. Of 459 of their cases of upper abdominal disease, hematemesis occurred in only 25 per cent. of instances and 20 per cent. of those cases were either simple ulcer or cancer of the stomach. A knowledge of the hemorrhagic possibilities of active congestion of the stomach could not be learned at the mortuary slab, but only by witnessing its bleeding surface in the living. Hemorrhage more or less acute might result from the formation of the typical acute peptic ulcer, the vessels beneath the muscularis mucosa being opened by the ulcerating process. Such hemorrhage was rarely fatal, the vessels opened were small and their walls soft and normal, permitting retraction and contraction with the formation of an occluding clot as the blood pressure was reduced by hemorrhage. In many cases acute ulcer announces its presence by bleeding and if appropriate measures were taken the hemorrhage was rarely dangerous and seldom repeated. While it was true that sudden massive hemorrhage did occur in chronic gastric and duodenal ulcer, it was also true that it was not a characteristic of ulcer to bleed profusely. Occult blood or small recurring hemorrhages were far more characteristic of ulcer and it was therefore, incumbent upon the diagnostician, in the presence of diffuse hematemesis to adduce considerable evidence in the way of history or examination before concluding that ulcer was present.

The hemorrhage due to malignant disease of the stomach, like that of ulcer, was not commonly profuse and sudden. In the early stages it was slight, even occult in the stools. It was more apt to be persistent than the hemorrhage of ulcer and tended to become progressively more marked. The hemorrhage from malignant ulceration was, as a rule, a slow seepage which gave rise to little systemic effect of bleeding, but revealed itself by the process of coffee ground vomitus or melena. Sudden hemorrhage was one of the modes of termination of gastric carcinoma, but in all but the rarest instances such an event was but the termination of an already established and evident malignant cachexia. During the past year there occurred in the practice of one of his Philadelphia colleagues a case of death from hemorrhage of an ulcerated myoma of the stomach. The growth was round, encapsulated, about 6 cm. in diameter and its growth was chiefly inwards into the cavity of the stomach, much like a submucous myoma of the uterus. Operation might be indicated in gastric carcinoma when hemorrhage chanced to be an early symptom and there was still hope of cure; or it might be indicated in advanced or otherwise inoperable cancer when hemorrhage was so profuse and persistent as to shorten even the period of prognosis given to cancer. In this case the measures to be adopted were, excision, gastroenterostomy or jejunostomy in accordance with the pathology found at operation. But four most essential questions remained to be settled. (1) The recognition of suitable cases; (2) the time to operate; (3) the type of operation to be performed; (4) the proof of our position by mortality statistics. The diagnosis of chronic eroding ulcer must be clear to warrant operation in acute gastric hemorrhage. Not only must the conditions which simulate it be considered and eliminated so far as possible but we must be in possession of a history which pointed strongly towards the existence of chronic ulcer. The most important point was a history of long continued persistent painful indigestion definitely related to the ingestion of food. In reviewing the literature thirty-three cases of operation for acute gastric hemorrhage, exclusive of his own, were collected since the independent reviews of Tuffier and Connell in 1905. In those thirty-three cases there were eight deaths (24.2 per cent.). This was to be compared with Tuffier's collective mortality of 36.3 per cent. in 1905, with Rodman's mortality of 37.5 per cent. in 1901, and with Savariand's figure of 62.6 per cent. in 1898. It was easily seen that the mortality was becoming less, a fact attributable doubtless to various causes but in part at least to increasing accuracy of recognition of the proper type of cases in which surgery was to be employed.

Dr. A. J. Oschsner of Chicago said that one must not look upon gastric hemorrhage primarily as a surgical emergency. An idea which had permeated the surgical conscience, as a result of the surgical possibilities of the last few decades, had given the feeling that when any very serious condition arose, we must attack it surgically. This was true only when the good judgment of the surgeon indicated that the patient was in such a condition that surgical treatment would give the greatest possibility of cure. A careful and accurate diagnosis was the foundation for this judgment, based upon a thorough knowledge of the history of such cases. The actual death rate from chronic hemorrhages of the stomach was undoubtedly large and must be considered from the standpoint of ulcer of the stomach, and that treatment must again be based upon a diagnosis which now could be made with a great degree of certainty.

The Operation of Gastrojejunostomy and the Principles Which Should Determine Its Use.—Mr. Herbert J. Patterson, F.R.C.S., of London, said that there was little doubt that the immediate results of the posterior operation were better than those of the anterior. The patients convalesced more smoothly, and vomiting was less common, while after the anterior operation it might be necessary to wash out the stomach once or twice during the first few days. As to the remote results, he was inclined to think that the advantage rested with the anterior operation. After the posterior operation some patients, few in number it was true, after remaining well for months or years, began to suffer discomfort. In some instances this was due to a mechanical defect at the site of the anastomosis, such as a constriction produced by contraction of the mesocolon encircling the anastomosis. He was quite clear that the mesocolon should be sutured to the stomach a little distance away from the suture line, and not to the jejunum or to the suture line as was commonly taught. In other cases the defect was due to a kink produced by contraction of a dilated stomach, or to the formation of adhesions, or to rotation of the jejunum on its longitudinal axis during the process of suturing. For a good many years he had been advocating the view that gastrojejunostomy was a physiological one. Sir Berkley Moynihan had expressed his belief that the "physiological explanation of gastrojejunostomy is rot." He would endeavor to give the reasons for his belief. First, in view of the allegation that gastrojejunostomy was a drainage operation, we must inquire, what was the effect of this operation on the evacuation of the stomach. His experience was that in cases in which there was no organic stenosis of the pylorus, the evacuation of the stomach was slightly accelerated. Usually the stomach was emptied in from three to four hours after a meal. Another means of comparing the motility of the stomach before and after operation was afforded by the study of the amounts recovered after a test meal. In 60 per cent. of a series of investigated cases the amount recovered after a test meal was less after operation than before, but the difference was not very great. In sixty-six cases the average amount recovered one hour after a test meal was 190 c.c. before operation, and 180 c.c. after operation. As a rule, when there was organic pyloric stenosis, the motility of the stomach was improved by gastrojejunostomy. He thought, therefore, we could conclude that in those cases in which the gastric motility was impaired markedly by pyloric stenosis or by adhesions, the operation resulted usually in a marked improvement in the evacuation of the stomach contents. In those cases, on the other hand, in which before operation the motility was unimpaired, gastrojejunostomy usually slightly hastened, but occasionally retarded, the evacuation of the stomach; but inasmuch as this retardation or acceleration fell within physiological limits, we were justified in saying that in cases in which, before operation, the motility of the stomach was unimpaired, the evacuation of the stomach was unchanged by gastrojejunostomy. Notwithstanding the absence of Gmelin's reaction in 27 per cent. of his cases, he believed that the presence of bile in the gastric contents was a constant and very important feature after gastrojejunostomy. His reason for this statement was the observation that in 90 per cent. of his cases there was, after gastrojejunostomy, an increase of the mineral chlorides in the gastric juice. This increase was not due to greater activity of the gastric mucosa because, as a rule, there was in 75 per cent. of his cases a diminution of the total chlorides. If this increase in the mineral chlorides was not the result of greater activity, it must be due to chlorides added from without to the gastric contents. For example, take the operation of appendicectomy, was there an increase in the mineral chlorides after this operation? In 26 per cent. of his cases of appendicectomy there was a marked decrease, in the remaining 74 per cent. there was an increase; but whereas after gastrojejunostomy the increase in mineral chlorides was accompanied by a decrease in the total chlorides, after appendicectomy the increase in mineral chlorides was accompanied, as a rule, by an increase in the total chlorides After a gastrojejunostomy there was a constant increase in the mineral chlorides of the gastric juice. This increase must be due to chlorides added to the gastric juice by the entrance of bile and pancreatic juice, because (1) the total chlorides of the gastric contents were diminished; (2) undoing gastrojejunostomy diminished once more the amount of mineral chlorides; (3) if an entero-anastomosis be perforced the increase in the mineral chloride did not occur; (4) in cases in which there was a marked excess of mineral chlorides; (5) as a rule, the increase in mineral chlorides did not follow operations other than gastrojejunostomy. Doubtless part of this increase was due to the neutralization of free hydrochloric acid and the consequent formation of sodium chloride. This did not affect his argument because (1) this neutralization must be caused by the carbonates of the bile and pancreatic juice; (2) if, before gastrojejunostomy, free hydrochloric acid be absent from the gastric contents, there was still an increase in the mineral chlorides after gastrojejunostomy. To his mind the conclusion was irresistible, that gastrojejunostomy was a physiological operation. It was easy to ascertain the changes in the gastric contents which followed gastrojejunostomy, but at present we must admit that we could only speculate as to which of those changes was the important factor in the relief of the patient. As he had already pointed out, a most striking feature after gastrojejunostomy was the diminution of the total acidity. The four practical lessons to be learned were these: "(1) That the type of gastrojejunostomy employed is of less importance than the manner in which it is performed; (2) that if gastrojejunostomy be a physiological operation its use for the treatment of gastric hemorrhage is correct and explicable; (3) that occlusion of the pylorus is an unnecessary complication of gastrojejunostomy and is based on erroneous pathology; (4) that if gastrojejunostomy be

a physiological operation, then it is as efficient a treatment for ulcers of the body of the stomach as for ulcers near the pylorus; in other words, gastrojejunostomy is preferable to excision."

Dr. Carl Beck of Chicago stated that Mr. Patterson was the father of the theory of the physiological effect of gastrojejunostomy, and what he had said in regard to the anterior and posterior operations, as well as the relative merits of each, was very important and suggestive. As to whether pyloric exclusion was practically useless, further experimentation in the workshops of surgeons would determine. At present, surgeons could only take the say-so of Mr. Paterson for it. As to the frequency of cancer of the stomach when ingrafted upon ulcer, notwithstanding the authority of Kocher, he still believed that the authority of the pathologists at Rochester was just as good, and their proof just as convincing as the pathological reports which had emanated from the laboratory of Kocher.

Wednesday, November 12—Third Day.

The Radiotherapeutic Treatment of Benign and Malignant Tumors.—Professor Krönig of Freiburg, Germany, stated that the domain to which radiotherapy was well adapted was in the treatment of fibromyoma of the uterus. Radiotherapy of fibromyomas could now be undertaken in a most thorough manner. They had made use of the Roentgen-ray treatment exclusively in a number of cases. They had also used mesothorium combined with Roentgen-rays, and mesothorium alone in the treatment of these tumors. High dosage was by no means necessary in every case of this kind. In a certain percentage of cases quite as good results had been obtained with proportionately small doses. Women over 45 years of age were more easily influenced by Roentgen-rays and the desired object, amenorrhea, with a diminution in the size of the tumor, had been accomplished earlier in these cases than in younger individuals; nevertheless they found cases among women over 50 years of age who could not be successfully treated with small doses. They had never witnessed any unpleasant effects from high dosage. High dosage had given good results. They had treated 350 cases of myomas of the uterus with Roentgen-rays. The chief aim of radiotherapy was: (1) Diminution in the size of the tumor. (2) Diminution in the severity of the hemorrhage, but without absolute amenorrhea. They had many times attained this end, especially in younger individuals, but they had to confess that they had seldom gained the desired object. Shrinkage of the tumor only began when amenorrhea was gradually established, and, moreover, relapses were frequent if menstruation had not completely ceased. The *x*-ray treatment of myoma was comparable with supravaginal amputation of the uterus. Radiotherapy for myomas of the uterus was in every way far superior to the operative treatment of myoma by means of total extirpation or by supravaginal amputation of the myomatous uterus. They had treated 254 cases of cancer with Roentgen-rays and radium. The material included those cases treated for the prevention of the secondary growth after operation for carcinoma as well as those cases in which radiotherapy for carcinoma had been used therapeutically. Of this number 150 cases were treated on purely therapeutic lines and without operation. Of these 150 cases, 140 were treated with Roentgen-ray and mesothorium combined, while in 10 cases the Roentgen-ray alone was used. Of 64 cases of carcinoma, 43 cases they had treated for the prevention of secondary growth almost exclusively with unfiltered Roentgen-rays, while 21 cases were treated partly with filtered and partly with unfiltered rays. The difference was striking. While 32 out of 43 cases died of carcinoma, they had been able to follow the subsequent history of 20 out of 21 cases, and found that 60 per cent. of the recurrences occurred the first year after operation. Recurrent cancers had been treated with radioactive substances. Of the 140 cases which they had treated with Roentgen-rays and mesothorium, three groups of carcinomas should be differentiated: (1) Those in which carcinoma had not spread beyond the primary focus, as in cases in which operative removal of the cancer was still possible. (2) Those carcinomas in which a new growth had already extended beyond the primary focus into the neighboring tissue, and in cancer of the cervix where the carcinomatous growth had spread into the parametrium and glands, so that operation was out of question. (3) Those carcinomas in which additional metastases were already present. So far as their investigations up to date went they had not succeeded by means of the technique employed in curing a single case of metastatic carcinoma. It was quite possible to produce remarkable retrogressions and checking of the carcinomatous metastases by means of intense radiation of Roentgen-rays and radium, but in all cases up to the present, the carcinoma had later on spread further. They could not say they had saved a single patient. In the second group the majority of cases were at the present time impossible of cure, in spite of any known Roentgen-ray and mesothorium radioactivity.

Dr. Howard A. Kelly of Baltimore stated that he had used radium in 360 cases, of which 188 were malignant growths, including tumors of all parts of the body—mouth, throat, neck, nose, lower part of the abdomen, the uterus, etc. He had treated 40 cases of cancer of the lower part of the uterus, where the disease was apt to spread rapidly, and the cases were considered hopelessly advanced and inoperable, and in three of them after extensive operation, radium was used. Under the usual methods a speedy recurrence would have taken place without question. In those three instances there had been no recurrence and health had been fully restored. He had also had four cases where no operation could be done on account of the general condition of the patients. Two of the patients had had diabetes and one Bright's disease, and the other a serious ailment which contraindicated operation. In those cases apparently a cure had been brought about. He had had two cases of cancer of the larynx, one of which had been well for months, and the other appeared to have recovered, but was still under observation. The speaker stated if we could have an abundant supply of radium its use for superficial cancer would yield better results than surgery. It would cure cases of cancer of the nose, eyes, lip, etc., where surgery would mutilate.

Dr. C. J. Gauss of Freiburg, Germany, discussed the technique of radium and mesothorium in the treatment of fibroid tumors and cancer of the uterus.

The Diagnosis of Lesions of the Upper Urinary Tract.—Dr. Hugh Cabot of Boston laid down four propositions and defended them. *First*, we had at our disposal methods of diagnosis of lesions of the upper urinary tract which were of extreme accuracy. *Second*, those methods of diagnosis were of value not only in lesions of the urinary tract, but in the differential diagnosis of the abdominal lesions. *Third*, that those methods of diagnosis were not being used with that frequency which their value entitled them to, and therefore a large percentage of errors was being made. *Fourth*, that those methods of diagnosis required skill and judgment in their application and without that skill and judgment they were dangerous. Dr. Cabot reported and showed numerous slides of cases illustrating errors that have been made in diagnosis.

Dr. Arthur D. Bevan of Chicago stated that his solution of the difficulties presented by Dr. Cabot would be that we needed in each clinic a complete organization, a surgeon, a cystoscopist, a radiologist, a competent laboratory worker, and a good internist. It was this sort of organization that should employ the new methods of diagnosis in lesions of the upper urinary tract rather than some special surgeon. In making a diagnosis of lesions of the upper urinary tract, and in practically all abdominal work, the evidence which it was desirable to obtain could be easily grouped under four heads according to their value. *First*, the history of a given case of lesions of the upper urinary tract was more valuable than anything else. *Second*, proper physical examination, including under the term physical examination an examination for tumors, dilatation of the colon with air, cystoscopic examination, catheterization of the ureters, *x*-ray pictures of the region with or without collargol. *Third*, the laboratory findings. *Fourth*, the importance in a limited number of cases of exploratory operation in making a diagnosis.

Pyloroplasty.—Dr. J. M. T. Finney of Baltimore read a paper in which he related his experience with pyloroplasty extending over a period of fourteen years. After he had given the results in 150 cases on which he had operated, he said the immediate as well as final results were most encouraging. While partial gastroenterostomy and gastrectomy were the operations of choice, nevertheless, on account of its simplicity and because of the satisfactory end results, he believed pyloroplasty would continue to retain its position as a safe and useful procedure.

Dr. E. W. Andrews of Chicago stated that the statistics of pyloroplasty, as given by Dr. Finney, were equal to those of any series of cases from any clinic where ordinary gastroenterostomy had been done, both as regards success of the operation and mortality.

Thursday, November 13—Fourth Day.

Report of the Cancer Campaign Committee.—Dr. Thomas S. Cullen of Baltimore, Chairman, first made mention of radium, saying that few surgeons in the coun-

try had sufficient of the material to give it a thorough trial, since it appeared that extensive doses sometimes cured when smaller amounts had but little effect. Radium (as suggested by Charles L. Parsons) should be standardized so that the buyer would know what he was paying for. Only time would tell what percentage of cases could be cured with radium. At present early surgical procedure afforded the best chance for cure. The results obtained from radium had to be taken into consideration. At the same time the men who had reported the best results were still urging early operation whenever possible. When people once understood the nature of cancer they would gladly avail themselves of surgical aid. In the past decades attempts to instruct the physicians alone had not produced any decisive results. Hence they had to go to the people at large through the newspapers and magazines. Many popular articles had already appeared. The press had responded nobly to their appeal. As a result the patients were coming earlier. Still there was need of further dissemination of knowledge by means of lectures on hygiene in women's clubs, factories, and elsewhere. Further better records had to be kept, hospital statistics had to be carefully analyzed so that accurate deductions could be drawn from them: they had to have surgical pathologists to aid in diagnosis. Thorough operations had to be insisted upon as soon as the diagnosis of cancer was made. All modern methods of recording data had to be utilized in hospitals. Patients who had been operated upon had to be followed up and the results recorded. Cancer of the uterus was one of the most frequent forms of cancer in women. There were two chief forms of cancer of the uterus, cancer of the neck of the organ, and cancer of the body of the uterus. The first symptom of cancer of the uterus was bleeding and as the disease progressed and parts of the cancer broke down the discharge became offensive. Cancer of the neck of the uterus was by far the more common and could be readily detected by the use of simple instruments. Cancer of the body of the uterus could not be seen and could only be definitely determined by scraping away some of the material and examining this with the microscope. The material removed was suitably hardened and shavings about 1/500 of an inch thick were made. These were stained and examined with the microscope. The pattern of cancer was totally different from that found in health, and the expert with the microscope could usually tell with absolute certainty whether the disease was cancer or not. The pattern of cancer as viewed with the microscope was as different from that noted in the healthy organ as were two totally different patterns of wall paper. In the years past few cases of cancer of the womb were cured. Now from 20 to 25 per cent. of patients suffering from cancer of the neck of the uterus that were operated upon were permanently relieved. Some of these patients were well thirteen or more years after operation. The results following operations for cancer of the body of the uterus were much more comforting, at least two-thirds being permanently cured. These results were a wonderful improvement on those of twenty or thirty years ago when nearly all died. Cancer of the uterus was most common between the 30th and 50th years, but had occurred in early womanhood and might also attack the aged. Any woman with bleeding that could not be definitely explained ought to be examined at once and any patient having much bleeding at the time when the "change of life" occurred ought to seek medical aid forthwith. The bleeding might be due to cancer or might be caused by some simple ailment. When women realized what splendid permanent results might be obtained by early operation and fully appreciated the necessity of finding out just what was the matter with them, instead of procrastinating until the disease was far advanced, then the percentage of permanent cures would be greatly increased.

Publicity and Ethics.—Mr. Samuel Hopkins Adams of New York stated that much could be done in health education of the public, whether in cancer, in tuberculosis, in the venereal plagues, or in epidemic diseases, by lectures; but more could be accomplished by the magazines. The universal agency, however, of popular education was the daily press. Between that great agency of enlightenment and the medical profession there had been raised a barrier fraught with difficulty, the barrier of the unwritten law of the profession, which said to the doctor, "Thou shalt not appear in print." The daily paper, with all its sins, was the one agency by which the medical profession could impart immediate, positive, and direct universal education—a saturated solution of enlightenment. Nothing else would do it. There was no sacred reticence required of a doctor other than the reticence that guards the privacy of his patient. The time had come when the old obsolete ban of silence should be lifted and the propaganda should go on through the agency best fitted to spread it, the daily newspapers.

Publicity and Education through the American Society for the Control of Cancer.—Dr. Edward Reynolds of Boston stated that we knew now that in many situations the malignant diseases were preceded by what we might call, for the sake of brevity, a precancerous state, such as the adenomatous stage in the development of cancer of the body of the uterus. We were able to diagnose this condition with certainty in many forms of the malignant disease whenever the patient came to us in that early stage, and we knew that in that stage a radical operation promised in many situations of the disease an almost absolute immunity from recurrences as opposed to certain death if the patient reached us too late. We were individually doing our best to publish to the world the importance of early diagnosis, but collectively, and as a profession, we had as yet done nothing. We could exert but little influence upon the over-conservative, the timid and the other weak and halting members of the profession, but our patients, the great lay public, had a right to demand that every member of the profession should be forced to do his duty in this direction. We were each of us individually doing our best to accumulate further information about the disease, but as a profession we had made no organized effort toward the systematic and widespread investigation which was the necessity of the day. We had not as yet had the organization, the money, nor the trained workers which were essential to success. The surgical profession was more than ready to give its time and its trained ability to the work, but the profession formed neither a large, nor, as a whole, an affluent percentage of the community. The money for any such widespread organization must come from the numerous and more wealthy laity, for whose benefit this movement was being inaugurated. The American Society for the Control of Cancer was a body which was composed of prominent members of the profession and of influential members of the laity. It was actively at work in perfecting a widespread organization of national scope for the active prosecution of this campaign. It had already been guaranteed and, indeed, for the most part, had already in cash the large amount of money which was necessary even for initial expense of the organization. It had already under salary a general executive secretary, whose past career was a guarantee of his possession of the necessary power of organization. It planned to work in cooperation with all the existing organizations in the study of cancer and in the promotion of the necessary publicity of all the points on which we already had assured knowledge. It had already been assured of hearty cooperation from the more important of these preexisting bodies, and had received the endorsement of all, or nearly all, of the great national medical associations. It asked the sympathy and effective aid of every member of the profession and of every interested layman and laywoman. It was essential to so large an undertaking as this that its initial organization should receive the time and attention and the very large amount of labor which was essential to its perfection. He believed we were rapidly approaching the day when we would put our appeal for aid, in both money and work, before every one and before the public, in the concrete form which would make rapid progress possible.

Education and Publicity through the Council on Health and Public Instruction of the American Medical Association.—Dr. Frederick R. Green of Chicago said that our knowledge of the causes of disease, its method of transmission and the possibility of its prevention imposed a duty on the profession toward the public, which was being recognized as a most important function of the medical profession. Since the scientific medical men alone possessed the technical knowledge necessary for the handling of such problems, we must look to them for such knowledge. But when an effort was made to apply this knowledge for the production of practical results, it was found that while the specific cause of a disease and the like history of the organism might be known in the most minute detail, the prevention or suppression of the disease was a social, and not a scientific, problem. Increasing knowledge of the cause of diseases, perfection of methods for their prevention, as well as the recognition of the paramount importance of regulation of social conditions for such prevention, made it necessary that there should be an educated public sentiment back of all of our efforts for disease control. The real force in this country and the only effective force was public opinion. Laws were the crystallization of public opinion and not one of its formative influences. When this principle was fully recognized we would cease to advocate the adoption

of mandatory laws without first creating a discriminating and intelligent public opinion on the necessity and importance of such regulation. If the education of the public was properly carried out the number of laws required would be greatly diminished and the effectiveness of those in force would be proportionately increased. The necessity for public instruction on the prevention of disease had been recognized by practically all of our state boards of health, and by many of our municipal health departments as well as by the various federal bureaus working on public health and allied subjects. It had also been recognized by the organization of a large number of special voluntary societies, composed of those interested in some social problem and devoted to the arousing of public sentiment on this specific subject. What could the Council on Health and Public Instruction of the American Medical Association do to enlighten the public on this subject? The answer was obvious. It could place at the disposal of the American Society for the Control of Cancer and the Committee of the Clinical Congress of Surgeons of North America all of the resources of the Council on Public Health Education. Through the Press Bulletin, suitable material on the subject could be placed in the hands of 5,000 editors, without any cost to the Society or to the Committee. Through the Speakers Bureau addresses could be given to the public on cancer and its menace. Through the Bureau of Literature, local pamphlets and leaflets on this subject could be distributed. Later on through the Lantern Slide Bureau of Exhibits material on cancer and its control could be placed before the public. The agencies at work on this problem at present were the American Society for Control of Cancer; the Committee of the Clinical Congress of Surgeons of North America, and the Council on Health and Public Instruction of the American Medical Association. The work to be done seemed to be threefold and to be peculiarly adapted to these three organizations. The first thing was to interest the public and especially the wealthy and influential public in the problem of the control of cancer. This was a movement for the public welfare, and there was no reason why the public should not assume part of the expense. This was the work for which the recently organized Society for the Control of Cancer was admirably adapted. The second necessity was the careful investigation of the entire problem of cancer, its age, its race and sex incidence, its relative frequency in different occupations and locations, and all of the clinical facts connected with its appearance. The speaker stated that there was today in the records of our different hospitals throughout the country an enormous mass of undigested material on this subject. This was clearly a clinical and surgical problem. The third requirement was the distribution to the public of the results of such an investigation. This was obviously a task for the Council on Health and Public Instruction of the American Medical Association, representing, as it did, the organized profession of the entire country. Through its machinery, it could, without any additional expense, place before the public any information which may be desired on this question.

Educational Value of Cancer Statistics to Insurance Companies, the Public, and the Medical Profession.—Mr. Frederick L. Hoffman of Newark, N. J., stated that during the year 1910 the average age at death in cancer and other malignant tumors combined was 59.2 years for the registration area of the United States. For males the average age at death was 60.4 years, and for females 58.4 years. Considered by organs or parts affected, the average age at death in cancer of the buccal cavity was 63.1 years; in cancer of the stomach and liver, 61.2 years; in cancer of the female generative organs, 53.8 years; in cancer of the breast, 58.3 years; in cancer of the skin, 68 years, and in cancer of other organs and parts not specified, 56.9 years. Cancer was distinctly a disease of advanced adult life. Of the mortality from all causes in the registration area, ages 45 and over, the proportion of deaths from cancer was 8.6 per cent., or, respectively, 6.4 per cent. for males and 11.2 per cent. for females. During the decade ending with 1911 the cancer death rate for all ages had increased from 65.8 per 100,000 of population in 1901 to 83.9 in 1911. The cancer death rate of males had increased from 48.7 per cent. to 64.2 per 100,000 of population, or 31.8 per cent., and the cancer death rate of females had increased 83 to 104, or 25.3 per cent. Considered by divisional periods of life, the death rates had increased at all ages and for both sexes, with unimportant exceptions at ages 5-14 inclusive. For males the increase in cancer during the 10-year period, and at the ages 45-54 was 21 per cent.; at ages 55-64 it was 30 per cent.; at ages 65-74 it was 40 per cent., and at ages 75 and over it was also 40 per cent. For females the increase in the cancer death rate at ages 45-54 was 11 per cent.; at ages 55-64 it was 27 per cent.; at ages 65-74 it was 32 per cent., and at ages 75 and over it was 44 per cent. There was sufficient evidence to sustain the conclusion that in quite a number of cases of suicide the underlying motive for self-murder was the insufferable torture of a hopeless case of cancer, and while here again the statistical evidence was incomplete and not available for the country at large, there were a sufficient number of individual cases on record to warrant the conclusion that the recorded cancer death rate was perceptibly diminished on this account. Cancer, in the experience of life insurance companies, had been the subject of occasional consideration but not of very extended and thoroughly specialized inquiry. A review of the available statistics, extending over more than a century, tended to confirm the conclusion that during the long intervening period of time the mortality from cancer had gradually and persistently increased, from a comparatively low rate of frequency to proportions which might appropriately be considered a menace to civilization. The earliest data are those of the London Equitable Society, for the period 1800-1821, in which, out of 1930 deaths from all causes, only 25, or 1.3 per cent., were from cancer; or, eliminating deaths under age 40, it appeared that out of 1,720 deaths from all causes, 24, or 1.4 per cent., were ascribed to cancer. A large number of physicians had been reached in an effort to improve medical education with reference to the earliest possible diagnosis of the disease. Since in Germany a large number of confinements were without proper medical attendance, but under the supervision of more or less qualified midwives, a special effort was made to reach this class, also with fairly satisfactory results. Finally, the public at large was reached through articles prepared by laymen for publication in the principal newspapers and periodicals. A special leaflet was prepared for public distribution on a large scale, which contained in the simplest form the required but pertinent suggestions to women, and especially that class approaching the change of life. One of the chief objects of the campaign had been to warn the public against blind faith in alleged cancer cures, and treatment by unqualified physicians or quacks. Winter was able, in 1911, to report that out of 1,000 cases of cancer of the uterus in his experience, 12 per cent. of the women had come to him during the first month of the probable beginning of the cancerous growth; in 30 per cent. of the cases the duration had been over one month; in 27 per cent. over three months, and in 40 per cent. over six months. One of the most recent contributions to the subject was a study of the statistics of cancer of the breast, by Dr. Ernst Schwarskopf, of the surgical clinic of Prague, who found that out of 350 cases of cancer of the breast, 321 were operable and only 39 were not operable. Practically all of the early cases which came to him, say of less than six months' duration, were within the operative group. He included a table giving the operative mortality among early surgeons, and those of more recent times, which showed a most gratifying reduction in the fatality rate. The investigation suggested a corresponding collective study of the subject for this country, which probably more than anything else would aid the efforts of the Society for the Control of Cancer to bring about a nation-wide interest in the facts, and by degrees, a reduction in the mortality rate from this always lamentable disease. For the present purpose the speaker had made a special analysis of the General Memorial Hospital of New York with the following results: This hospital, during the period 1902-11, treated 1,337 patients on account of malignant disease. Of this number, 531 were males and 806 females. Of the total number treated, 460 or 34.4 per cent. were cured; the number of improved was 391 or 29.2 per cent.; the number of not improved cases was 266 or 19.9 per cent., and 115 or 8.6 per cent. were either not treated or remained in the hospital at the end of the period. There were 105 deaths equivalent to a fatality rate of 7.9 per cent. There were the strongest possible reasons for believing, however, that if the cancer facts, including medical and surgical experience, were brought together in an authoritative form, they would not only materially aid the work of the American Society for the Control of Cancer, but the various cancer research funds, as well as the individual practitioner in his relations to the patients and the public at large. With this end in view, however, it was necessary that there should be intelligent and active cooperation between the laity and the profession, on the one hand, and the life insurance companies and the federal and state governments, on the other.

A Very Recent Investigation of the Outcome of the Cases of Cancer Recorded in the Johns Hopkins Hos-

pital and the Surgical Pathological Laboratory.—Dr. Joseph C. Bloodgood of Baltimore said that in 85 cases of benign lesions of the lip there were 100 per cent. cures. In lesions of the lip which to the sight and touch seemed benign, but which under the microscope proved to be early cancer, there were nine cures, 90 per cent. The failure to cure in the one case was due to an incomplete operation on the lower lip. When the lower lip only was removed and not the glands, they had cured but seven patients, or 63 per cent. The failure to cure in four cases was due to the involvement of the glands under the jaw. When the complete operation was performed, that is, removing the lesions of the lip and the glands of the neck, there had been 20 five-year cures, or 95 per cent. If the lesion of the lip had had previous treatment and had recurred on the lip, and the recurrence was cancer, the probability of a cure was reduced from 63 to 20 per cent.; 95 to 60 per cent.; and 50 to 20 per cent. The operation for recurrent cancer of the lip reduced the probability of a cure at least 42 per cent. Similar figures could be duplicated with lesions of the tongue, face, skin of the body and extremities. The same investigation was now complete with over 100 lesions of the skin and mucous membranes. As to cancer of the breast, in the least malignant forms of cancer of the breast there were 35 patients cured, five years or more after operation. There were 15 patients who came for treatment so early in the disease that a diagnosis of cancer could not be made out until at the operation when the lump was explored. Everyone of these patients had remained well five years or more, that is 100 per cent. of cures had been accomplished when the operation had been in the early stage in the less malignant forms of cancer of the breast. In this same form of cancer there had been 20 patients who came for treatment late. The same complete operation was performed, but the percentage of cures was but 64. Results, therefore, in the less malignant form of cancer of the breast were; 35 cases, 76 per cent. of cures; early cases 15, 100 per cent. of cures; of 20 late cases 64 per cent. of cures. The figures 35, 15 and 20 represented the actual number of cured patients. The percentage of cures for all cases of cancer in which complete operation could be done and in which the period of time since operation was five years, was now 42. Five years ago the percentage was only 35. In cancer control and precancerous lesions the great hope for increasing the number of cures of cancer and decreasing the number of deaths from cancer lay in the education of the public and the profession on the significance and potential danger of the precancerous lesion; the education of the surgeon as to the best surgery, and the education of the surgeon and the pathologist as to the recognition of the earliest stage of the beginning of cancer in the benign precancerous lesion. Incomplete treatment in the earlier stage of cancer often yielded a worse result than complete treatment in a later stage.

Officers.—The following officers were elected: *President*, Dr. John B. Murphy, Chicago; *Vice-President*, Dr. George E. Armstrong, Montreal; *Secretary*, Dr. Franklin H. Martin, Chicago; *Treasurer*, Dr. Allen B. Kanavel, Chicago. The next meeting of the Congress will be held in London, England, the fourth week in July, 1914.

A special committee was appointed to take up the work of standardization of surgery. This committee is composed of Dr. Lewis S. McMurtry, Louisville, Kentucky, chairman; Dr. Charles A. Peck, New York City; Dr. Henry P. Newman, San Diego, California; Dr. William L. Cousins, Portland, Maine, and Dr. Charles A. Davison, Chicago, Illinois.

Friday, November 14—Fifth Day.

Further Observations on Chronic Intestinal Stasis.—Sir W. Arbuthnot Lane of London mentioned a case that taught him how a patient might lead an active and happy life with only a small portion of the jejunum left after operation. In this case he removed a large portion of the jejunum after which the patient gained in weight rapidly and her strength improved correspondingly. The knowledge he gained from operating on this and similar cases had been of the greatest importance to him and had enabled him to save a number of lives. He referred to the circumstances which led him to remove the large bowel for chronic intestinal stasis. Chronic intestinal stasis was one of the most formidable causes of crime. Several patients had attempted suicide on account of chronic intestinal stasis, and in all such cases the removal of the large bowel had restored the sufferer, not only physically but mentally. The headache of varying intensity which these unfortunates suffered was also relieved by the operation, also the sleeplessness which accompanied it. Such patients put on fat; the pallor and staining of the skin disappeared and were replaced by a healthy color. He quoted Dr. James Mackenzie as saying that the bulk of degenerative changes in the heart were due to auto-intoxication. Dr. Mackenzie sent him a case in which he removed the large bowel with the greatest benefit to the cardiac condition, as well as to the general well-being of the patient. To summarize: Of 106 cases in which he had performed the short-circuiting operation for chronic intestinal stasis there had been four deaths.

On the Relation of the Ductless Glands to the Work of the Surgeon.—Dr. Roswell Park of Buffalo, N. Y., said that the internal secretions, so often spoken of as hormones, exercised an apparently controlling influence on many of the organs and functions, and this not alone on the ordinary body functions, but on the nutrition and regulation of individual organs and their particular activities even to the extent of becoming responsible for the development of certain mental traits or personal characteristics which might make or mar the individual, and might thus affect both his physical and intellectual welfare. For example, dwarfing or gigantism, each of which seemed due to the perverted activity of one or more of the ductless glands, naturally affected the social and school life of the growing child, and to such an extent that when conspicuous deformity resulted the entire course of life was affected to an extent which might be appalling. The hypophysis. As a whole this was a persistent organ, and, therefore, must have throughout life a continued function. Extracts of the whole gland increased blood pressure, caused uterine contraction, increased peristalsis, lower carbohydrate assimilation, and had a mydriatic effect. Used to excess they caused emaciation, degeneration of the liver, and increased metabolism. Extirpation produced in animals a peculiar cachexia, reduced pulse rate and respiration, fibrillary tremors, and death from apathy and coma. The overgrowth of the pituitary sometimes occurring after typhoid fever, or its clinical evidences, was to be considered as the result of toxins which stimulated its growth, as well as perhaps that of the epiphyseal bony borders, thus accounting for excessive overgrowth after this fever. Something of the same kind was often seen after marriage when the stimulation of the sex glands seemed to extend in short time to the hypophysis. Influence of the ductless glands in general on growth and development. In youth a loss of the genital glands led to overgrowth of the truncal skeleton, while the cranium did not seem to grow so fast. The distribution of fat about the body was disturbed. Epiphyseal consolidation in those locations where it naturally occurred least or last was delayed. This would account for the overgrowth, and it was not necessary to seek for its cause in the pituitary. The sexual glands, therefore, especially at puberty, exerted a marked influence over the development of the bones during the last portion of adolescence. Even to-day there was much to learn concerning the functions of the thyroid. It was once regarded as a reservoir by means of which blood pressure in the brain was equalized. It seemed to have an influence on the formation of the blood, slightly resembling the action of the spleen, possibly vicariating for it. The most important part of its work appeared to be elaboration of iodothyrin. Certainly iodin was its most important constituent, and in this the thyroid was richer than any other organ. The parathyroids. These four little bodies had only within late years been given their proper consideration, and in that short time had attained an importance in pathology quite disproportionate and in inverse ratio to their size. It was now generally believed that nearly all causes of tetany in man were of thyroidal origin, and due to defective function and consequent evidences of hypoparathyroidism. The thymus seemed to have had much to do with the development of the entire bony system; when its activity was reduced ossification was much interfered with, and proceeded irregularly and from scattered points; sometimes it failed utterly, as when the first pair of ribs failed to ossify, and the other were left weak and subject to early deformity. As to the parathyroids, we could scarcely do more than transplant. With the thymus we might have to extirpate or transplant. With the adrenals, transplantation had been attempted so far with questionable success. The genital glands might be removed for various causes, but removal was rarely demanded for the conditions under present consideration. Conditions which required surgical intervention were the thyroid, extirpation, which must be partial, save when dealing with malignant disease, ligation of blood vessels, transplantation as tracheotomy; operations for consequences of osteomalacia, achondroplasia, etc., involving the pelvis as cesarean section, etc., operations on the teeth and jaws for various congenital defects, cleft palate, etc.

A Summing-Up of the Goiter Question.—Dr. Charles

H. Mayo of Rochester, Minn., stated that various enlargements of the thyroid were the result of temporary excessive pathological demands, as at puberty, pregnancy, infection, menstruation, etc. Many goiters of the simple and mild exophthalmic type undoubtedly recovered spontaneously and, in many instances, various forms of medical treatment might hasten the recovery and restoration of the gland to an apparently normal condition. Simple goiters of long standing were often thrown into degeneration by giving iodine, causing thyrotoxicosis but not exophthalmos, although some symptoms were the same in these two forms of toxic goiter. Encapsulated adenomas and simple colloid goiters which had resisted treatment were in most instances best treated by removal of enough of the gland to remove the disease. In simple goiter the more enlarged lobe should be extirpated; encapsulated adenomas should be enucleated and thyroids which were bilaterally enlarged should have double partial resections with division of the isthums. Exophthalmic goiter was essentially a disease chronic in character, presenting exacerbations and ameliorations of symptoms extending through a period of months or several years. While this disease was amenable to surgical treatment by the removal of a large part of the hypersecreting gland, this procedure should by no means be considered emergency surgery, and during exacerbations all cases should be considered medical. Surgery was indicated during the upward wave of improvement. Extreme conditions, especially dilatation of the heart, might require preparation medically before instituting operative interference, and this should be confined to a preliminary ligation of the left upper pole. Should reaction follow this, ligation of the right upper pole was indicated a week later and thyroidectomy reserved until the patient had gained in weight and general health. Otherwise thyroidectomy was made at a second operation. In operating on the thyroid the best exposure was obtained by the curved transverse incision through skin and platysma between the anterior jugular veins, making a wide separation of the flaps and a midline vertical division of the muscles to expose the thyroid. This division should be made high near the insertion to break the line of the scar and preserve the function of the muscle. In some cases the wound might be closed without drainage, the cavity being filled with salt solution. As a rule, however, patients were more comfortable if drainage was instituted for 24 hours. A subcuticular closure of the wound with catgut, approximating the platysma muscle, secured an almost imperceptible scar. The great reduction in mortality following operations for exophthalmic goiter was due less to details of technique than to the better judgment in the preparation of patients and the selection of the time, type, and extent of operation.

Some Uses of Fat in Surgery.—Dr. John F. Binnie of Kansas City said that fat was well suited for transplantation in many instances. It was undoubtedly the connective tissue, the basis of the fat, which was of value in the transplant, but in other instances other varieties of connective tissue would be valueless as compared to that which was infiltrated with oil. The control of hemorrhage was difficult to obtain in wounds of the liver. Tampons of foreign material while useful had obvious objections. The sutures were liable to tear out in the friable tissues. Such wounds might be treated by omfental grafts. The omental plug became adherent to the raw surface of the liver wound, prevented hemorrhage, and became converted into fibrous tissue. A number of liver wounds had been successfully treated by omental tamponade. Dr. Binnie related numerous cases in which fat had been and could be used to great advantage as a transplant.

Peridental Infections: Their Relation to Neighboring Organs.—Dr. V. P. Blair of St. Louis stated that it was now recognized that the clinical manifestations of disease that we classify were in most cases the direct or indirect results of infections that gained entrance to or were harbored in, some particular organ or part of the body. The appendix, the urethra, the kidneys, the skin and the tonsils had been recognized as important primary or intermediary foci of infection. But while the mouth was the most prolific of all, still it was only lately that oral sepsis began to receive the attention that it deserved. Exclusive of the tonsils it was the teeth and their immediate coverings that here furnished the great atria of infection that menaced every tissue and structure in the body. Pyorrhœa alveolaris in an advanced form was not a common affection, while dental caries was the most common affliction of civilized races, hardly 5 per cent. being exempt. After caries had penetrated into the pulp chambers there was an open avenue to the vascular tissues about the apex of the teeth and thence through the blood and lymph streams, and possibly the nerves, to all of the body tissues. Pathogenic organisms lodged and incubating within the pulp chamber, and root canal might thus be disseminated. The percentage of antral empyemas that were credited to dental infections was variously estimated up to 50 per cent. Based upon observations made during eighteen years as demonstrator of anatomy in the dissecting room, it was his belief that infection of the antral mucosa of dental origin was rather rare but that infection and suppuration in the submucosa was exceedingly common. He had observed two cases of torticollis with early scoliosis that were relieved by opening an alveolar abscess in each. Of nine cases of Ludwig's angina which he had seen four were due to dental sepsis. The purely local effects of peridental infection were not always of a chronic character. They might be extremely acute and very extensive, going to an acute alveolar abscess, a necrosis, cellulitis, or adenitis. He had seen three cases of sarcoma or malignant endothelioma and one of Hodgkin's disease beginning in the cervical lymphatics. Two forms of cellulitis of the neck were worthy of special mention; one—the chronic Holz phlegmon, three cases of which he had observed to be of dental origin, and the so-called Ludwig's angina which latter when not promptly and properly treated in the past had been credited with a death-rate of 40 per cent. Hugo Stark had found in 113 children with chronically enlarged cervical lymph nodes that 80 per cent. had carious teeth and in 41 per cent. of this 80 per cent. no other cause, not even heredity, could account for the lymphangitis. In a few cases of tubercular adenitis the tubercle bacillus was found in a carious tooth corresponding to the infected node. It was now recognized that the so-called metastatic or secondary parotitis was directly dependent on oral sepsis traveling up the excretory duct and they had been able to express pus from Stenson's ducts before any suppuration was evident in the glands. Premature loss of the teeth might change the shape of the jaws and secondarily the nasal chambers. Irregular eruption had been cited as a cause of nasal spurs and deviation of the septum. Of one hundred and ninety-seven cases of ankylosis of the jaw, which he had been able to gather from the literature, in only five cases was infection of the teeth given as a cause. In twelve cases of his own two more were due to scar bands in the cheek due to intraoral slough, but a dental origin of the sloughing was not certain. Like any other joint the temporo-mandibular might be indirectly affected by chronic suppuration in any part of the body. The view that baldness may be dependent upon dental disorders is strongly supported by the French. Among the most interesting were the sensory, mental, and physical derangements that might be due to dental abnormalities. In ninety-four cases of tic douloureux which he had examined, dental irritation was the apparent cause in twenty-six, but thirty-five out of the ninety-four began in the third division of the nerve. Troemner observed that in fifty-eight cases of mental derangement thirty had impacted teeth, and that in twenty-two of twenty-eight cases of mental derangement operated upon definite improvement had taken place within two weeks after operation. He had also observed similar instances and in examining cases of epilepsy that were sent to him for operation he paid particular attention to the condition of the teeth.

The Surgery of the Faucial Tonsil as It Relates to the Functions of the Tongue and Soft Palate in the Production of Voice.—Dr. G. Hudson Makuen of Philadelphia said that the faucial tonsil differed from other tonsils not only in respect to the conditions attendant upon its location in the pharynx, but also in respect to its development. The faucial tonsil was not a homogeneous but a complex organ, and it was more highly specialized than the other tonsils which combined to form the so-called Waldeyer's ring. In addition to the possible systemic functions of the tonsil during childhood, it had during adult life certain important mechanical functions which were chiefly operative in phonation and articulation, and even in old age after it had undergone what had been called physiological sclerosis, its mechanical functions continued, and the tonsil then served as a protective agent to the faucial region in that it built up and strengthened that portion of the intrapharyngeal aponeurosis known as the capsule of the tonsil by the addition of its own connective tissue. The capsule of the tonsil was even more essential to the maintenance of the normal structural relations of the pharynx than the tonsil itself, and its removal was to be deprecated from the standpoint of one who had any regard for the phonatory and articulatory functions of the adjacent muscles. The mechanical functions of the tonsil in phonation and articulation were threefold: First, it served to maintain the normal anatomical relations of the

soft palate, the tongue, and the larynx; second, it served to keep the pillars of the palate apart and to direct them in their phonatory and articulatory activities; and, third, it had in itself important acoustic properties in artistic vocalization. An extracapsular tonsillectomy required a more or less extensive dissection of the mucous membrane covering the tonsil, the important muscles adjacent to the tonsil, a large portion of the intrapharyngeal musculoaponeurotic sheath, and in some instances also a portion of the peripharyngeal aponeurotic sheath. This extensive dissection resulted in a large granulating cavity in which union took place between the cut or lacerated surface of the mucous membrane, muscles, and musculoaponeurotic sheath or sheaths, binding them all together at central points of cicatrization, and several months after the operation the old landmarks that formerly characterized the distinctive features of the walls of the pharynx were practically gone forever. Instead of the beautiful clean-cut sharp edges of the palatal pillars during phonation and articulation and the well-marked pharyngeal recesses, both between and on either side of the pillars, they had plain oval pharyngeal walls with occasional bands of tense fibrous tissue coming into greater prominence when the mouth was open and the tongue depressed. Moreover, the normal mucous membrane of the parts having been destroyed, its place was occupied by smooth cicatricial tissue having a glistening surface and no mucous secretion whatsoever. The three important peripheral organs of phonation and articulation, viz., the soft palate, the tongue, and the larynx, were anatomically and physiologically interdependent, and they possessed many points of similarity. The integrity of the soft palate was essential to the distinctive structural characteristics of the pharynx and to the normal action of the tongue and larynx. The palatopharyngeus muscle, owing to its direct connection with the larynx, had important cord-stretching functions, and the valvular action of the soft palate in phonation and articulation was well known. Radical surgery of the tonsils, the doctor said, must necessarily result in a greater or less distortion of the pharyngeal structures, and, therefore, in an injury to the voice. The normal tonsil or the one in a healthy condition and of normal or approximately normal dimensions was not only beneficial to the voice, but it was absolutely essential to the attainment of the highest artistic results in singing and speaking, but just as the normal tonsil was helpful in voice production, the abnormal tonsil might be altogether prejudicial, and it might be prejudicial to such an extent as to make some kind of tonsillar surgery absolutely imperative. Before doing radical tonsillar surgery it seemed only reasonable to demand a thorough differential diagnosis. It was easier to enucleate than it was to investigate, and especially was this true with their improved technique, in the perfection of which they had spent so much valuable time. Future years would find them trying not how to enucleate, but how to avoid enucleation. The extracapsular tonsillectomized pharynx was always necessarily a damaged pharynx, and the operation ought to be done only when absolutely necessary, and when the damage to the pharynx and to the individual threatened to become greater by leaving it undone. In the majority of instances the only good reason for doing an extracapsular tonsillectomy was the difficulty of doing an intracapsular tonsillectomy, which consisted in a careful dissection of the gland from within its pocket in the intrapharyngeal aponeurosis. This was a difficult but not impossible operation, and the fact that some tonsillar tissue might remain adherent to the capsule was no objection to it because when the operation was properly performed good drainage, the *sine qua non* of every operation, would be thoroughly established.

Operations on the Extraocular Muscles.—Dr. Edward Jackson of Denver said that operations on these muscles had had periods of great popularity, and almost complete disuse; because of failure to apply well-known facts of physiology to the ocular movements. Most movements required the cooperation of all the muscles; and the operation on one muscle changed the balance for all movements. Tenotomy of the internal rectus and external rectus were liable to leave the position of the eye in control of the secondary adductor muscles; the superior and inferior recti, or the secondary adductor muscles the obliques. Contraction of the secondary adductors has as much effect in producing convergent squint as contraction of the internal rectus. Hence tenotomy should be extended to the nasal margins of the tendons of the superior and inferior recti. The vertical movements were intimately associated with wheel-rotation of the eye. Paralysis of the superior obliques was to be corrected by transplanting the insertion of the superior rectus back and out, so that it would have more power to cause wheel-rotation with less power to turn the eye up. By changing the insertion of a muscle upon the eyeball its function could be radically altered.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 16, 1913.

The President, Dr. William M. Polk, in the Chair.

Wesley M. Carpenter Lecture.—Dr. William H. Park delivered this lecture. His subject was "Antitoxin Dosage, Anaphylaxis, Active Immunization Against Diphtheria." He said that the single dose of antitoxin in diphtheria which was advocated by the writer at a meeting at the Academy last year was again advised and further arguments given. Experimental evidence was presented which showed that in animals, a single dose of antitoxin given after infection would save when the same and even larger amounts given in divided doses would utterly fail. Additional cases of diphtheria treated with one subcutaneous injection of antitoxin were detailed in which the antitoxin content of the blood was tested from hour to hour. This continued to increase in all cases for the first three days. The apparent improvement following a second dose of antitoxin was shown to be due, partly to the continued absorption of the first injection, and partly to the necessary time required for recovery of the local process. When the first injection was of fair size, the second added no real effect. During the past year, over 95 per cent. of all cases of diphtheria treated at the Willard Parker Hospital have received but one injection of antitoxin and the mortality has been the lowest in the history of the hospital. The usual amount given is 5,000 units in the milder cases, 10,000 units in the moderate or rather severe cases and 20,000 units in the malignant cases. In the latter, the antitoxin was given intravenously whenever possible. The same number of units given intravenously was fully fourfold the value of the same amount given subcutaneously. Intramuscular injections had the advantage over subcutaneous, in the rapidity of absorption, but when fairly large amounts were given, it was difficult to insure that the antitoxin remains within the muscle. As a rule cases not requiring intravenous injections could be treated by either the subcutaneous or intramuscular methods. So far as the danger of anaphylaxis from primary subcutaneous injections were concerned, the results in the Health Department service were given. Over 30,000 cases of diphtheria had been treated with antitoxin since 1895 in the contagious disease hospitals. There had been no fatal case of anaphylaxis and only one in which dangerous symptoms developed. In over 100,000 persons injected outside of the hospitals, there had been but two fatal cases, in one of which marked status lymphaticus existed. In a great many children in the scarlet fever service, a primary immunization injection of diphtheria antitoxin had been followed by a second larger subcutaneous injection at a period at which anaphylaxis should be marked. In no case had any dangerous symptoms developed. Unless, therefore, there was a history of asthma, there seemed no reason to avoid the giving of a primary serum injection on account of fear of later having to give another injection, either in the near future, or after a number of years. Following the example of von Behring a number of children had been injected with toxin antitoxin mixtures to actually immunize them against diphtheria. Different proportions of toxin and antitoxin had been used. The best preparation seemed to be one in which the toxin, so far as its poisonous effects were concerned had been somewhat more than fully neutralized. About four-fifths of the children receiving such an injection developed after 10 days from ½ to 2 units of diphtheria antitoxin for each cubic centimeter of blood. This persisted for a number of months in gradually lessening amounts. It was probable that there was a distinct need in cities where diphtheria was endemic for active immunization. For outbreaks in institutions and in families where diphtheria was present, passive immunization was undoubtedly the better method.

College of Physicians of Philadelphia.

At a stated meeting held November 5 Dr. Samuel D. Risley read "A Memoir of the late Dr. Roland G. Curtin."

Dr. George E. de Schweinitz presented, on behalf of the donor, Mrs. Byron P. Moulton, a portrait of the late Dr. Charles T. Hunter, a graduate of the medical department of the University of Pennsylvania in the class of 1868, at one time resident physician in the Pennsylvania Hospital, later demonstrator of anatomy and demonstrator of surgery in his alma mater, surgeon to the Episcopal

Hospital, the University Hospital and the outpatient department of the Pennsylvania Hospital.

Dr. Gwilym G. Davis read a paper entitled "Results of the Operative Treatment of Poliomyelitis, with an Illustrative Case." He exhibited a boy, 11 years old, who had an attack of poliomyelitis in the first year of life, and who after treatment with massage and electricity for a year or two wore braces for a period of seven years. The left lower extremity was flail-like and everted, and there was a tendency to knock-knee. With a view to relieving the conditions and conferring upon the lad some degree of usefulness arthrodesis was practiced at the ankle-joint, the outer tendon of the biceps was attached to the patella and the fascia lata was slit and a portion attached to the great trochanter of the femur. The result after a reasonable time, quite realized expectations and the boy since has been able to get about with comparative ease.

Drs. Jay F. Schamberg, A. I. Ringer, G. W. Raiziss, and John A. Kolmer presented a communication entitled "Research Studies in Psoriasis," accompanied with lantern demonstration. With a view of determining whether psoriasis was of parasitic or neuropathic or metabolic origin a systematic and detailed study was undertaken in the laboratories of the Polyclinic Hospital with the aid of a grant by an anonymous benefactor. It was found in all of the cases studied under exact conditions that nitrogen-retention was a characteristic and constant feature, and that the symptoms improved whenever nitrogen was withheld from the diet and became aggravated when the amount of nitrogen in the food was increased. The explanation probably resided in the fact that nitrogen was largely taken up at the site of the lesions, but whether this relation was causative or consequent had not been determined. Careful bacteriological examination failed to disclose the presence of a specific microorganism, but there was some response to the complement-fixation test.

Dr. Robert N. Willson read a paper entitled "The Treatment of Heart-disease." He dwelt especially upon the necessity of directing attention to the heart-muscle. Of primary importance is the matter of prophylaxis, and this has to do with questions of food and rest and activity and indulgence in toxic substances, such as alcohol and tobacco, and the avoidance of infectious disease. In the line of direct treatment first place must be given to rest, and, in addition to the recumbent posture and freedom from care and anxiety, opium, in the form of morphine, is at times of the greatest usefulness. Of course, intoxication from within must be avoided and the activity of the bowel and the kidneys sustained. Applications of cold or of heat over the heart, with or without blistering, are often serviceable.

Dr. James E. Talley demonstrated on the screen a large series of electrocardiograms by means of which it is possible to disclose the presence of conditions that otherwise would remain unrecognized.

Meningitic Symptoms Caused by Escape of Threadworms Through a Perforated Appendix.—R. N. H. Anglin Whitelocke reports the case of a girl aged 5½ years who was admitted to the hospital with a diagnosis of tuberculous meningitis. The difficulty in making a rational diagnosis was increased by the existence of an almost positive tuberculous history on the one hand, and by the entire absence of any other known cause on the other. The nervous symptoms played such an important rôle, and the abdominal pain was so generalized at the first and subsequent examinations, that there was little to direct attention to the local focus in the lower abdomen. The only truly localizing and diagnostic symptom was the continued flexure of the right lower limb. A true organic nerve lesion was imitated through the reflex irritation produced by the active animalcules wriggling about on the exquisitely sensitive peritoneal surface. There was an immediate cessation of the urgent symptoms as soon as the cause had been removed. Especially interesting to the surgeon is the behavior of the omentum in coming to the rescue in this case, as it so often does in others, by limiting and preventing the extension of local mischief. In this particular case it appears not only to have checked the peregrinations of many of the worms, but it seems to have actually killed them. The colony of dead worms was to all appearances enwrapped by the adherent omentum, and the individuals were held in bondage as it were in the immediate neighborhood of their place of exit from the cavity of the appendix. There was an absence of infection as the result of the perforation in spite of the free escape of a foul semi-purulent discharge on to the peritoneal and wound surfaces. A drainage-tube was used only during the first twenty-four hours after the operation. The case is unique in the author's experience.—*British Journal of Children's Diseases.*

Therapeutic Hints.

The Treatment of Facial Acne.—In moderate degrees of this condition Brocq recommends the following ointment:

℞ Camphor,
Resorcin, aa 0.50 gram.
Precipitated sulphur, 3 grams.
Soft soap, 0.75 gram.
Prepared chalk, 6 grams.
Pure vaseline, 10 grams.

This is applied after the face has been thoroughly bathed with hot water and soap or with ichthyol soap. The ointment is kept on all night and washed off the following morning.

Sulphur lotions are sometimes preferable to the above. The following has produced good results:

℞ Precipitated sulphur, 25 grams.
Spirits of camphor, 60 grams.
Rose water,
Distilled water, aa 200 grams.
Glycerine, 15 grams.

This is applied by means of a pledget of absorbent cotton.—*Bulletin Général de Thérapeutique.*

The Treatment of Ejaculatio Præcox—S. Baglioni and G. Amantea have essayed the treatment of this condition by instructing the patient to apply to the glans and chiefly to the coronal sulcus, a five per cent. solution of stovaine. This solution is applied to the parts by means of absorbent cotton soaked in it, and is retained for twenty minutes preceding coition. The result is a partial anesthesia of the glans which considerably prolongs the act of intercourse. Ointments containing the same percentage of stovaine were ineffectual.—*Il Policlinico, Sezione Pratica,* October 12, 1913.

Massive Injections of Mercury in the Treatment of Syphilis.—Ehlers of Copenhagen, in a communication made before the recent International Congress of Medicine, reported his investigations on this subject. His object was to attain Ehrlich's *therapia sterilisans magna* by means of supermaximal injections of mercurial salts. He employed the solution of benzoate of mercury, as recommended by Desmoulière and Lafay:

℞ Benzoate of mercury, 1 gram.
Sodium chloride, 1 gram.
Milk sugar, 10 grams.
Sterile distilled water, 100 grams.

Ehlers found that a 2 per cent. solution of benzoate of mercury was still better than the above. He began with injections of 2 centigrams each, but he proceeded cautiously. He gradually increased the dose to 25 centigrams. Favorable results are reported with the use of this method which is regarded as superior to the use of salvarsan, at least from an economic viewpoint.—*Revue de Thérapeutique,* October 1, 1913.

Two New Arsenical Derivatives.—Under the names "galyl" and "ludyl" two new antisyphilitic arsenical compounds have recently been described by de Beurmann, Mouneyrat, and Tanon. Galyl is tetraoxydiphosphaminodiarsenobenzol. Ludyl is phenyldisulphaminotetraoxydiaminodiarsenobenzol. These compounds are said to have the following advantages; they are not vasodilators; they do not coagulate albumin; they are but slightly neurotropic; they are readily soluble in distilled water; they are sterilized by heat; they have a marked parasitotropic action upon not only the microorganism of syphilis, but also upon the other spirilla and the trypanosomes.

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Original Articles.

THE FREUDIAN CONCEPTION OF THE PSYCHONEUROSES.*

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Of all the contributions to medical knowledge made in the past twenty-five years there are few, if any, that have excited more widespread interest, discussion, and, I may add, antagonism than has the work of Freud in abnormal psychology. The fact remains, however, that the number of physicians who have put Freud's teachings to any practical test is still extremely small, and, consequently, there has been little opportunity for the profession at large either to observe the results of psychoanalytic treatment or to form undistorted conceptions of the principles upon which it is based. I have therefore attempted to outline some of Freud's most important doctrines concerning the psychopathology of the neuroses, hoping that such a presentation may not only prove to be of interest to this society, but that it may tempt some to investigate personally this important field of work.

But before taking up the psychoneuroses from a psychological standpoint, let me first identify them clinically. The psychoneuroses as a whole may be subdivided into three groups:† Hysteria proper or "conversion hysteria," anxiety hysteria, and the compulsion neuroses. All these three conditions are equally disorders of the psyche, but while the manifestations of anxiety hysteria and of the compulsion neurosis occur chiefly in the emotional and volitional spheres, the symptoms of conversion hysteria are somatic ones. Thus in conversion hysteria we have the pains, anesthesias, paralysis, contractures, tremors, or convulsions, which are known well enough to demand no description.

In anxiety hysteria fear is the chief symptom This fear is generally referred to some external situation or condition, and thus we have fears of open places, of crowds, of being alone, or of darkness; or fears of dirt, of contagion, of knives, or of animals. These fears are, in effect, prohibitions which limit, in varying degrees, the patient's activities. He is comparatively free from fear as long as the prohibitions can be obeyed. If they are overstepped, however, and he finds himself in the dreaded situation, there ensues an attack or panic, *i.e.* a feeling of intense terror accompanied by such symptoms as tachycardia, dyspnea, perspiration, etc.

The third group of psychoneurotic disorders, the compulsion neurosis, includes those conditions commonly called psychasthenias, namely, morbid doubts, fixed ideas, or obsessions. As examples I may mention the following: A lady is tortured by the fear that she might have caused the *Titanic* disaster, although she realizes that there is no possibility of her having done so. Another doubts continually whether she is telling the truth and takes the most elaborate pains to verify even her most simple and harmless statements. A man is forced to ponder over the question of how people would appear if their heads were on a different part of their bodies. Accompanying these morbid thought activities there is always a more or less pronounced feeling of anxious uneasiness. To many of you, cases of compulsion neurosis and of anxiety hysteria as well, are doubtless known under the much misused term, "neurasthenia."

Returning now to the subject of my paper, let me introduce an important part of Freud's theories by calling your attention to certain of the phenomena of hypnosis. Suppose I hypnotize a man and give him the suggestion that fifteen minutes after he awakes his arm will become completely paralyzed. I rouse him from the trance; he remembers nothing that I have said to him while it lasted. Nevertheless, when fifteen minutes have elapsed, he suddenly discovers that he is utterly unable to move his arm, and, until I give him the contrary suggestion, this condition of paralysis remains.

This matter I bring up in order to show to what an extent a person may be affected by ideas that are entirely out of his consciousness. In the case of my hypnotic subject, my suggestions, all the ideas causing his artificial paralysis, he has completely forgotten. Though his paralysis is caused by ideas alone, these ideas are not in his consciousness. But since these ideas, although out of consciousness, influence his motor system just as effectively as they could if in consciousness, we must assume that they have some sort of psychic existence, and we may express this by saying that the ideas are in *an unconscious state* or, preferably, in *the uncouscious.*

The psychological concepts, "unconscious ideas" and "the unconscious," are an essential part of the theory of the psychoneuroses. The symptoms of these disorders have been shown by Janet, Prince, Freud, and others to result primarily, not from a disturbance of consciousness, but from the activity of certain groups of ideas which exist independently of the patient's main stream of consciousness, and of which he is not aware. These split-off psychic groups, or, as they are called, complexes,‡ are there-

*Read before the Society of the Alumni of Bellevue Hospital, May 14, 1913.

†In practice we seldom see pure cases of any of the three types of psychoneuroses. Most of our cases are "mixed neuroses," *i.e.* they show symptoms belonging, both psychologically and clinically, to more than one of the groups mentioned above.

‡By the term "complex" is understood all the ideas, impressions, feelings, etc., belonging to, and associated with a given theme or subject. Thus we may speak of a "father complex," a "sadistic complex," a "money complex," a "baseball complex," etc. A complex is not necessarily wholly unconscious, but a part, at least, is unconscious.

fore quite analogous to the forgotten suggestions in the hypnotic subject. Thus, we may regard the psychoneurotic symptoms and the posthypnotic phenomena as counterparts of one another. Neurotic symptoms and suggested paralysis both depend upon mental activity which goes on without the individual's conscious knowledge—depend upon, in other words, thought activity *in the unconscious*, or, upon *unconscious* ideas.

But while others went little beyond simply determining the existence of pathogenic groups of unconscious ideas in the psychoneuroses, Freud carried his investigations much further. He wished to know what these unconscious ideas were, why they became unconscious, and what could be done about them. Without attempting to give the history of his efforts to solve these problems, I shall state at once that, in the opinion of those who have followed his work carefully, he has succeeded most brilliantly. Not only was he successful in determining the origin, nature, and content of those thought complexes that made his patients sick, but, in addition, he made the interesting and important discovery that when these complexes are completely brought back into the consciousness of the patient the symptoms of the malady permanently disappear. Thus originated the therapeutic method known to us as psychoanalysis.

Of the various methods devised by Freud for ascertaining the content of unconscious complexes, I shall mention only one, that of "free association." It is carried out as follows: The patient is given a comfortable position upon a couch or in an easy chair and is then instructed to tell all the thoughts that pass through his mind. He must, as far as possible, abandon all tendency to direct or control his thoughts, and must become, as it were, a mere spectator of his own mind, repeating without comment or critique whatever drifts through his consciousness. Proceeding in this way the patient furnishes a great mass of psychic material—fragments of history, memory impressions, long forgotten desires, ambitions, day-dreams, etc.—which is brought out in a more or less rambling and disconnected manner. This material is of more value than one might at first suspect. For when, in freely associating, the patient abandons all conscious effort to control and direct his thoughts, the trend of his associations is then in great measure determined by his unconscious complexes, and, consequently, the associative material obtained either gives some hint as to the content of these complexes, or contains elements directly from them. By studying these hints and fragments, therefore, an accurate knowledge of the patient's unconscious trends may be ultimately obtained.

But I wish to emphasize, however, that the process of free association does not proceed as smoothly as one might expect. Of course, some difficulties are due to the fact that the patients are unwilling to relate thoughts of a private or embarrassing nature. But other and greater difficulties arise from another source. Not infrequently the patients stop and insist that they have nothing more to tell, that their minds are absolutely blank. They assure the physician that they have told everything, that nothing further occurs to them, and that it is useless to continue.

Such interruptions of the flow of associations are of great theoretical as well as practical interest. For, as Freud learned, these blockings of thought are most apt to occur when some idea contained in, or closely related to an important complex has entered the patient's consciousness, or is about to do so. In other words, when the patient is on the point of thinking of something important he is apt to feel that he is thinking of nothing. This peculiar circumstance is explained when we learn that the patients *do not wish to know what their unconscious complexes contain*, and that, furthermore, there exists some psychic force or mechanism, which by a censor-like action tends to protect them against acquiring such knowledge. This force Freud has called "repression." To its action may be attributed most of the blockings that occur in free association, while from the necessity for overcoming or circumventing this action arise the greatest difficulties of psychoanalysis.

It is now desirable that we consider what repression is and how it originates and, at the same time, arrive at some explanation of the fact that patients are unwilling to possess conscious acquaintance with their unconscious thoughts. Some preliminary statements, however, are necessary.

In the first two or three years of childhood the so-called higher or inhibitory emotions are not yet developed. Practically speaking, the child knows no shame, no disgust, no sympathy, no morality. There is therefore nothing within himself to prevent his gratifying any desire or impulse he may happen to have. On this account most of his voluntary activities have no other motive than a desire to obtain immediate pleasure.

In the first months of life the pleasures of the child are very simple sensory ones—the taking of nourishment, the movement of the limbs, the sensations derived from being rocked and carried, certain agreeable feelings that accompany the voiding of excrement, etc. But when at the close of the first year the child's environment begins to become increasingly important and interesting to him, a corresponding widening of his sphere of desire occurs. He is no longer satisfied with simple bodily feelings; he now wants to examine everything he sees, to be continually in the society of certain preferred persons, to possess all objects that attract him, etc. An important group of feelings and longings allied to, or forerunners of, the complexly organized sex-impulse of the adult become more and more prominent and demand satisfaction. In fact, the desires of the child soon become so numerous and varied that to fulfill by actualities even a small part of them would be utterly impossible.

But a new factor comes into play when the child begins to imagine and "make believe." He is then no longer entirely dependent upon reality for the gratification of his desires. If, for example, he wants a horse but cannot get one he may achieve a partial gratification of this desire by simply *imagining* that he has one; or, combining imagination with a bit of reality, he can be quite content with a broomstick. It thus becomes possible for the child with the aid of his imagination to gratify in one way or another the larger part of his desires.

But this happy state of affairs does not continue indefinitely. In the third or fourth year the inhibitory feelings make their appearance, and, as a consequence, certain pleasures in which the child formerly indulged without hesitation he now learns to regard as shameful, immoral, or disgusting. There results in this way a conflict between desires for certain physical pleasure-activities on the one hand,

and ethical or esthetic feelings on the other. In this conflict the higher emotions ordinarily triumph and cause the child to abandon of his own accord certain former pleasures and to suppress his desires for the same. This renunciation includes not only objectionable pleasures that concern reality, but also, though to a lesser extent, the corresponding pleasures of the imagination. That is, the child not only feels that he must not *do* certain objectionable things, but also that he must not *think* them or *wish for* them. Finally a point is reached when the sway of the higher emotions is so powerful and the resulting suppression of certain cravings so effective that they disappear from this consciousness entirely. That is, conscious longings for the pleasures now regarded as objectionable are no longer felt in response to the stimuli or conditions formerly inducing them and furnishing such gratification. On the contrary, only displeasure is felt; *i.e.* the inhibitory feelings of shame, disgust, etc., which originally lead to the suppression of desire.*

This complete reversal of reaction—repugnance replacing desire; displeasure replacing pleasure—constitutes the major part of the psychological process to which we have referred by the term *repression*. The desire which disappears from consciousness and is replaced by reactions of an opposite character is said to be *repressed*. It is clear, therefore, that the force which we have spoken of as repression is essentially an affective process, that is, it depends upon *feelings*. We are therefore prepared to learn that the activity of repression is not limited to excluding from consciousness simply the desires of childhood which become objectionable. It may, as psychoanalytic experience has adequately demonstrated, operate in the same way upon any desire or temptation arising at any time of life, upon the associated ideas or memories belonging to such temptations, or, within certain limits, upon almost any sort of psychic material that becomes out of keeping with the individual's main trends of conscious thought. We might, therefore, conveniently describe repression as *a sort of forgetting* which tends to remove from one's consciousness those wishes, memories, or ideas which, upon ethical or esthetic grounds especially, have become unpleasant or offensive. It is a normal and necessary process; one which goes on in all sane and nondefective people after the first years of childhood are passed. There need be no doubt of its existence. All of us, whether neurotic or not, find it difficult to recall having had many desires or temptations of which we are sincerely ashamed. All of us find it comparatively easy to forget facts which might tend to convince us that on certain occasions we have, or might have, acted in a selfish, conceited, dishonorable, or otherwise objectionable manner.

But our interest in the subject of repression concerns the material repressed even more than the process itself. For the repression of any psychic element means merely that the individual ceases to be conscious of it; not that it ceases to exist. The repressed element is not destroyed, but simply rendered unconscious. In the unconscious, the repressed material may be preserved almost indefinitely, and, entirely unknown to the individual's conscious personality, it may to a surprising extent influence his life and actions. Indeed, it is this repressed material—the abandoned pleasure-cravings and make-believes of childhood; the overcome temptations, sensual day-dreams, and suppressed hatreds of later life—that forms the pathogenic groups of unconscious ideas in neurotics upon which the multitudinous symptoms of the psychoneuroses depend.

But now a question arises. If repression is a normal process; if everyone has banished different groups of objectionable thoughts to the unconscious, then everyone must have unconscious complexes. Why, then, do these unconscious complexes make some persons sick and not others? Why is not everybody neurotic?

Questions of this kind cannot be fully answered. It is sufficient for our purposes here to know that normality or abnormality depends upon the extent and stability of repression. The normal man is he who overcomes the desires and tendencies that are objectionable to him and confines them to the unconscious permanently.* Those who repress to a very small extent, or in whom repression fails absolutely, are the defectives, certain of the insane, and the sexual and civil criminals. Between these two extremes comes the neurotic. The neurosis corresponds to a *partial* failure of repression. The neurotic neither fully gives way to his primitive or perverse tendencies, nor does he subdue them as completely as does the normal person. The neurotic compromises. He excludes his objectionable desires from consciousness, and prevents any *direct* gratification of them. Yet he does permit an indirect gratification, which expresses itself in consciousness through a sort of make-believe like that of childhood. But this make-believe coming from the unconscious is carried out in ways so roundabout, distorted, and disguised that he has no conscious awareness that any wish-fulfillment is going on. The phenomena produced in this way, representing a gratification of cravings no longer conscious, are known to us all as neurotic symptoms.

A convenient though not altogether accurate way of representing to ourselves the composition of the neurosis is for us to think of the neurotic as a being with two minds in one body. The one mind, corresponding to the conscious personality, possesses all the moral and esthetic feelings and strives to conform to the requirements of culture and civilization. The other mind, corresponding to the unconscious, contains all those primitive, instinctive, and childish tendencies rejected by consciousness. It knows no law and no motive except the pursuit of pleasure. But the first mind, corresponding to consciousness, dominates the individual's thoughts and actions and opposes the tendencies of the second. Therefore, to express itself and obtain pleasure through the actions or conscious thoughts of the individual, the second mind is forced to resort to measures so indirect, distorted, or disguised as to deceive the first. That is, *the symptoms must be unintelligible to the consciousness of the patient in order for them to*

*For instance, brothers and sisters when very small often like to go to the toilet together. Later, when their inhibitory feelings have developed, any circumstance which could compel them to perform their excretory acts in each other's presence would not only fail to give pleasure, but would cause positive displeasure; that is, embarrassment, disgust, etc.

*This, of course, is true only in general. Even the most normal and moral person never achieves an absolutely complete suppression of all the inner tendencies to which he objects. It should be remembered also, that when a tendency generally considered undesirable is manifestly unrepressed in a given individual, one must not invariably consider this a failure of repression. There may have been no effort to repress this tendency, *i.e.* the individual's education and environment may have been such that he never learned to regard it as objectionable.

exist. And that these symptoms seem unintelligible, bizarre, or meaningless to other people, is, under these circumstances, not at all surprising. The general fact that the neurotic derives pleasure from the neurosis is, however, by no means unrecognized even by superficial observers, as the mocking statement that "So-and-so is enjoying very poor health" obviously bears testimony.

The theory of unconscious wish-fulfillment in the neurosis can perhaps be made more acceptable and understandable by means of examples. I will begin with the very simple analysis of an hysterical symptom. A clinic patient, who exhibited various phobias and hysterical manifestations, once came to me with the complaint that for three weeks she had suffered with unpleasant abdominal paresthesias; viz., sensations of fullness and heaviness in the hypogastric region, together with a feeling as if something was moving in her pelvis, and that her womb was going to burst. In addition there was a considerable tendency to nausea and vomiting, and an emotional condition of such great anxiety and depression that she was unable to work.

The analytic explanation of these disturbances is as follows: She had been married eight years but had never been pregnant. She attributed her childlessness to the fact that before their marriage her husband had had gonorrheal epididymitis. She had always been very desirous of having children and particularly so during the last few years as her husband's business keeps him away from home much of the time and she is very lonely in his absence. She feels that if she had a child to occupy her mind she would be much happier and more satisfied with life.

Under such circumstances it is perfectly obvious that she could scarcely avoid thinking that, at the expense of only a temporary relaxation of her moral scruples, she need not continue to be deprived of the joys of motherhood. A train of thought of this nature was brought into prominence two or three weeks before the onset of her abdominal symptoms by some unmistakably amorous advances on the part of her sister's husband. The temptations thus arising were particularly powerful for the man was not only very attractive to the patient, but, as he already had several children, she felt no doubt as to his reproductive ability. Still later a new motive for infidelity was added. The patient suddenly made the discovery that her husband had been having sexual relations with another woman. Two days after this discovery the abdominal symptoms which I have mentioned appeared. Their origin is clear. On the one hand two motives, a desire to pay back her husband in his own coin, and a great longing to have children, impelled the patient toward breaking her marriage vows. On the other hand, all her feelings of morality and fidelity, and her horror at the thought of sexual relations with her own brother-in-law, not only opposed any such action, but made it (as far as her consciousness was concerned) absolutely unthinkable. The result was a compromise. She remained true to her husband, but she developed a symptom the significance of which is evident. It is a sort of *make-believe* pregnancy, which not only serves as a partial fulfillment of the desires she is repressing, but at the same time flgives her a kind of revenge upon her husband by causing him the annoyance of having on his hands a wife who is sick and irritable.

I hope that in relating the findings of the analysis of this symptom, I have not given the impression that the facts I have disclosed were clearly before the patient's consciousness at the time the symptom developed, or that she felt no opposition to knowing them at the time of the analysis. Either impression would be entirely incorrect. I am sure that to direct questioning she would have replied that she had gotten over wanting children, that she had no recollection of any thoughts of infidelity, and that her brother-in-law's advances occasioned her no other feelings than horror and disgust. The thoughts brought out by analysis were, during the period the symptom existed, almost entirely out of her consciousness; that is, were *repressed,* and in order for her to become conscious of them she had to take sides with me against herself, overcome her resistances, and realize things that she did not at all want to know. The same forces that led her to repress immoral thoughts in order to retain her self-respect, opposed the return of these thoughts to her consciousness in the analysis. The same resistance is met with in every analysis. No person willingly realizes the content of his repressed complexes, and since these complexes contain those very thoughts that he would be most ashamed of having, an unwillingness to be made aware of them need not be considered strange.

In the preceding case we have seen that an objectionable idea, serving as a wish-fulfillment, is converted into a bodily symptom. In anxiety hysteria no such somatic conversion takes place, and the chief symptom of the disorder is anxiety or fear. This fear, like all other psychoneurotic symptoms, results from imperfectly repressed desires. But since many have found it difficult to believe that desire could, in any way, be the cause of fear, let me devote a few moments to the discussion of this peculiar relation.

Suppose a man has an intense craving for alcohol. It is perfectly clear that as long as he had every opportunity to gratify this desire and no objection to doing so, his desire would cause him no fear. But suppose that, through some circumstance such as a religious conversion, he suddenly stops his alcohol and resolves never to touch it again. It is not unreasonable to conclude that under such circumstances he might be afraid to go into saloons. His desire would then be the cause of fear. Now, if it were possible for him to suppress his desire to such an extent that he hardly realized he had it, yet at the same time it remained as strong as ever—in other words, if he could make the desire unconscious without diminishing its vigor—we might expect him to feel some sort of fear of being in saloons, restaurants, and other places where liquor is served, *without being aware of the cause of this fear.* His condition would then be exactly like that of a person suffering from anxiety hysteria. But, as a matter of fact, a chronic desire for alcohol cannot exist in an unconscious state. As we have seen, however, other desires of a more natural sort can so exist, and these desires, operating in exactly the same way as in the case we have imagined, can produce fear. This, in fact, is the mechanism of anxiety hysteria.

Let us now attempt to illustrate this by a few extracts from the analysis of a case. A woman of twenty-three, married three years, began six or seven years ago to experience a marked feeling of fear if she were left alone in the house. She felt a still greater fear of having to pass through any hallway alone, and, if she were compelled to do so, she invariably had intense panics, accompanied by weakness, tachycardia, pallor, etc. It was not until

she had been under my care some time that she told me that associated with these panics was the terrifying idea of there being someone behind her who was about to jump upon her back and choke her. That this was pure imagination she was, of course, quite aware. She had a number of other phobias and obsessions, but I will not describe them here, for a full report of the analysis of even those fears I have mentioned is too long to be attempted. I shall relate only enough to make the fear understandable and to show the psychological mechanism of anxiety hysteria.

The repressed desires upon which the above mentioned fears were based are of such a nature as to require a little explanation. I have previously alluded to the simple sensory pleasures of the infant. The most primitive ones consist of different sorts of stimulations of certain sensitive parts of the body; namely, the genitals, the urinary and intestinal orifices, the mouth, and the mammary regions. These pleasurable stimulations are, in fact, incidental to such necessary acts as the taking of nourishment and the voiding of excrement, or they may be produced artificially through masturbation, thumb sucking, etc. Normally these sensitive zones, except the genitals and, in females, the breasts, lose their irritability and become incapable of furnishing any positively pleasurable sensations. In some individuals, however, the infantile irritability of one or more of these zones may persist, and the region be susceptible to pleasurable stimulation throughout the person's life. When this does occur, the part retaining its earlier sensibility may usurp the rôle in the person's psychosexual life ordinarily played by the genitals. This is exemplified in certain perversions. The passive pederast has little or no interest in the normal sexual act, but does crave coitus per rectum—or, in other cases, the mouth attains an erogenous significance normally belonging to the genitals. In a different group of cases—neurotics, in fact—though the sensibility of an erogenous zone may be retained, the longings and fantasies relating thereto are not, as in the perversions, *conscious* ones, but are *repressed* and confined to the unconscious. Such was the state of affairs in the patient we are discussing—she had a strong "anal-erotic complex," but this complex was, for the most part, unconscious.

The first hint that the fears I have mentioned depended upon a complex of this nature she gave in describing a particularly severe attack. She was leaving a certain house at night and had passed through a door at the bottom of the stairway. This door slammed behind her before she had opened the outer one. Thus she was for a few moments shut in the entry-way between the two doors as if in a very small room. Before she could open the outer door and escape to the street she was seized with a terrible fear that someone was coming through the back (inner) door to choke her. Concerning the door in front of her she felt no fear whatever. Immediately after telling me this, she made a rather suggestive slip of speech. She was speaking in German, her mother tongue, and used the words *von dem Hinterer* (from *the* behind, *i.e.* gluteal regions) when she had intended to say *von hintern* (from behind). After this, she told me that she felt no particular fear when alone in a house *so long as she stayed in the front part.* Finally she reproduced a great number of memories belonging to her anal-erotic complex, *e.g.* recollections of anal masturbation, day dreams of coitus per rectum, rectal birth fantasies, etc. She was able to recall having had momentary cravings for pederasty almost all her life and even after she was married. Wishes of this sort, imperfectly repressed, formed the basis for her phobias. Of the truth of this statement no further evidence is required than that furnished by a record of the occurrence of her attacks. This showed that they appeared when she found herself in a situation suggesting *back* part, *back* entrance, *back* opening, or *back* passage. Thus the fear, which really referred to repressed thoughts and longings concerning a part of her own body, was disguised and protected against interpretation by her consciousness by being projected to external situations symbolic of its origin. The idea that someone was going to jump upon her back and choke her depended, in part, upon a play on the two German words *ersticken*, meaning to choke or suffocate, and *erstechen*, meaning to stab or thrust, and corresponded to a wish for someone to assault and forcibly commit pederasty upon her.* The wish for an assault was probably augmented by her desire for children. Her husband had never been able to impregnate her and she had often wondered if the efforts of some other man might not be more productive.

I have attempted to show that in hysteria proper and anxiety hysteria the thoughts upon which the symptoms depend are, for the most part, unconscious. In the compulsion neurosis a different mechanism exists. Here the thoughts which form the basis of the symptoms remain, for the most part, in consciousness, but the emotions belonging to and derived from these thoughts are transferred to some other, associated, but less unpleasant idea. This mechanism, in which a feeling, for instance, one of self reproach, is displaced from the disagreeable idea causing it, to some other not essentially disagreeable idea, operates not only in the neurosis but in perfectly normal people. The following story will serve as an example.

At a bachelor dinner a certain man ate very heartily, drank enormous quantities of wine and spirits, and went home in a most hilarious condition. The last course of the dinner consisted of fruit. Upon awaking next morning, the man found himself suffering from that symptom-complex sometimes known as a "hang-over." As he stumbled toward the water pitcher he remarked to himself in tones of great disgust: "What a fool you were *to eat that fruit*—fruit never did agree with you."

The psychological mechanism of this remark is perfectly evident. The feeling of self-reproach belonging to the idea of drinking alcohol had been displaced (not perfectly, of course) to the inoffensive idea of eating fruit. The motive for this displacement is obvious. The man would much rather reproach himself for eating fruit than for alcoholic intemperance.

Now, note the similarity in mechanism between this man's remark and the following case of compulsion neurosis. The young married woman mentioned presented among her other neurotic symptoms, a compulsive idea which came on as follows: One day while walking through the Metropolitan Museum, she stopped to look at an exhibit of mummies. As she stood there she began to wonder why the mummies did not decay. Then there came

*The idea of choking has an even more important significance in connection with some of her infantile conceptions of birth and the soul. A full explanation of this symbolism is too lengthy to be undertaken here.

over her a feeling of great anxiety and uneasiness, and she found, to her dismay, that she could not get the idea of mummies out of her mind. When she came to me two days later—she was under my care at the time—she could talk of nothing else. Over and over again she asked: "Why don't mummies decay? Aren't there any germs in them? Is there some medicine that keeps them from decaying? Aren't they really dead?" etc. In spite of the fact that she fully realized the absurdity of her obsessive thinking she could not stop it, and thoughts of this kind, accompanied by a feeling of intense fear, kept tormenting her, while nothing I could say either relieved or satisfied her. The symptom persisted some time before I found the cause of it. It owed its origin to the fact that she had once been a sufferer from tuberculosis. Indeed, between her fourteenth and sixteenth years she had spent most of her time in different sanatoria. She left the last one before she had fully recovered and returned to her home here, where, in spite of rather adverse conditions, she apparently became entirely well. But this important part of her history she never told her husband. She was afraid to tell him during her engagement for fear she would lose him. After her marriage she was equally afraid to tell him for fear he would be angry and accuse her of deceiving him. To ease her conscience she always tried to persuade herself that she had never had tuberculosis and that all the physicians who so diagnosed her case were entirely mistaken. In support of this view she advanced the arguments that she had never had a positive sputum, and that she had made what appeared to be a perfect recovery in the unfavorable climate of New York City. Yet in spite of these efforts to justify herself she never felt at ease about the matter and always wanted to tell her husband the truth; partly, that all might be open and above board between them, and partly, because there was great danger of his accidentally finding out her secret by meeting someone who had known her when she was sick.

She had been married somewhat over a year when a new complication arose. *Her husband* developed tuberculosis. This made it necessary for him to give up his business and leave for a sanatorium. Thus the motives which already existed for the patient's keeping her secret received reinforcement. She was now afraid that if her husband discovered that she too had had tuberculosis, he would not only be extremely angry at her deception, but also would accuse her of having infected him. Her love for her husband was certainly not increased by such considerations, while the prospect that for a long period he might be incapacitated and unable to earn anything, made it difficult for her to regard her marital venture with any high degree of satisfaction. These and other circumstances, coupled with the fact that if her husband died the problem of confession would cease to exist, placed the possibility of his decease in such a favorable light that she heartily wished for it to become a reality. But her husband not only failed to oblige her in this respect, but, on the contrary, he added to her perplexity by leaving the sanatorium in which he was at first and going to another in which she herself had been an inmate. Naturally, she feared that in this institution there might be someone who would remember her as a patient and accidentally disclose her history to her husband. It was at just this stage of the situation that her obsessive ideas concerning mummies appeared. The symptom, in fact, represents a displacement over to the new idea of mummies of the conflicting emotions belonging to her tuberculosis complex.

Let us try to represent to ourselves the condition of the patient's mind at the time when this transfer took place. All her thoughts were centered upon tuberculosis. Feelings of love and hate, of fear and hope, of guilt and self-justification battled with one another without ceasing. Should she tell her husband and face his anger, or hold her peace and risk his finding her out accidentally? Should she hope that he might die and in this way solve her problems, or that he might improve, take up life with her again, and thus expose her to the danger of reinfection? Had she really had the disease or not? Could she be sure that she had entirely recovered?

Questions of this kind kept pressing into her mind. And these questions she could neither answer nor evade. As she looked at the mummies, the striking similarity between their withered, drawn, and emaciated appearance, and that of certain advanced cases of tuberculosis which she had seen, half consciously impressed her. Thus there was formed an association between mummies and tuberculous patients, and this association made it possible for her to transfer all the feelings of remorse, doubt, and fear belonging to her tuberculosis complex over to this new idea. In this way, by using the mummy as a symbol for the consumptive, she was able to effect a sort of escape from the ideas which caused her so much distress. The mechanism of this obsession is the same as that in the story I related. An innocuous idea is substituted for a painful one. The patient would much prefer to worry about mummies than about tuberculosis.

In the light of this interpretation there is nothing astonishing in the fact that she was not able to banish the thought of mummies from her mind. It is also clear that her questions, "Why don't mummies decay? Is there some medicine that prevents it? Aren't there any germs in them? etc.," as well as the accompanying emotions were directly connected with the most important problems of her life. (It should be remembered in connection with the above questions that tuberculosis to many people means a *decay* of the lungs.)

In this paper I have given only the briefest reports of the analyses of single symptoms, and even these reports are incomplete. I could not do otherwise, however, for the analysis of an entire case usually requires several months to perform and a complete report of it would fill hundreds of pages. But it is greatly to be regretted that a complete analysis cannot be given, for these fragmentary reports do not present a true picture of the inner mental life of the neurotic. It is only from such complete reports or from actual psychoanalytic experience that a correct impression of what really goes on in a nervous person's mind can be gained.

Those who have had such experience; that is, those who have been willing to spend almost unlimited time in helping neurotics to tell what they really do think about, have had no great difficulty in confirming practically all of Freud's conclusions. To those of you who doubt the pathogenic power of unconscious ideas, who consider the analytical interpretation of the symbols and mechanisms in dreams and neurosis as fanciful and far-fetched, and who deny the importance of sexuality in nervous disorders, let me say that if you will only apply Freud's method of letting the patients tell all the

thoughts that come to their minds, and without being discouraged the first time a subject says: "I can't think of anything more, Doctor," persist for a reasonable length of time, you will surely have ample reason to cease doubting and denying the things just mentioned, though without some technical knowledge you are not likely to effect any cures.

In closing let me express the hope that I leave you with the impression that the troubles of the neurotics are, at bottom, real ones; that the seeming absurdity of their morbid thoughts and fears is largely dependent upon our own lack of understanding; and that these patients, as a class, deserve much more sympathy from medical men than is usually accorded them.

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THE SCOPE AND TECHNIQUE OF PSYCHO-ANALYSIS.*

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NEW YORK.

Psychoanalysis should not be regarded exclusively as a therapeutic measure, but also as a system of individualistic psychology which rests upon the discovery that unconscious mental mechanisms are potent operative factors in the acts of daily life as well as in the production of symptoms manifested in many mental diseases.

The caution and modesty with which psychoanalytic theories—the result of years of continuous research on the part of their originator, Freud of Vienna—were presented for the consideration of medicine and psychology, is characteristic of the unbiased and scientific attitude of their author. While the theories, which are still undergoing revision, may appear whimsical or even fantastic if considered superficially, the essential contentions are gradually being accorded cognizance from the conservative school of descriptive psychiatrists who were long inclined to scepticism. Of recent years the extension of psychoanalytic research has progressed so vigorously and a brief exposition of the many sided subject is so difficult, that I shall limit myself to some simpler theoretical phases and the therapeutic technique.

Some thirty years ago Breuer and Freud, while investigating the origin of hysterical conditions, discovered that certain of the symptoms of this disease disappeared when the causes for their inception had been brought to light and the emotional desires, which for some reason were suppressed at the time, were fully experienced by the patient in relating them to the physician. However, a second discovery soon followed, namely, that all such mental impressions and processes which were originally considered by Freud to be the causes of the pathological emotional states, could be demonstrated to practically the same degree in normal and even exceptionally efficient individuals. It followed, therefore, that hysterical conversions were only distorted bodily representations of the attitudes which are normally formed by us all as the expression of emotional conditions. So, too, it soon became manifest that even our more precise thought and action, which apparently depend only upon logic and reason, are influenced by innumerable secret forces whose presence the thinker fails to realize.

The Unconscious.—Unconscious influences are regarded by the Freudian school as not only vast but paramount determinants of psychological processes. While any thought conceived by the mind —even a pathological thought—may become unconscious almost at the time of its genesis, it may still continue to exercise a certain amount of effect upon the mentation and conduct of the person harboring it. Most of the unconscious thoughts which are pathological are conceived not during maturity but in childhood, and perhaps owe their abnormal character to an infantile predisposition.

The unconscious mind thus becomes a reservoir of all impressions, both normal and pathological. From the very trivial things which are recalled by patients from early childhood, it has seemed to me that no impressions—hypothetically not even those of babyhood—are ever totally lost, but are merely stored away in this reservoir, possibly never to appear again. While most pathological impressions are received early in life, they soon vanish so far as their conscious import is concerned, much as the waters from a spring in a sandstone country sometimes sink immediately below the surface and disappear into subterranean channels.

Freud grants that psychical and physical traumata in adult life exert a certain influence in the production of hysterical and neurotic manifestations, but considers them none the less intrinsically associated with pathological unconscious processes or psychical insults of a sexual nature encountered in childhood. Notwithstanding the early origin and obscurity of these trends, their course, submerged in unconsciousness, may persist powerfully, and like the subterranean brooks mentioned above may become lost rivers, and eventually reappear as streams of some magnitude, so they too may emerge to the surface, not only at unexpected times and places but in somewhat altered form.

Method of Investigation.—Free Associations. The psychoanalytic method, by which suppressed and long forgotten impressions are restored to consciousness, is intended to acquaint the patient with repressed complexes which are militating against him so that he may more intelligently cope with them in consciousness. While Freud at first resorted to hypnotism to abolish the censorship of consciousness and provide a free egress for all thought associations, hypnosis, as well as its successor, the method of allowing the patient to repose in a room where all external distractions are removed so that he may lapse into the borderland between sleep and waking, have proven unessential. Freud himself adheres to the plan of having his patient in a recumbent position during the free association but most analysts allow the patient to assume any comfortable position. The patient who remains in a waking state is requested to associate freely on whatever may come into his mind, not

*Read before the Society of the Alumni of Bellevue Hospital, May 4, 1913.

only to relate ideas of pertinent interest, but to allow his thoughts to wander to whatever fancies, incidents, events, or stories may occur to him. While this is taking place the physician directs his own attention not only to the most emphasized and palpable factors, but also to apparently insignificant details and expressions, as a means of discovering the determinants of the infantile sexual life.

As experience with psychoanalysis progressed, it became evident that the mere recalling of psychical insults during childhood into the patient's conscious memory did not produce the awaited result of an alleviation of the patient's symptoms. It therefore became necessary to withdraw the particular stress which at first had been placed upon the recitation by the patient of forgotten occurrences and instead attribute the disturbing factor to resistances which had been engendered in the patient's mind through ignorance at the time of the experience or which had subsequently resulted from it. Such resistances were found to be still actively on the defensive in the patient's mind against his instinctive trend correlated with the trauma. Thus, although the patient became aware in his conscious thinking of the forgotten occurrences, he failed to connect them with that group of circumstances which gave birth to the repression. He also failed to realize the presence of very similar wishes and tendencies in the situation confronting him. The function of the analyst, therefore, is not only to investigate the infantile conflicts and resistances established in connection with them, but at the same time he must inevitably resort to reeducational explanation.

Concerning Suggestion.—The adoption of the waking method of analysis minimizes the validity of the imputation made by critics of pschoanalysis that the associations discovered are largely the product of the analyst's own imagination, suggested to the patient who, in the hypnoidal state, is particularly susceptible. The fallacy of this assumption becomes apparent after even a slight acquaintance with neurotic patients, who resent any imputation which they consider detrimental to their character; for the desire to present themselves in the best possible light may be said to be characteristic of them.

It has also been advanced that the entire procedure is nothing more, from a therapeutic standpoint, than an elaborate system of suggestion and, to be sure, the rôle of suggestion cannot be entirely eliminated. The fact that the patient is told that the neurosis or habit disorder is due to some lack of mental adjustment or to some repression which, when discovered, will cure him, is in itself a rather powerful form of suggestion. Such a criticism cannot be satisfactorily refuted, but if it be so, it is suggestion of the most individual type, based on the minutest investigation of the patient's secret yearnings, forbearances, struggles, and conflicts from earliest infancy.

The Association Test.—In addition to the method of free associations, Jung of Bleuler's clinic in Zurich, where is conducted perhaps the most critically discerning investigation of the Freudian principles, introduced the association test, a method long known to psychologists, as a means for eliciting complexes which the patient did not care to reveal. This test, which has become popular knowledge, consists in allowing the patient to state the first word which enters his conscious mind when he hears certain stimulus words, constituting a standard list, and recording the time required for response. Although increasing experimentation with this test has disclosed vagaries and certain sources of error,[1] very broadly speaking, a retardation in the length of time taken by the subject to reply to a given stimulus indicates some painful thought association in connection with this word. The patient fails to reply with his normal alacrity because he does not wish to reveal some disagreeable memory and during the time delayed in responding has been ransacking his mind in search of a suitable substitute for the word which primarily came into consciousness.

As the association test after all constitutes merely a means of rapid psychological orientation with the patient's general mental trend, I have for some time employed in my own stimulus list what may be called "double-barreled" words. By this I mean words which normally permit a diverse range of association dependent upon the patient's habit of thought—such words as drink, prick, ball, peach, bar, deer, etc.—and which thus afford a direct means of gaining insight into the type of personality under examinatiton.

Dreams.—While free associations furnish one route for penetration into the realm of the unconscious, dreams, according to Freud, form the most tangible connection between unconscious and conscious thought and may be regarded as one of the most valued assets of the entire technique. Freud asserts that in the phenomenon of dreaming, the conscious mind's censorship is decreased, though not entirely abolished through sleep. The diminution of censorship in dreams permits the fantasies and yearnings of the unconscious mind to filter through to the light and thus provide the most significant means of studying unconscious associations

In the dream work unconscious associations appear in a distorted, grotesque, condensed, symbolic, or intensified form and on this account the dream may appear to be merely a conglomeration of glaring incongruities if considered as an entity. Nevertheless when the separate items composing it are considered individually and the mass of thoughts associated with each item is unraveled, the unintelligible jumble will be found to represent a purpose.

A patient undergoing analytic treatment is therefore asked to record what he remembers of his dreams whenever they occur. What the patient reports constitutes the manifest content of the dream but it is the function of the analyst to unfold the memories and fancies which lie behind it—what is technically known as the latent dream content. When this has been accomplished it can usually be demonstrated that in its final delineation the dream represents as fulfilled a wish which may have been long cherished though it had been deferred from gratification by repression or otherwise. The wish, then, furnishes the impetus which gives rise to dream formation.

According to some of the more recent investigators (Maeder,[2] Alfred Adler) another, though secondary function of the dream exists, namely, that practice and preparation for future waking activity. A certain class of dreams which stand in close relationship to actual problems suggest a solution of the undecided question, often in disguised form. The dreamer may subsequently actualize the suggestion or solve his problem according to the dream direction, though no analysis of the dream has been made prior to his waking acts.

The dream thus represents a solution of a problem

or a wish as fulfilled and may attempt to satisfy many psychical strata at one and the same time. It may exhibit not only the wishes of the day but also those of childhood, though the latter are usually carefully concealed. Moreover the abundant and ramifying material of the latent dream content is altered and concentrated in the dream, principally through the combination of the homogeneous and the similar.

Symbolism.—Naturally the interpretation of dreams, in which symbols may represent actualities, a picture of childhood be superimposed upon one of adult life, or two persons be combined as one, is open to criticism and doubt. Especially has the interpretation of symbols, by which psychoanalysts claim that the genitals and other parts of the body are represented in dreams, invoked much derision and mockery. Still it is undeniable that in our daily conversations, euphemistic references, not only to the genitals but to other delicate subjects is usually symbolic. For instance, on a dreary day in the smoking room of an ocean liner to relieve the monotony, some one suggested that a list be compiled of the symbols for money. In a few minutes no less than twenty words were named, all of which were familiar symbols to the Americans present. It seems reasonable to assume that, inasmuch as all the material for dream work must necessarily come from our waking existence, we should transfer symbolism there as well.

This question is further complicated by the fact that the symbol of one period does not constantly remain identical with the same individual nor does the same symbol have the same significance to different persons. For instance, the color combination of yellow and black, which became fixed in my mind as a child as indicating the Austrian army, in high school days represented a rival preparatory school, whereas now it would stand for an American university. So, too, while at first it seemed perplexing to learn that "fine" in the dream of a certain patient indicated masculine, the origin proved to be very direct and at one time probably symbolized the same to many of us. Those who in childhood have played the game of "forfeits" will recall the phrase "heavy hangs over your head" which is followed by the query "fine" or "superfine"? instead of the blunter expression "boy or girl"?

Resistances.—The difficulties encountered in the analysis of dreams depend not only on their intricate character and latent roots, but also upon the resistances which the patient develops, both consciously and unconsciously, to the revelation of painful thought associations which have been voluntarily and carefully kept guarded. One of the commonest tendencies is to allow the recollection of unpleasant events to slip into the background, so that in reverting to childhood days we are apt to regard them as singularly happy, notwithstanding all their troubles and disappointments.

Many patients enter psychoanalytic treatment with much misgiving or with such eagerness as to arouse suspicion on the part of the physician, for either may be construed as an evidence of resistance—the first indicates distrust of the physician to ameliorate the symptoms; the second, a desire quickly to unburden what the patient considers to be most pertinent and thus prove the method a failure. This in turn would permit the patient to retain his illness—a thing which many patients in spite of their protestations, unconsciously desire. This is comprehensible when it is understood that a neurosis often forms a compromise between an unconscious wish and a repression—it is the patient's effort to "keep his cake and still eat it." Unconsciously he desires to cling to the compromise.

The first object of the physician is to overcome these resistances, which is accomplished by permitting the patient to transfer his longings and even his hatreds temporarily to the physician himself. While such transference is an absolutely essential and really unavoidable part of the technique during the initial stages in order to secure any degree of cooperation, it subsequently lapses without detriment to the patient.

Transference alone may serve to alleviate many symptoms of which a patient complains, but the result is usually transient as it is dependent upon the persistence of the transference. In such cases the treatment is purely one of suggestion and not one of psychoanalysis. As Freud recently remarked,[3] "the treatment is worthy the name of psychoanalysis only when the force of the transference has been utilized to the subjugation of resistance, for only then does a recurrence of the sickness become an impossibility, even after the transference has been destroyed, as of course it should be."

The complete analysis of a dream requires much time and the following example is reproduced merely to demonstrate how the wish of the day, repressed as unworthy, may filter through in the dream. Its infantile source and some of the other deeper determinants which lie in back of it, are not revealed for personal considerations.

"I dreamt I heard the telephone bell ring. I went to the phone rather annoyed. The voice over the phone sounded indistinct and at first I could not understand what was said. I asked "Who is this?" I received the impression of a name beginning with "S." Then over the telephone came "she has jumped out of the window." In connection with the dream I might mention that some four days before its occurrence another physician had asked me to see a case of agitated depression for him. After becoming acquainted with the situation in the household, I advised that the patient be committed to an insane institution because of her suicidal tendencies. The family asked time to consider this and agreed to let me know, but failed to do so.

Two days after my visit the physician telephoned to inquire if I had received any communication about the case as since my visit he himself had heard nothing. I stated conditions to him and while he seemed perfectly satisfied with my action, I felt that he had not been quite justly treated by the patient's family. I was convinced, however, that my advice had been for the best and the thought flashed across my mind that my prognosis might be substantiated. This was immediately repressed as unworthy. Moreover, I entertain very strong feelings in regard to this attitude in medicine and recall the shock in student days at one of the hospital physicians who remarked that he "hoped the old codger would die" so that his diagnosis might be verified. Subsequently as an interne I had an intense desire to prove myself correct in diagnosis, so that I had quite a struggle against my own tendencies toward autopsy medicine.

Now it so happens that the name of the depressed patient began with "S." My desire to forget her was carried over into the dream, but the wish which I had turned aside as incompatible with my ethical ideals, namely, that the patient fulfill my prophesy, is expressed unmistakably.

Extension of Freud's Theories.—The interdependence of ordinary thinking and unconscious thought associations has been utilized in explanation of those puzzling little errors of daily life, such as misunderstanding the meaning of a sentence, the forgetting of names and slips of the tongue and pen. Such harmless mistakes, usually barely noticed and willingly pardoned, have been shown to be fully determined expressions of unconscious, opposing or offensive ideas which interrupt the train of thought primarily intended. In misspeaking and in slips of the pen, the suppressed tendency rather than the intentional one, is often expressed. The following may serve as an illustration:

A patient who was referred to me suffering from a fear of insanity, after relating various complaints of a neurasthenic character, remarked: "And then I have erections without emissions." When asked why this should alarm him, he quickly corrected himself, saying, "Oh, no, I have emissions without erections." It later developed that as these seminal losses without erections constituted one of the main symptoms on which he had based his fear of insanity, he was very anxious to have them relieved. The slip of the tongue, in relating his complaint, therefore expressed the condition which he desired, namely, the restoration of normal erections.

A large part of recent Freudian work has concerned itself with the study of the sublimation of sexual energy into science, the arts, philosophy, and other activity and the application of analytic knowledge to the explanation of historical and mythological problems. While I am convinced that much of this is valuable, its discussion would carry us far afield from the scope of this paper. However, I might remark parenthetically that the use of psychoanalysis for the interpretation of ancient and modern literature has appeared to me as rather futile, since in so doing we interpret objectively and not subjectively—a violation of the most important Freudian principle.

On the other hand, careful study of the so-called functional psychoses, notably dementia præcox, has yielded strong substantiation of many of Freud's contentions. However, comparatively slight benefit is to be expected from analysis in cases of dementia præcox, as such mentalities when the disorder is well developed are beyond the possibility of adjustment.

It is quite likely that some day an organic basis for dementia præcox may be established with perhaps a remedy in the form of some glandular extract, but this should not affect the psychological interpretation of the mental mechanisms shown in this perplexing disorder. While the cortical changes in the brain are undoubtedly responsible for the forgetting in paresis and senile conditions, owing perhaps to the hopelessness of these disorders, no one has, to my knowledge, ever undertaken to ascertain accurately just which type of facts is first forgotten. Possibly a hint may be taken from the popular construction placed upon the remembering of old people—that they recall those things which are dear to them longest—in other words, they tend to forget unpleasant events first.

Selection of Cases for Therapeusis.—Psychoanalysis, because of its novelty, has suffered a surplus of popularization, notably in the monthly magazine. It is not presented to medicine as a panacea for all the mental ills of humanity, yet it contributes immeasurably to the understanding of hitherto inexplicable manifestations in psychoses, neuroses, and every-day thought. Eventually it must be influential for a more intelligent educational direction of childhood activities, especially in the sexual sphere, and for mental hygiene during adolescence. One of the greatest contributions of the Zurich clinic to the advancement of psychoanalysis has been the requirement that any person desiring to engage in analytic work must himself first submit to analysis.

As a curative measure psychoanalysis is most promising in cases of psychoneuroses in intelligent persons between the ages of 15 and 35, whose native language is that of the examiner, and in whom any physical basis for the complaint has been carefully excluded, preferably by other physicians. It is also desirable that patient and physician be total strangers before the commencement of the analysis in order that the impersonal attitude in the treatment may be rigorously preserved. Moreover, the patient should be so situated that he can devote not less than three hours a week for three months or more. A frank understanding before any treatment is undertaken, as to both its nature and the results obtainable, proves far more satisfactory to physician and patient alike in the end. While a positive cure should never be offered, a definite improvement may be confidently expected. The more experienced one becomes in analytic work the more firm is the conviction that no *short cut to permanent and effectual analytic treatment exists.*

It must be repeated that to attain success requires not only a thorough working knowledge of abnormal psychology and especially Freud's theories, but the utmost patience on the part of the physician, for any attempt to hasten the revelation of material to be utilized in the analysis has merely the effect of increasing resistances. Nevertheless there is an augmenting list of therapeutic successes reported by trustworthy men treating phobias of various kinds, hysterical manifestations and neuroses, which verify the value of Freudian procedures after the prolonged use of routine neurological methods had failed.

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THE MIDDLE-AGED WOMAN: WHAT CAN BE DONE TO INCREASE HER EFFICIENCY.*

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There was a time, not so very long ago, when women of fifty were considered old, while their husbands were still in the prime of life. Our teachers of gynecology, in lecturing on the menopause, laid the cause of the ill health of the middle-aged women to the carelessness of the obstetrician, and the obstetrician laid the blame on nature and the natural lack of nerve tone in women. It seemed to be the general opinion of physicians a generation ago that though puerperal fever was rare the accidents of labor were the cause of woman's disability after the cessation of her reproductive years.

*Read at the meeting of the Alumnæ Association of the Woman's Medical College of Pennsylvania, June 6, 1913.

In fact she was considered obstetric junk which could be repaired at any time, after a fashion; but obviously the repairs should have been made as soon as possible after the damage was done to her tissues in order to save her from the scrap heap of human relics.

And now the question is, should the blame still be laid on the obstetrician if the woman at fifty is junk, or are all medical practitioners at fault for not educating the parents as to the hygiene of their own life, and the health, and dress, and occupations of their children? Dr. Agnes Vietor[1] tells us that three times as many women as men have flat-foot, curved spines, gall-bladder trouble and hysteria; and Dr. Robert Hutchinson speaks of some of these women of fifty as "abdominal women," with their misery and dejection, their flatulence and constipation, their continual suffering from genitourinary disease and mucomembranous colitis; and we wonder if the eight thousand women[2] who die annually when their children are born are a fiftieth part of the number who are injured during, or shortly after, the puerperium by careless midwifery or by hard work too soon after confinement?

Whatever the answer to this question may be, there are multitudes of other invalid women who have never had a husband or a baby, but who are victims of a false system of education which lays stress on excessive neatness in their housework, or extreme fashion in dress, or the acquisition of money, at the expense of health and good physique. And there are others who have become infected, whether innocently or not, with one or the other of those black plagues, gonorrhea and syphilis, and at middle age their life is misery.

I cannot refrain here from drawing a picture of such a patient. She smiles affectedly when she says that she has a "frightful backache and those bearing-down pains;" she is fat, but she says she "can't eat a thing and never sleeps;" and when asked what is her trouble, she answers smartly, "That's what I came to find out," or "The doctors all say it's change of life." She is a good many kinds of junk. Her eyes are not properly fitted to glasses, because she is a victim of the optician or of the itinerant vendor of eye-glasses. Her nose and throat are swarming with germs for which she believes there is no cure. Her teeth are decayed and the gums are foul with pus. She has palpitation of the heart from faulty digestion, and she will add that she has "gastritis of the bowels," "pneumonia of the stomach," heart disease due to "bulbular" trouble, appendicitis, gallstones, kidney trouble, womb disease, and generally malaria and rheumatism, or "plumbago," as it is sometimes called. Now these diagnoses are either homemade from newspaper advertisements, or they are the hasty opinions of busy practitioners who take no trouble to examine the patient carefully, either to find out where her various organs are and what they are doing, or what is the condition of her blood or her blood pressure. She has been given bromides, or pepsin, or quinine—all sorts of tonics—and finally, as a last resort, she has been sent to a surgeon. Many a woman of fifty is a wreck because of careless prescribing or of futile surgery prescribed for its psychic effect. That she needs psychic effects I do not deny. She has no thrilling plans for the future, she knows what position she is likely to hold in society, and she is either placidly content or dissatisfied and soured, ready to blame her doctors, her family, or anything but herself. The rational treatment of these patients of middle age must, therefore, depend on an accurate diagnosis of each case, and although surgery may sometimes be necessary for such diagnosis we may here think of it as a last resort. We know, to be sure, that it is often difficult without surgery to distinguish the symptoms of appendicitis from those of salpingitis and oöphoritis. Petterson of Copenhagen, for example, found very little disease of the appendix in 50 per cent. of the gynecological cases sent to him for removal of the appendix, and Natvig,[3] to the contrary, found a diseased appendix to be the cause of many cases sent to him for removal of the ovaries or tubes. Alperin,[4] in a recent article, calls attention to the reflex pains in gynecological patients, and gives what he considers a set of good rules for the correct diagnosis of difficult cases. He makes deep pressure on the umbilicus and finds the pain radiating to the seat of the trouble, whether it is in the uterus, the tubes, or the appendix, and this sensation he attributes to the extra congestion of the blood vessels in the diseased tissues. In 309 cases he had only 12 failures, but, perhaps because of faulty technique, I cannot make a single diagnosis by that method. My patients feel only the pain at the point of pressure, and never any radiating or reflex pain.

Speaking of gynecological pain, Von Rosthorn affirms that there can be very little pain either in the uterus, ovaries, or tubes until the disease reaches the surrounding connective tissue which is supplied with sensory nerve fibers. Pressure or traction on the ligaments through congestion because of retarded venous circulation, or of actual inflammation in the periuterine connective tissue from infection by the colon bacillus or from gonorrhea, causes sacral pain in every case. DeLagenhagen,[5] seeking for a first cause for these abdominopelvic pains and spasms, thinks that they may be due to a neuroarthritic tendency accompanied by venous stasis and defective nutrition in the pelvis. Varicose veins and arteriosclerosis of the pelvic arteries[6] may account for the increased blood pressure in the genitourinary organs, causing not only pains but also hemorrhages at the climateric, this condition being essentially what Findlay[7] has found in the walls of the uterine blood vessels and which caused the degeneration of the muscles.

Goodall[8] also believes that not only this circulatory condition but the overstretching of the uterine muscle during pregnancy, and its subsequent subinvolution and retroversion, may be an important cause of fibroid and fatty degeneration of the uterus. Dalché[8a] agrees with him, but Jaschke[9] suggests that myomata and fibroids of the uterus may be a result of oversecretion of the ovaries and thyroid gland; and Schenckt[10] tells us that such tumors are congenital, and that when the circulation is diminished at the menopause they create poisons which increase aortic tension and irritate the entire system. Whatever may be the cause of tumors of the uterus and its adnexa, or of hemorrhage at the climacteric, we are constrained to be sure that we are not dealing with a cancer of some kind. A patient of mine, after two curettages in which no cancer cells were found continued to bleed until treated with two doses of rabbit serum, after which she menstruated

normally for a year and then flowed again for some months. Having had anaphylaxis to the rabbit serum I gave her 100 c.c. of fresh horse serum, the coagulating power of her blood being 45 minutes. She again had serum sickness, but the coagulation time was reduced to 5 minutes, without stopping the bleeding. I then curetted her again, and this time cancer cells were found in the scrapings. A hysterectomy brought to light a small adenocarcinoma near the opening of the left Fallopian tube, and a small fibroid tumor in the uterine wall.

Another patient of mine menstruated profusely until she was sixty years old in spite of negative curettages at home and in Europe, and all sorts of treatment with hot air, electricity, packings, and styptics, but she finally stopped flowing without further surgery, and she has continued perfectly well for fifteen years. In still another patient the first curettage showed cancer cells, for which her uterus was removed by Dr. Robert L. Dickinson of Brooklyn, but no cancer was found in the small excised organ. And in still another case, after months of slight hemorrhage with no ascertainable cause, a hysterectomy showed only two small benign fibroids in the fundus of the uterus. In each of these cases, therefore, there must have been a different cause for the bleeding.

Besides the annoyance of climacteric hemorrhages, the middle-aged woman has all sorts of nervous symptoms. Dickinson examined over a hundred cases of neurasthenia, and in every case he found some abnormality, either endometritis, oöphoritis, sclerosis of the uterine vessels, venous enlargements, or disorders of the rectum or bladder. Bossi[11] and Walthard[12] attribute 10 per cent. of the neurasthenia, hysteria, insanity, and crime to intoxication from infective lesions of the ovaries and uterus. Dercum,[13] on the other hand, finds very little causal relation between the neurasthenias of the menopause and pelvic disorders, tracing the nervous symptoms back to lack of self-control and the bad habits of a lifetime. She has found more retropositions without than with nervous symptoms, and very little neurasthenia, or hysteria directly traceable to splanchnoptosis or lacerations of the cervix and perineum. Dr. Mary Rushmore[14] deplores the numerous operations for the repair of slight lacerations of these organs in the vain hope of curing a coexisting neurosis. Further, Polak[15] offers a note of warning against ovariotomies, believing that a slightly diseased ovary in its place is better than a carelessly replaced stump or a twisted pedicle; and Byron Robinson is quoted as saying that the Alexander operation is merely a temporary operation for cosmetic effect. If, therefore, we have such good authority for postponing an operation we must, before sending the patient to a surgeon, be sure that it will be of great benefit to her, taking time to study a puzzling case. Sutter[16] of Munich even goes so far as to show statistics from his clinics indicating that a morbid, nervous system is the cause of the uterine trouble and not its effect.

We must, however, admit that there are many neuroses which at least seem to be dependent on chronic disorders of the sexual organs. Ewald,[17] for example, says: "If the normal process of menstruation causes retardation of the gastric secretion, how much greater reflexes will be referred to the stomach and intestines by amenorrhea and dysmenorrhea, the climacteric period, and chronic disorders of the uterus which are associated with an irritability and even with a direct excitation of its nerves!" And he reports cases of dyspepsia and sialorrhea that resisted all treatment until a retroflexion of the uterus was discovered and corrected by a pessary.

Moreover, Dr. Chas. F. Hoover,[18] in an article on "Functional Diseases of the Heart," says: "The beginning and end of menstruation are often associated with palpitation, rapid heart, and sudden vasomotor oscillations. . . . but it is very difficult to know if the heart symptoms are the result of the reflex disturbances or consequent on the neurasthenia which so often accompanies affections of the generative organs." He cites the not uncommon case of a patient who felt faint after defecation because of the traction on her relaxed perineum. This traction caused vascular relaxation of the splanchnics through irritation of the abdominal sympathetics, and the same reflexes have caused death in patients who were undergoing some simple operation on their genital organs.[19]

We have reason, therefore, for replacing these organs and holding them in place by simple means if possible. The vagina is a valuable support to the uterus in our four-footed relatives, but it serves the erect individual very feebly, and when its slight support fails either from intraabdominal pressure or lack of perineal base, the nervous control of all the pelvic organs is thrown out of order; but, as Theilhäber[20] says, this alone would not cause subjective symptoms unless the organs became inflamed. A movable uterus is supposed to give no pain, no matter what position it is forced to take; and Waite[21] has found that constipation, irritation of the bladder, and dysmenorrhea are none of them caused by a retroversion or by an anteversion of the uterus.*

It is, therefore, somewhat surprising that for the last twenty years gynecological treatment has been mostly surgical. Surgery is, to be sure, more brilliant, and, in some cases, the proper fitting of a pessary is more difficult than a laparotomy. It has been said, too, that pessaries cause cancer, but in 255 cases where badly fitted pessaries had been worn, Neugebauer[22] found only eight in which cancer subsequently developed, and these may not have been the result of the pressure or of any erosion due to the pessary. In hundreds of patients to whom I have fitted pessaries there has been only one case of cancer, the growth occurring in the interior of the uterus and not in the cervix. Moreover, we have all seen more cases of erosion with-

*Dr. Lucy Waite of Chicago, has found the following malpositions of the uterus: out of 3000 recorded cases there were: anteversion, 27 per cent.; anteflexion, 40 per cent; retroversion, 22 per cent.; retroflexion, 6 per cent.; lateral version, 2 per cent.; prolapsus, 3 per cent.; *i.e.*, ante positions, 67 per cent., which corresponds to the 71 per cent. found by another author, and retropositions, 28 per cent., agreeing with the 29 per cent. of others. There were 15 per cent. of retrodeviations, out of 1000 cases, which showed no symptoms. At the Johns Hopkins Hospital there were found 1186 cases of retroflexion which showed no symptoms, out of 13,600 gynecological cases. Dr. William J. Mayo reports that 25 per cent. of the gynecological patients at his hospital had retroversion, many of them without symptoms. Moreover, 29 per cent. had movable kidneys without symptoms. Pinkham, of New York, found one case of retroversion in every five gynecological cases, all of which were due to parturition and its sequels. Of his 341 cases sixty were treated by pessaries, of whom eleven were cured, forty-six benefited, and three not helped; twenty-three required ventrosuspension, and three the Alexander operation.—(*Am. Journ. of Obstetrics*, May, 1907.)

out than with pessaries, and often a stubborn erosion will heal when the circulation of the uterus is restored by a well fitted pessary.

Kelly,[23] in his "Medical Gynecology," gives ten pages to the subject of pessaries, speaking of them as palliative, and suggesting their merely temporary use unless the patient is too old or too feeble for an operation. He has found that the essential contra-indications for the use of pessaries are (a) inflammation in any part of the pelvis, and (b) a total rupture of the perineum. The least tenderness of the ligaments or any traction on them is, I find, a decided obstacle to the comfortable wearing of a pessary, and a pessary certainly must be unobtrusive, but with even a mere shell of perineum a Schatz pessary can be comfortably worn in cases of complete prolapsus uteri. In Garrigues' "Gynecology"[24] pessaries are mentioned only to be condemned. He gives four lines to the question of prolapse and ten pages to the directions for operating in such cases. For retroversion he says, "pessaries are a poor make-shift and are used much less frequently than formerly." Thirty-six lines are then given to the subject of pessaries and six pages to the operation for retroversion. The "General Remarks on Pessaries" occupy two pages, followed by the crushing statement: "Personally, the writer has discarded them, except Emmet's in cases of retroversion or retroflexion where operation is refused." Bandler,[25] on the other hand, is much fairer to medical gynecology than many writers. He says: "One must start with the realization that most abnormalities of the position of the uterus can be relieved quite as well by supporters and correctors as by surgical operations. A preliminary treatment may be necessary before the pessary is inserted, such as hot air, Bier's apparatus, massage or electricity, or medicated tampons, but in the end the patient will be healthier and better than if she had been subjected to the shock of some surgical operation with its subsequent worries lest the shortened ligaments should stretch, or the perineum tear, or a hernia develop in the scar. But the pessary must be skillfully fitted for the work it has to perform and medical students should spend months studying uterine orthopedics instead of operations." Dührssen,[26] in Germany, is also fair to medical gynecology. He gives 45 pages to the use of pessaries and 172 pages to the anatomy and surgery of the pelvic organs. He says that injuries from pessaries are due to the stupidity of the physician who inserts the instrument or to laziness of the patient in taking douches and in failing to report to the physician any discomfort or foul-smelling discharge she may notice. It may be said that pessaries do not restore uterine tissues to their normal condition and tone, but neither do operations; both relieve the uncomfortable symptoms and restore the patient to health and strength, but the pessary does this without the nerve strain of an operation. It is true that a patient who is wearing a pessary should visit her physician three or four times a year for examination. But to the woman of middle age this should not be an extra burden, for she should have her urine and blood-pressure examined as often as that, just as she should make semi-annual visits to her dentist and oculist, if she would keep herself in good condition.

Giles[27] sums up the rules for the use of pessaries as follows: Operate only, (1) where pessaries are permanently necessary, (2) where pessaries cannot be worn successfully, (3) where the patient prefers operation to repeated examinations and treatment, (4) where the case is complicated by diseases of the appendages, (5) where there is prolapse or complete procidentia. Many operators add the following suggestions: Place a pessary in the vagina after an Alexander operation or after a ventrofixation, and also after confinement where the heavy uterus has a tendency to retro-deviations, and let it remain "in situ" until the ligaments have become strong again.

Dr. H. E. Boldt[28] says that a pessary that has been well fitted need not be looked at more than once in five or six months, and the patient should be told that she will have to wear a supporter for from two to five years; he reports the permanent cure of 20 per cent. or 25 per cent. of cases of backward displacements of the uterus by pessaries. This accords with the experience of G. G. Babcock[29] of Edinburgh, who uses a pessary in the cure of retrodisplacement almost to the exclusion of any other treatment, and F. H. Davenport of Boston reports the cure of 50 per cent. of picked cases of retrodisplacements, and of 33 per cent. of all cases of this sort by suitable pessaries. It is, therefore, evident that the disinclination to use pessaries is not due to the pessary, but to the lack of skill of the gynecologist, and the lack of adequate teaching of this subject in the medical schools. One must take into consideration the strength of the ligaments and the deflecting planes in the abdomen and pelvis in order to readjust the intraabdominal pressure. This is exactly the function of a well-fitting pessary, the Hodge pessary, for example, which extends up behind the uterus sufficiently to take up the slack in the uterosacral ligaments, but which is so freely movable as to assist the uterus in deflecting downward any superimposed pressure. The Schatz pessary does more than this, for it not only deflects the pressure but serves as an efficient base where the perineum is relaxed or badly torn.

While we have found in practice that chronic backache in the middle-aged woman is often due to retropositions of the uterus and curable by pessaries, there are many other backaches due to other causes, such as rheumatism, strain, neuralgia, sacro-iliac diseases, caries of the spine, fracture of the coccyx, hemorrhoids and other diseases of the rectum, and pendulous abdomen. Moreover, according to Garrigues,[30] any pain and tenderness of the fourth or fifth lumbar vertebra is due to "disease of the internals," and "any tender spot on either side of the second sacral vertebra is due to cellulitis of the uterosacral ligaments." Many authors, however, dwell especially on general splanchnoptosis as a cause of these backaches. Reed[31] and Pfahler,[32] for instance, in studying *x*-ray pictures of the abdomen, have found that there is often a prolapsed cecum, low in the pelvis and full of feces, or a colon out of place and bending in angles or flexures, or adherent to the peritoneum and constricted in places, which simulate uterine diseases in their pains and neurasthenic symptoms as well as in their toxemias. It frequently happens that a loop of prolapsed bowel, full of feces, feels like a floating kidney. I recall a case where three well-known specialists agreed in the diagnosis of a prolapsed kidney which gave the patient some trouble and required frequent replacing. I replaced it for the last time the day before she died, and at autopsy this "kidney" was found so snugly anchored in its proper position as to be very difficult to remove, but the splenic colon was twisted and enlarged and so full of feces as to feel like a

kidney. Many surgeons testify to this same error in diagnosis.

Whether we think we have a case of nephroptosis, or of coloptosis, or of splanchnoptosis, we can find much literature on this subject, for the bibliography of articles on ptoses is long and instructive. Twenty-five years ago we heard very little about this condition or its cure by surgery or mechanical means, and now we have Rovsing's[33] report of 163 cases of gastropexy, all favorable, as well as his advice about the correct belts and corsets to lift and hold the abdominal organs. We have also Dickinson's[34] arguments in favor of properly supervised gymnastics and the cultivation of nature's corset, "the well-set-up anterior abdominal wall with its strong uplift during contraction," to cure the middle-aged woman with relaxed abdomen, fat hips, and pendulous breasts. And we are taught by Reynolds and Lovett,[35] an orthopedist and a gynecologist, how to train our patients to proper postures in order to readjust their center of gravity, regain their balance, and retain their replaced viscera where they belong.

Some of us remember Dean Bodley's remarks to the chemistry class which was standing before her desk one day. She said softly, "Ladies, please pay attention to your attitudes in standing. If your abdomens are the parts of your anatomy of which you think the most, let them be in evidence, otherwise do not call attention to your bodies, but let your mental characteristics shine." It is, however, unfortunately true that the woman of middle-age sometimes finds neither careful attitudes of the body, nor mechanical treatment, nor surgery equal to the work of curing her ill-feelings so that her mind may work properly. Each individual presents a different psychic element, caused by her own way of responding to external and internal stimuli. When once the habit of introspection and myopia has developed she will need more or less continuous psychic treatment. She falls an easy prey to the Christian Scientist and to quacks, and enjoys patent medicines and all narcotics.

For such a patient there is yet another form of treatment which may take the place of drugs and is thoroughly scientific. I refer to the vaccine therapy, which is as well adapted to gynecological ailments as to other bacteriological infections. In examining smears from the vagina and cervix uteri of patients who were suffering from some genito-urinary trouble Dr. Jessie W. Fisher[36] has found in 13 of the cases the same bacteria that she found in their throats and noses. In these cases she found the colon bacillus three times, staphylococcus seven times, a streptococcus once, and *M. catarrhalis* twice. For these patients she has made autogenous vaccines which have been very successful in curing the disease from which the patient was suffering and thus preventing toxemic symptoms. Allen[37] suggests that where there have been failures with vaccines the dosage has been wrong. In gonorrheal cases, for example, the dose is frequently too small, and in many cases an autogenous vaccine should be given with the gonococci. He suggests 50,000,000 as a beginning dose of gonococci, and increasing the dose if necessary. He says: "The intervals may vary from five to seven and ten days. Treatment may have to be prolonged, but with care the patient will be cured." Allen says further: "Acute endometritis and salpingitis are nearly always secondary to one of two primary causes, either gonorrhea or parturition, 80 per cent. being gonorrheal with a coexisting colon infection. Puerperal infections are generaly streptococcal, and in all the cases thus far reported as treated with autogenous vaccines there has been a large percentage of cures."

Dr. E. W. Cushing, of Boston, also finds vaccines useful in chronic gonorrhea and puerperal infections, etc., but he obtains the best results in those cases infected with the colon bacillus, staphylococcus, and pneumococcus. In this I quite agree with him, but I must add the gonococcus to his list. In three recent cases I have used with brilliant results a polyvalent autogenous vaccine containing gonococci. In one of these cases, owing to a faulty staining of my own, I did not discover the gonococcus, and at first treated the patient with staphylococcus and colon and catarrhalis vaccine, on the mere hypothesis that her case was like another which I was treating. After a few treatments which did the patient no good I had a smear examined by Dr. Fisher, who found it to be swarming with gonococci; accordingly the proper vaccine promptly stopped the discharge.

It may be as well to report here three cases from my practice to show the short time required for the treatment of such patients:

Case I.—Mrs. S., gonorrheal infection, with chronic endometritis and salpingitis. Has twice been operated on for retroversion and ovarian adhesions. Dr. Fisher made an autogenous vaccine for her, which contained 200,000,000 gonococci, 600,000,000 staphylococci, and 200,000,000 colon bacilli. After five treatments the patient began to feel well; she had few of her old aches and pains, and she grew stout, while the dryness of the vagina disappeared together with its heat and congestion.

Case II.—Mrs. G., profuse leucorrhea for twenty years, during which time she had been continuously under a doctor's care, being treated with all kinds of local treatment. The uterus poured out a continuous stream of thick, tenacious mucus, containing streptococci, staphylococci, and *Bacillus pyocyaneus*. The same organisms were found in her throat. The vaccine for this case contained 150,000,000 of each of these bacteria to the cubic centimeter. A satisfactory cure was made by twenty doses of vaccine.

Case III.—Miss D., a victim of rheumatic pains and aches, with chronic tonsillitis, and tenderness in the right ovary. There was a thick ropy discharge from the os uteri. Dr. Fisher prepared a vaccine for this patient containing 200,000,000 staphylococci and 100,000,000 colon bacilli, which in fifteen treatments permanently relieved the discharge and ovarian pains, and seemed to cure the tonsils.

Many authors have reported equally good results from autogenous vaccines, whether gonorrheal or not. One should remember that death does not occur from the number of bacteria in the blood, but from toxemia due to localized foci of infection. We must therefore limit this toxin absorption and favor its elimination. The difficulty in treating endocarditis, salpingitis, and endometritis with vaccines is, then, due to the difficulty in obtaining the bacteria which are causing the trouble, and the inaccessibility of the local focus of toxin absorption. Since the pus of a pyosalpinx is found to be sterile nine months after the acute symptoms appeared, it would seem that the patient must be continually revaccinating herself with the poisons from the dead bacteria. If this process can be hastened by an autogenous vaccine, so much the better for the patient; the primary focus of the infection must, however, be sought. The laity have always thought that "catarrh went through the system," and a recent report from the Johns Hopkins Hospital[39] calls attention to the large percentage of cases of chronic urethritis and ureteritis associated with tonsillitis and rheumatism. This once more warns us to treat the whole patient and not a part for the whole.

As for other local treatment to the genitourinary organs of the woman of middle-age, opinions differ as to the value of douches and tampons, etc., but in my own mind there is no doubt of the value of nitrate of silver and other silver salts, as well as of ichthyol, iodine, and red-salve, etc., in appropriate cases. It is possible that the French physicians and some others may use too much local treatment. Richelat, for instance, advises vaginal douches of hot mineral water, 26 gallons at a time, three times a day, at a temperature of 45° C. (113° F.); and this internal bath is extensively used at all the European water-cures. The rational treatment of such a case must, in fact, depend upon its character. The dried extracts of ductless glands have not taken the place in the treatment of diseases of the menopause that enthusiasts at first claimed for them. Ovarian extract, lutein extract, thyroids, and adrenalin have some place in special cases, while mechanical treatment by bandages, pessaries, and corsets, as well as gymnastics and rest-cures have great value. Surgery at its best can not restore organs or ligaments to exactly their former correct positions; its chief value is to remove diseased tissue and to aid in the diagnosis of an obscure case.

But whatever treatment we adopt for the improvement of the health of the gynecological patient let us save her from fads and whims when she reaches middle-age. She may need readjusting from the crown of her head to the soles of her feet. She needs treatment before she is born, continual watching and teaching while she is growing, and great care when she becomes a mother, as well as good advice when she has reached the menopause, whether she is conscious of any change or not. But if she is a victim of bad obstetrics and of unhygienic living there is much that can be done for her without surgery; if, however, she needs an operation, let us make that as psychologically easy as possible. Crile has demonstrated that every anesthetized patient is handicapped by shock although the memory of the pain is obliterated. Bloodgood maintains that if the pain of an operation could be effaced entirely the mortality would be cut in half and the convalescence made much shorter. When, therefore, shockless surgery becomes possible we shall more willingly resort to surgery for the woman of middle-age, and by a judicious choice of medicine, surgery, orthopedics, and nerve re-education we may hope to eliminate the discomforts of the menopause and vastly increase the efficiency of the patient who should be in her prime, as is the man of fifty.

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THE MECHANISM OF IMMUNITY IN EXPERIMENTAL CANCER*

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MALIGNANT tumors occur in nearly every species of lower animals. These spontaneous tumors are identical in their clinical behavior, as well as morphologically, with human cancer. In certain species, principally in white mice and rats, the growth of a malignant tumor may be induced artificially by an inoculation into a previously healthy animal of a piece of tumor tissue.

Before I proceed with my thesis I may show that this experimentally produced malignant tumor in lower animals is analogous clinically and pathologically with human cancer, and that consequently results obtained from the study of these conditions

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may be used in elucidating phenomena in human cancer with the same caution that is required in all other subjects of experimental medicine.

The usual method of propagating the tumors of the white mice and rats consists in a subcutaneous inoculation of a small particle of tumor tissue. In most of my work, which serves as the basis for this report, the technique differed inasmuch that I inoculated the piece of tumor tissue directly into organs, *i.e.*, brain, kidney, liver, spleen, and testicle. My aim was to imitate as near as possible the conditions in the human. As will be seen later, I observed a number of interesting phenomena, which would have escaped the old method of subcutaneous inoculation.

The tumors which develop upon an inoculation of a piece of tumor tissue into a parenchymatous organ show all the characteristics of malignancy described in human cancer. The tumor cells infiltrate diffusely and replace the substance of the organ. Consequently symptoms of clinical malignancy must occur as soon as a sufficient amount of an organ substance has been destroyed by the tumor. Indeed, these animals do not live any longer than about ten weeks after the inoculation, and frequently die with much smaller tumors than are obtained on a subcutaneous inoculation. True metastases form with much greater frequency than after a subcutaneous inoculation and the tumors recur after an apparently complete operative removal.

The objection may still be raised that this experimental cancer in white mice and rats is not comparable with human cancer since what we are inducing experimentally is only a metastasis through the introduction of a group of cancer cells in a certain place of the animal. But the biological and clinical behavior of a primary and metastatic tumor is absolutely identical, provided they occur in the same place and contain the same kind of cancer cells. The real gravity and importance of the metastatic tumor lies in the fact that it occurs subsequently to the formation of the primary tumor and consequently increases the gravity of the condition of the host. In experimental cancer the animals used are normal and the inoculated tumor is the only one within the host and therefore cannot be considered a metastatic growth in the true meaning of the word.

The most important phenomenon observed in the study of experimental cancer consists in the so-called immunity or resistance of certain animals to the growth of the inoculated tumors. This resistance depends upon a number of various complex conditions, most of which present as yet no tangible explanation. The phenomenon is a resultant of two component parts, the power of the inoculated cancer cell to unlimited proliferation and the reactivity or counteraction of the organism of the host. When a spontaneous tumor is inoculated it grows successfully only in a small number of animals used, frequently in less than 10 per cent. In subsequent inoculations with material taken from the implanted tumors the success of the takes increases to nearly 100 per cent. This indicates that the implanted cancer cell increases its proliferating power—its virulence. The fact, on the other hand, that a certain number of animals retain their resistance to the growth of the tumor, shows the influence of the reactivity of the host. There is still another factor which complicates the condition of immunity in experimental cancer. Before the inoculated piece of tumor tissue can develop its virulence in the new host, it must become ingrafted.

This mechanism of ingrafting is common to tumor and normal tissue. When the grafting succeeds then the further development of the graft depends upon the character of the tissue used.

The percentage of animals which resist the development of experimental cancer may be increased artificially by a previous inoculation of tumor tissue, the virulence of which is known to be very low, or of normal tissue. In view of the fact that no passive immunity may be induced by treatment of a normal animal with the blood-serum of an immune one, and the further fact that living tissue seems to be required to immunize an animal against tumor growth, and that there is no specific relationship between the character of the tissues used for immunization and the tumors used for subsequent inoculation, many investigators considered this immunity to be due to a peculiar cellular activity of the organism of the host.

The most plausible of these theories is the one advanced by Ehrlich under the name of "athrepsia," which is based on the following considerations: Growth of inoculated cancer is due to cellular activity and indicates that tumor cells possess a great avidity for a certain specific foodstuff within the organism of the host and consequently obtain it from the normal tissue cells of the organism. When cancer fails to grow, then either the organism of the host does not possess the necessary specific foodstuff or else the avidity of the cancer cells for this food is not strong enough to deprive the normal tissue cells of it. When the organism of the host is immunized by treatment with a cell emulsion, these cells bind the specific food and consequently the cancer cells inoculated subsequently do not find the necessary nourishment and die.

My own investigations have indicated, as I shall show later, that while immunity in experimental cancer is not identical with bacterial immunity there exists an analogy between the two conditions. In the first place I have shown that it is possible to immunize an animal against a subsequent tumor inoculation not only by a previous injection of an emulsion of living cells but also by one of the autolyzed tissues: *i.e.*, of tissue in which the cells have suffered dissolution but in which the endocellular ferments apparently remain active. This fact militates against the supposition that immunity in experimental cancer is due to a peculiar cellular activity, but is due probably to action of ferments and hence is analogous to bacterial immunity. In collaboration with Zittenfield I have further shown that athrepsia may serve to explain solely the condition of the resistance and susceptibility of an animal to the grafting of tumor tissue, and that the success of such grafting of the inoculated cells may depend on the conditions of nutrition. On the other hand, the differences in nutrition cannot explain the reason why in one successful tumor graft there forms a small nodule which is subsequently absorbed, while in another the nodule grows into a large tumor and kills the animal.

I cannot give here the details of the work, but I shall describe one very striking experiment. Ehrlich based his hypothesis among other things on the fact that a mouse tumor when inoculated into a rat forms a small nodule which is absorbed in eight days, but if before absorption the nodule is reinoculated into a mouse a big tumor develops. The reason is supposed to be the fact that the cells of the mouse tumor do not find specific food in the rat, but find it when reinoculated into a mouse.

"Twenty mice were inoculated with pieces of *mouse sarcoma* taken from rats. Nineteen mice survived, and of these one took the tumor, which represents 5 per cent. of takes. The tumor from this mouse was inoculated in twenty other mice and the tumor took in fourteen mice, or 70 per cent." It appears from these experiments that while a mouse tumor after a sojourn in a rat still grows subsequently in a mouse, its virulence is greatly diminished. Consequently the organism of the rat must have not only failed to furnish food to the cells of mouse cancer, but also produced on it an active inhibitory influence.

Bashford in his conception of immunity in experimental cancer also considers it to be a kind of cellular activity and furthermore denies that there is any direct influence of the organism of the host on the inoculated cancer cells. According to his idea an inoculated piece of cancer tissue causes in the new host the formation of a specific connective-tissue and vascular scaffolding. This connective tissue stroma invades the graft and furnishes it with the mechanical support and nutrition necessary for its development. Immunity, then, consists in the failure of the organism of the host to supply the specific stroma reaction. The immune organism does not produce a direct deleterious effect on the cells of the inoculated cancer, but alters its own normal connective tissue cells so as to render them insusceptible to the chemiotactic properties of the inoculated cancer cells.

My own studies led me to believe that Bashford's theory of a specific connective-tissue scaffolding has no general application in the explanation of cancer immunity. The conditions appear to be quite different when in accordance with my method of work the tumor is inoculated directly into an organ instead of subcutaneously. In this case the first visible step is not the formation of a connective-tissue stroma, but the inoculated cells immediately begin to proliferate and invade diffusely the normal tissue.

On the other hand, in an immune animal the tumor cells inoculated into an organ do not grow but die and are invaded by an extensive connective tissue stroma like any other dead foreign body. Consequently the immune organism does not lack the capacity to form connective tissue scaffolding, and such an incapacity can no more be considered of a general importance in the elucidation of the phenomenon of immunity in experimental cancer than the lack of specific chemical food.

I shall now turn to the description of other phenomena in the immunity in experimental cancer which I observed and which could have only been detected through my method of inoculation into organs.

The inoculable tumors of the white mice and rats as a general rule grow just as well when inoculated into a parenchymatous organ as when inoculated subcutaneously. On the other hand, an animal resistant to a subcutaneous inoculation also resists an inoculation into an organ.

In my experiments with the Flexner-Jobling adenocarcinoma of the white rat I noticed that while the tumor grows when inoculated subcutaneously or into any other organ in a large percentage of animals used, it does not grow when inoculated into a normal testicle. But when a testicle is treated previous to the inoculation either with an emulsion of Scharlach R in oil or an emulsion of ether in water, there takes place in the organ an inflammation accompanied with a proliferation of the intertubular connective tissue, and then the inoculation of the same tumor into the organ becomes successful. The failure of the growth of the tumor in the normal testicle is not due to a general condition of the organism, but to a local action of the testicle on the tumor cells. The percentage of animals which are generally resistant to a subcutaneous inoculation is very small, and all the animals used for the inoculation into the testicle could not have been resistant to the growth of the tumor. Nor is it due to the mechanical influence of the tunica interfering with the expansion of the organ by the growing tumor, nor to the lack of specific food in the organism of the host. My investigations have shown that other inoculable tumors grow well in the testicle. The mechanism of this local resistance can be due only to an inhibitory action upon the cells of this tumor of the cells of the tubules of the testicle. This investigation shows also that it is possible to render the same testicle artificially susceptible to the growth of the tumor.

In another more recent investigation I have found again a striking proof of the possibility of a certain organ reacting differently toward the growth of an inoculable tumor than the rest of the organism. Uhlenhuth has shown that when a tumor inoculated subcutaneously is removed surgically, and then a piece of the same tumor is introduced into the subcutaneous tissue of another region, then the second inoculation will fail if the operation was radical. But if the tumor at the site of the operation recurred, then the second inoculation was also successful in the majority of cases. These experiments were repeated by many investigators and with the exception of Apolant they all received nearly identical results. I repeated the experiments with the difference that the second inoculation was done not subcutaneously but into an organ. The results obtained coincided well with the results of Uhlenhuth. I then varied the experiments so that the second inoculation was not done in one organ, but in two organs—liver and spleen—simultaneously. The results obtained were quite unexpected. When the operation was radical and the subcutaneous tumor did not recur, then the secondary inoculation was not successful in any organ. On the other hand, when the operated subcutaneous tumor recurred then in a certain number of cases the secondary inoculation succeeded in both organs; in another series of experiments the secondary inoculation succeeded in one organ and failed in another.

All these experiments of Uhlenhuth, myself and others show conclusively that the phenomena of immunity in experimental cancer cannot be explained by specific food relationship. When a large recurrent tumor grows at the site of the operation it should have taken up all the specific food of the organism and the secondary inoculation should have failed.

There must exist a certain as yet unknown kind of an active inhibitory influence of the organism of the host on the cancer cells. Furthermore, we see here again the possibility of a purely local organ resistance in an otherwise susceptible animal. The subcutaneous tumor for instance recurs and a subsequent inoculation into the spleen is successful, but a simultaneous inoculation into the liver fails.

It is interesting to note here that the spleen is

the organ in which the inoculation most frequently succeeds, and the spleen also is the organ which is most frequently found diseased in tumor animals. Again as in the experiments with the testicles we find an experimental proof of the supposition supported by the clinic that a diseased organ is more easily susceptible to the growth of cancer.

To recapitulate, then: the condition of immunity in experimental cancer, while not identical is very similar to the immunity in bacterial diseases, and is due to an active inhibitory influence of the organisms of the host upon the proliferative power of the cancer cells. Furthermore, such an inhibitory action may be produced locally by a certain organ in a generally susceptible animal. Such a local inhibitory influence of an organ is destroyed when it becomes diseased.

The phenomenon of general inhibitory activity or general immunity of the organism against the growth of cancer is undoubtedly of paramount importance from the theoretical standpoint, but for the practical application of our knowledge of the pathogenesis of the disease the factor of the local organ immunity and of the possibility of destroying this immunity artificially is of at least as much importance.

In men who reach the cancer age only about 10 per cent. die of cancer; it is possible that the rest, or fully 90 per cent., are immune against the development of cancer. The general active immunity, the nature of which we do not know as yet, is consequently of such general occurrence that it seems plausible to suppose that when the local irritation in a certain organ is great enough, then cancer may develop even in an organism which is generally immune against tumor growth. It is of the greatest importance then to study the conditions of local organ susceptibility or immunity. Not only will it be possible to learn ultimately in this manner the true pathogenesis of the disease, but also to find the correct methods for the prevention and treatment of the disease. It is possible to suppose, for instance, that the action of *chemotherapeutic measures* or of the *radioactive substances* is due not only to their deleterious effects upon the cancer cells but also to the purely local increase of the inhibitory action of the normal organ tissue surrounding the growing tumor.

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RESULTS OF TREATMENT OF SYPHILIS WITH SALVARSAN AND NEO-SALVARSAN.*

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and

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Salvarsan and neosalvarsan are still considered by many as a specific for syphilis. One injection was formerly deemed sufficient to effect a cure. As a consequence, the dread of this disease has lessened among the laity. The self-termed "men specialists" advertise permanent and immediate cures and one advertisement even goes so far as to state that one dose not only cleanses the system of this dread disease but prevents all future danger of infection! As a consequence men having the disease hasten to avail themselves of the wonderful remedy even at a charge of fifty dollars. Many of them undoubtedly marry on the assurance of this one expensive injection, believing themselves permanently cured. The after results of such a union are unpleasant to consider.

Such unbounded faith in the remedy has been based on the excellent and almost miraculous results achieved in treating primary lesions, secondary eruptions, and tertiary ulcers during their active stages. Mucous membranes heal rapidly and sores seem to disappear overnight. We have had syphilitic ulcers of the tonsils, face, nose, and body respond rapidly to this remedy. Three cases of amebic dysentery were seemingly cured by the drug. Men have gained weight and been greatly benefited physically and mentally. It is a wonderful remedy and as yet its field of usefulness is only beginning to be realized.

But, judging from our results and the Wassermann reactions, it is not a cure for syphilis when given in one, two, three, or even six full doses of .9 gram intravenously. If such prove to be the case amongst other observers, then it is dangerous and criminal to allow the laity to continue in their belief that one treatment alone will cure a disease which affects not only the patient himself but his family. No man should be allowed to marry on the assumption that his one injection of salvarsan or neosalvarsan has produced a permanent cure. One injection will probably produce a decided change in the Wassermann reaction when taken immediately after treatment with the drug. The test may show a negative reaction. This may have occasioned faith in the immediate cure after one dose of the remedy. But take other tests in a month or so when the patient has had no alcohol for forty-eight hours and has received no mercury and iodides for two weeks or more. What is the result then?

We have selected twenty cases from our records of men who have been under constant observation. In the military service we can follow our cases. We can control the men and know that they take treatment at regular times. Thrice a day each soldier is required to report at the post hospital for either the "H. S." or protoiodide tablets. The medicine is taken in the presence of a dispensary sergeant and checked in a treatment book. The men are questioned as to headache or signs of salivation. Frequently the dosages have to be reduced and in many cases only protoiodide is tolerated. All are started, however, with the "H. S." until it is definitely proved that there is danger of salivation or gastric disturbance from this mixed treatment.

With the intravenous injections of neosalvarsan we have had no untoward results. There is ordinarily a slight diarrhea for a day or so. Now and then there have been headache and slight elevation of temperature. These, however, are not usually noted if freshly distilled water and salt solutions are made up on the day of injection. The old theory that it took at least a year to effect a cure with iodides and mercury led us to expect a shorter period of treatment with neosalvarsan combined with the vigorous old-time remedies. Such optimism seems unwarranted in view of the following cases:

Date of first Wassermann report shows time treatment was started. All treatment was stopped on April 1, 1913. All Wassermann reactions retaken on May 23, 1913, and reported from Army

*Published with the consent of the Surgeon General, U. S. Army.

REPORTS OF TWENTY CASES OF SYPHILIS TREATED WITH NEOSALVARSAN AND MERCURY AND IODIDE

Number of Case	Time of Infection	Wassermann Tests Made at Army Medical School, Washington, D. C.	Treatment With Neoalvarsan All given Intravenously. Dates and Amounts of Dosage	Other Treatment Given Three Times Each Day. Men Compelled to report at Hospital for Each Dose	Results: Apparent and Subjective
1	1910	Dec. 11, 1912++ May 28, 1913+	July 24, 1911; given a dose of Salvarsan-intramuscular—dose unknown. Dec. 16, 1912, .9 gm. Feb. 17, 1913, .9 gm.	H. S. 4 c.c.; 8 c.c. No. 1 in Dec. and Jan., 1912-1913. H. S. 4 c.c. 8 c.c., t.i.d.p.c. No. 3.	Has been seemingly well, no change in weight. States he was well before and feels no different. Slightly enlarged glands.
2	1909	Sept. 23, 1912— Oct. 31, 1912+ Jan. 27, 1913— May 28, 1913+	Dec. 3, 1912, .9 gm. Mar. 14, 1913, .45 gm.	Protoiodide pills; 2 t.i.d.p.c.	Gained 15 pounds. Feels better stronger, has good appetite no longer anemic.
3	1912 July	Oct. 31, 1912++ May 28, 1913++	Dec. 3, 1912, .9 gm. Feb. 7, 1913, .9 gm. Mar. 14, 1913, .45 gm.	Protoiodide pills; 2, later 3 t.i.d.p.c.	Cured of amebic dysentery, gained 20 pounds. Feels like a "new man."
4	1912 March	Nov. 20, 1912++ May 28, 1913++	Dec. 1, 1912, .9 gm. Jan. 10, 1913, .9 gm. Mar. 14, 1913, .45 gm.	Protoiodide pills; 2 t.i.d.p.c.	Gained weight; feels better.
5	1912 July	Feb. 5, 1913++ May 28, 1913++	Feb. 14, 1913, .9 gm. Mar. 13, 1913, .45 gm.	H.S., 4 c.c.; 8 c.c. No.1; then 4 c.c. No. 2.	Greatly improved.
6	?	Feb. 5, 1913++ May 28, 1913++	Feb. 14, 1913, .9 gm. Mar. 13, 1913, .9 gm.	H. S. 4 c.c. No. 1; later Protoiodide 2.	No longer constipated, gained weight; no longer "dopey."
7	1912 June	June 26, 1912++ May 28, 1913++	June 26, 1912, .45 gm. Salvarsan Oct. 10, 1912, .45 gm. Dec. 3, 1912, .9 gm. Dec. 16, 1912, .9 gm. Jan. 12, 1913, .9 gm.	Can't tolerate H. S. Protoiodide pills 2 t.i.d.p.c. Salivates easily.	Gained 24 pounds. Greatly improved.
8	Denies	Oct. 31, 1912+ May 28, 1913++	May, 1912, .9 gm. (?) at Fort Slocum. Mar. 13, 1913, .9 gm.	H.S.; 4 c.c.; 8 c.c. No.1, then 8c.c. No. 2.	Feels better, condition hereditary bowels regular after 606, previously constipated.
9	1911	Jan. 4, 1913+ Jan. 15, 1913+ May 28, 1913+	Feb. 7, 1913, .9 gm. Mar. 14, 1913, .45 gm.	H. S. 4; 8; c.c. No. 1; 4 c.c. No. 2.	No change, splendid condition and health before treatment.
10	?	Nov. 20, 1912+ Dec. 14, 1912+ Jan. 4, 1913+ May 28, 1913++	Mar. 1911, Salvarsan intramuscular; dose?	4 c.c., 8 c.c., H. S. No. L.	No change, seems well. Heavy drinker.
11	1910	Dec. 11, 1912+ Provocative test Jan. 4, 1913+ Jan. 8, 1913+— Jan. 27, 1913— May 28, 913+	Mar. 11, 1911, Salvarsan, intramuscular; dose? Jan. 2, 1913, .9 gm.	H. S. 4 c.c. No. 1.	No change in feelings. Seems well. No indications of syphilis.
12	1911	Dec. 11, 1912— Jan. 15, 1913++ Feb. 5, 1913+ May 28, 1913++	Mar. 11, 1911, Salvarsan, ntramuscular, .6 gm.	4 c.c. No. 1; 8 c.c. No. 2.	Some slight gain in weight. No marked glandular enlargement nor other symptoms.
13	1898 ?	Oct. 31, 1912++ Nov. 29, 1912++ May 28, 1913++	Jan. 2, 1913, .9 gm. Jan. 4, 1913, .9 gm. Feb. 7, 1913, .9 gm.	Since October 31 been taking 8 c.c. No. 2.	Lost a testis from the disease, was in bad shape till Oct. 31. Could not be induced to take 606 till disease broke out on face in Jan. 1913. Has gained 40 pounds, feels well.
14	1911	Dec. 12, 1912++ May 28, 1913++	Dec. 14, 1912, .9 gm. Jan. 31, 1913, .9 gm.	6 c.c. No.1. Can't tolerate mercury	Somewhat improved.
15	1910	Dec. 14, 1912++ May 28, 1913++	Dec. 16, 1912, .9 gm. Mar. 13, 1913, .45 gm.	H. S. 6 c.c. No. 1.	No change.
16	?	Oct. 31, 1912++ May 28, 1913+	Dec. 11, 1912, .9 gm. Jan. 10, 1913, .9 gm.	8 c.c. No. 1; 4 c.c.-8 c.c. No. 2.	Great improvement; gain in weight.
17	Jan. 1912	Jan. 4, 1912++ May 28, 1913++	Feb. 14, 1913, .9 gm.	4 c.c.-8 c c. No. 1. 4 c.c. No. 2.	No change; heavy drinker.
18	1901	Jan. 4, 1913++ Mar. 10, 1913++	Jan. 12, 1913, .9 gm. Jan. 31, 1913, .9 gm. Mar. 13, 1913, .9 gm.	4 c.c.-8 c.c. No.1. 8 c.c.-10 c.c. No. 2.	Gained 30 pounds. Remarkable improvement.
19	1898 ?	June 12, 1912++ Dec. 26, 1912++ May 28, 1913++	Jan. 2, 1913, .9 gm. Jan. 31, 1913, .45 gm. Mar. 13, 1913, .45 gm. June 14, 1913, .9 gm.	Can't tolerate mercury except by inunctions.	Inunctions every other day. Protoiodide 1 tablet t.i.d.p.c.
20	? Denies	Dec. 2, 1912+ Dec. 12, 1912+ Jan. 4, 1913+ May 28, 1913+	Jan. 31, 1913, .45 gm. Feb. 21, 1913, .9 gm. Mar. 13, 1193, .45 gm.	6 c.c. No. 1.	Gained 16 pounds. Had a suspicious iritis although denied infection.

Medical School, Washington, D. C., on May 28, 1913. No alcohol was allowed before this test. H. S. No. 1 contained bichloride of mercury .2 gram, potassium iodide 65. grams, and water q. s. ad 800 c.c. H. S. No. 2 contained bichloride of mercury .4 grams; potassium iodide 90. grams, and water q. s. ad 800 c.c. Injections of various salts of mercury were tried, but for routine treatment proved too painful even when injected with cocaine in the solution.

Conclusions.—(1) Salvarsan and neosalvarsan in full doses given intravenously do not appear to cure syphilis. (2) They are of very great value in the active stages of the disease and are especially useful in patients who cannot tolerate mercury. (3) No harmful results have been noted from frequent injections. (4) No patient should be allowed to assume that he is cured after one or more injections of this drug unless the Wassermann reactions taken at definite intervals for a year or more are continually negative and the patient has abstained from alcohol for 48 hours previous to the test.

MORTALITY EXPERIENCE—TOTAL ABSTAINERS.*

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We have been requested many times to publish the Security Mutuals' mortality experience in its Total Abstinence Class. In view of the fact that the Department was not organized until September, 1900, we have been reluctant to furnish it, believing that our experience was too short and the exposure too small to prove of positive value; however, disregarding our personal feelings in this matter, we are giving you herewith the data.

Permit me to recite briefly the rules governing admission to the Total Abstinence Department:—First the man must be a total abstainer at the time of making application and must have been one for at least five years preceding date of his application. His statement that he is and has been a total abstainer has been corroborated by the statement of the agent submitting the case and by the inspector. No man is placed in this class unless he makes a special request and signs an application for membership to this class. Many abstainers decline to go into the class in view of the promise that they will forever abstain from the use of alcoholics, so this class is composed almost exclusively of men and women who are total abstainers or who are opposed to the sale of alcoholic liquors for principle's sake. This has in a way given to this particular department more or less of a fraternal spirit; possibly this may be a factor as influencing mortality.

So far as I am aware, the company I represent was the first one to organize a Total Abstinence Department and put into that Department only such risks as made application for entrance to it and whose statement that they were total abstainers was in every instance verified by an inspection.

This department's organization was due entirely to a man who is now in charge of it and has been, continuously, since it started. The gentleman referred to is a total abstainer and a Prohibitionist; he has been prominent in his political party (Prohibition), also in his church. With him it has been purely a matter of principle. He has, however, not passed upon the eligibility for membership, because he preferred to place that part of the work in the hands of people who could and would make the selection without any personal interest in the class. Such data as we have is herewith furnished you in table form.

POLICIES—WOMEN

Age	Exposed to Risk	Actual Deaths	Expected Deaths	Age	Exposed to Risk	Actual Deaths	Expected Deaths
21	46	....	.36	47	27	....	.32
22	49	....	.39	48	17	....	.21
23	59	....	.47	49	11	....	.14
24	62	....	.50				
25	64	....	.52	50	9	....	.12
26	56	....	.46	51	6	....	.09
27	79	....	.65	52	3	....	.05
28	69	....	.57	53	7	....	.11
29	70	1	.58	54	6	....	.10
				55	3	....	.06
30	69	....	.58	56	3	....	.06
31	68	....	.58	57	2	....	.04
32	76	....	.65	58	1	....	.02
33	83	1	.72	59	1	....	.02
34	82	....	.72				
35	77	....	.69	60	1	....	.03
36	79	....	.72	61	....	....	....
37	74	....	.68	62	1	....	.03
38	59	....	.56	63	....	....	....
39	56	1	.54	64	3	....	.11
				65	2	....	.08
40	50	....	.49	66	2	....	.09
41	53	....	.53	67	1	....	.05
42	47	....	.48	68	1	....	.05
43	32	....	.34	69	1	....	.06
44	35	....	.38				
45	34	....	.38	Tot.	1,667	3	15.74
46	31	....	.36				

AMOUNTS—WOMEN

Age	Exposed to Risk	Actual Losses	Expected Losses	Age	Exposed to Risk	Actual Losses	Expected Losses
21	$45,500	....	$357	47	$34,950	$	$419
22	47,500	....	376	48	16,150	....	202
23	54,500	....	434	49	10,150	....	133
24	56,500	....	453				
25	61,100	....	493	50	10,500	....	145
26	51,100	....	415	51	8,500	....	124
27	76,700	....	629	52	4,000	....	62
28	71,492	....	591	53	9,000	....	147
29	75,200	$1,000	627	54	7,000	....	122
				55	3,000	....	56
30	73,700	....	621	56	2,500	....	50
31	74,700	....	630	57	2,000	....	43
32	87,650	....	754	58	1,000	....	23
33	95,550	1,000	833	59	1,000	....	25
34	92,600	....	818				
35	91,150	....	815	60	2,000	....	53
36	99,350	....	903	61	....	....	....
37	93,350	....	862	62	1,300	....	41
38	76,850	....	723	63	....	....	....
39	67,850	500	650	64	1,750	....	65
				65	750	....	30
40	57,350	....	562	66	750	....	33
41	65,550	....	656	67	250	....	12
42	58,050	....	595	68	250	....	13
43	41,350	....	436	69	250	....	14
44	50,000	....	541				
45	43,650	....	487		Totals		
46	41,650	....	482		$1,866,442	$2,500	$17,555

The experience covers a period running from September, 1900 (the date of formation of the Department), to the anniversaries of the policies in the year 1912.

POLICIES—MEN

Age	Exposed to Risk	Actual Deaths	Expected Deaths	Age	Exposed to Risk	Actual Deaths	Expected Deaths
21	1,193	4	9.37	46	354	....	4.09
22	1,014	6	8.02	47	343	1	4.12
23	1,042	4	8.29	48	311	1	3.89
24	1,102	4	8.83	49	300	2	3.93
25	1,067	3	8.61				
26	1,038	2	8.44	50	279	....	3.84
27	1,007	1	8.25	51	245	....	3.56
28	967	2	7.99	52	220	1	3.39
29	959	2	8.00	53	188	1	3.07
				54	166	....	2.89
30	936	1	7.89	55	161	4	2.99
31	875	2	7.45	56	148	3	2.94
32	848	....	7.30	57	119	....	2.54
33	815	3	7.11	58	100	....	2.29
34	776	3	6.85	59	80	....	1.98
35	736	1	6.58				
36	727	2	6.61	60	71	....	1.90
37	706	3	6.52	61	50	1	1.44
38	633	4	5.96	62	38	1	1.19
39	617	....	5.91	63	24	1	.81
				64	16	....	.59
40	560	3	5.48	65	9	....	.36
41	538	2	5.38	66	5	....	.22
42	481	5	4.93	67	2	....	.10
43	412	....	4.33	68	1	....	.05
44	398	2	4.31				
45	381	2	4.25	Tot.	23,058	77	224.84

The total number of entrants is 7,231. The total years of life exposed 24,725. Average duration of membership 3.42 years.

The average amount of policies terminated by death is considerably greater than the average amount of the policies in the class. This is due to the fact that the Department experienced losses under several policies for our maximum limit.

The occupation of the male entrants may be divided as follows:

Clergymen	273
Farmers	1,315
Clerks	1,006
Miscellaneous	4,160
Total	6,754

*Read at the twenty-fourth annual meeting of the Association of Life Insurance Medical Directors, Philadelphia, October 29-30, 1913.

AMOUNTS—MEN

Age	Exposed to Risk	Actual Losses	Expected Losses	Age	Exposed to Risk	Actual Losses	Expected Losses
21	$1,462,071	$1,000	$11,485	46	$671,387	....	$7,763
22	1,285,327	6,500	10,162	47	633,587	$5,000	7,603
23	1,373,039	23,500	10,927	48	588,790	1,000	7,365
24	1,456,280	8,000	11,666	49	577,956	6,000	7,575
25	1,414,039	3,000	11,404				
26	1,457,976	2,000	11,853	50	514,292	....	7,087
27	1,477,420	1,000	12,110	51	480,023	....	6,980
28	1,421,770	4,000	11,750	52	448,092	2,000	6,896
29	1,413,213	1,500	11,793	53	400,120	1,000	6,535
				54	366,120	....	6,369
30	1,431,988	1,000	12,067	55	370,262	20,660	6,876
31	1,431,314	2,000	12,180	56	312,290	4,000	6,210
32	1,369,667	....	11,789	57	261,290	....	5,575
33	1,339,847	3,000	11,681	58	223,790	....	5,133
34	1,245,601	9,500	11,000	59	166,690	....	4,121
35	1,154,917	1,000	10,332				
36	1,205,900	2,000	10,960	60	148,830	....	3,973
37	1,211,467	3,000	11,187	61	102,830	3,000	2,970
38	1,111,926	7,000	10,461	62	68,532	1,000	2,145
39	1,165,796	....	11,175	63	50,000	2,000	1,697
				64	27,000	....	996
40	1,098,351	8,000	10,757	65	13,500	....	542
41	1,149,208	4,000	11,501	66	5,500	....	240
42	999,258	36,000	10,244	67	2,000	....	95
43	827,439	....	8,702	68	1,000	....	52
44	784,590	6,000	8,496				
45	748,317	4,000	8,353	Totals	$37,470,602	$185,660	$378,833

POLICIES—MEN AND WOMEN

Age	Exposed to Risk	Actual Deaths	Expected Deaths	Age	Exposed to Risk	Actual Deaths	Expected Deaths
21	1,239	4	9.73	47	370	1	4.44
22	1,063	6	8.40	48	328	1	4.10
23	1,101	4	8.76	49	311	2	4.08
24	1,164	4	9.32				
25	1,131	3	9.12	50	288	....	3.97
26	1,094	2	8.89	51	251	....	3.65
27	1,086	1	8.90	52	223	1	3.43
28	1,036	2	8.56	53	195	1	3.18
29	1,029	3	8.59	54	172	....	2.99
				55	164	4	3.05
30	1,005	1	8.47	56	151	3	3.00
31	943	2	8.02	57	121	....	2.58
32	924	....	7.95	58	101	....	2.32
33	898	4	7.83	59	81	....	2.00
34	858	3	7.58				
35	813	1	7.27	60	72	....	1.92
36	806	2	7.33	61	50	1	1.44
37	780	3	7.20	62	39	1	1.22
38	692	4	6.51	63	24	1	.81
39	673	1	6.45	64	19	....	.70
				65	11	....	.44
40	610	3	5.97	66	7	....	.31
41	591	2	5.91	67	3	....	.14
42	528	5	5.41	68	2	....	.10
43	444	....	4.67	69	1	....	.06
44	433	2	4.69				
45	415	2	4.63	Tot.	24,725	80	240.54
46	385	....	4.45				

AMOUNTS—MEN AND WOMEN

Age	Exposed to Risk	Actual Losses	Expected Losses	Age	Exposed to Risk	Actual Losses	Expected Losses
21	$1,507,571	$4,000	$11,842	48	$604,940	$1,000	$7,567
22	1,332,827	6,500	10,537	49	588,106	6,000	7,708
23	1,427,539	23,500	11,360				
24	1,512,780	8,000	12,119	50	524,792	....	7,232
25	1,475,139	3,000	11,897	51	488,523	....	7,104
26	1,509,076	2,000	12,269	52	452,092	2,000	6,957
27	1,554,120	1,000	12,739	53	409,120	1,000	6,682
28	1,493,262	4,000	12,340	54	373,120	....	6,491
29	1,488,413	2,500	12,421	55	373,262	20,660	6,932
				56	314,790	4,000	6,260
30	1,505,688	1,000	12,688	57	263,290	....	5,617
31	1,505,314	2,000	12,810	58	224,790	....	5,156
32	1,457,317	.....	12,413	59	167,690	....	4,145
33	1,435,397	4,000	12,514				
34	1,338,201	9,500	11,818				
35	1,246,067	1,000	11,147	60	150,830	....	4,026
36	1,305,250	2,000	11,863	61	102,830	3,000	2,970
37	1,304,817	3,000	12,049	62	69,832	1,000	2,185
38	1,188,776	7,000	11,184	63	50,000	2,000	1,697
39	1,233,646	500	11,826	64	28,750	....	1,060
				65	14,250	....	572
40	1,155,701	8,000	11,319	66	6,250	....	273
41	1,214,758	4,000	12,157	67	2,250	....	107
42	1,057,308	36,000	10,840	68	1,250	....	65
43	868,939	....	9,139	69	250	....	14
44	834,590	6,000	9,038				
45	791,967	4,000	8,841	Totals	$39,337,044	$188,160	$396,386
46	713,037	....	8,244				
47	668,537	5,000	8,022				

The miscellaneous occupations are divided up among a very large class covering wage-earners averaging probably $15.00 to $25.00 per week. The classification of occupations is given for the reason that there is a very general impression that the class is made up largely of clergymen.

The actual passing upon the question of eligibility to membership in this class has been in the hands of the Company's Actuary, Mr. D. S. Dickenson, and myself. The necessary calculations for the formation of the tables herewith presented were made in our Actuarial Department and verified by the Actuary.

BENIGN TUMORS OF THE FEMALE BREAST; REPORT OF A CASE.

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THE writer's attention was drawn very forcibly to the problem presented by the benign tumors of the female breast by the following case, which was referred to him recently for operation.

The patient was 33 years of age, well developed, married, had borne three children, and had enjoyed excellent health. There was no history of abscess of the breast. No loss in weight. No history of previous serious illness or trauma. Seven years ago she first noticed a slight serous discharge from the right nipple. This had continued at various times and in gradually increasing quantity up to the present.

Physical examination.—This showed the heart, lungs, and kidneys normal. The left breast was normal. The right breast was not enlarged. The nipple was not retracted. An area 3 to 4 cm. in diameter on palpation felt somewhat indurated. There were no nodules palpable in the breast. The patient had complained of no pain until the question of pain had been suggested by one examiner a few weeks earlier. Since then she stated that at times she has noticed slight discomfort. Axillary palpation revealed the presence of several enlarged glands. There was no cervical glandular involvement nor affection of the left axilla.

A radical operation was performed, both pectorals being removed and the axilla carefully dissected, leaving the lower subscapular nerve to the latissimus dorsi and the long thoracic to the serratus magnus intact. The skin wound was closed completely without grafting. The question naturally arose as to the advisability of this complete dissection, but with a history of seven years' discharge from the nipple, a rather indurated mass around the nipple, and a glandular enlargement in the axilla no other course seemed justifiable.

A macroscopical examination of the specimen removed immediately after the operation proved very interesting. On incising the nipple and the region immediately posterior to it there was a free discharge of a clear straw-colored serum to the amount of 3 c.c. Cutting the specimen still further showed a rather hard indurated mass. One cyst 2 cm. in diameter was found in this mass. This contained what was apparently calcareous material. The tumor mass as a whole did not give the impression of malignancy. The lacteal ducts showed surrounding induration. The axillary glands removed were indurated.

Pathological report.—Dr. C. J. Bartlet, Pathologist at the Yale Medical School, gave the following report after sectioning: "Microscopically in addition to the inflammatory process there was found a papillomatous outgrowth into the ducts. These are adenofibroma in nature, the fibrous stroma behind being rather cellular, and numerous glands being present. I do not consider it malignant but it is sufficiently cellular to make me suspect that it might have later become malignant. The enlarged lymph nodes showed endothelial cell hyperplasia."

A brief statement regarding the lymphatic supply of the female breast should be made, as it is an extremely important consideration. This supply is a very profuse one and extends in many different directions. The following excellent classification has been suggested by Dr. John M. T. Finney of Baltimore.

Skin.—The lymphatics of the skin are made up of two superimposed networks; from each arise efferent trunks leading to the axilla.

Fat.—It is very nearly impossible to inject the lymph-vessels in this tissue. It is assumed that they accompany the corresponding blood vessels to enter the axilla and thorax.

Breast.—Arising in the substance of the breast itself the lymphatics run toward its surface, here being fused into efferent channels. The axillary are the main channels the more superficial accompanying the cutaneous lymphatics the deeper lying on the pectoral fascia. Smaller branches leave the lower surface of the breast, follow the perforating branches of the internal mammary artery, and empty into the glands of the anterior mediastinum and still others follow the intercostals to the spine.

Muscle.—One set of lymphatics run parallel to the muscular fibers toward the sternum, and close to its margin they perforate the intercostal spaces to enter the mediastinum.

The glands extend the entire length of the large blood vessels in close relation to the vein posteriorly in the cellular tissue between the anterior surface of the scapula and the serratus magnus muscle. Chains of glands also accompany the internal mammary perforating branches and others lie between the pectoralis major and minor.

In discussing a case presenting symptoms suggestive of a benign tumor of the female breast an important diagnostic problem outlines itself. It is one on many occasions difficult to solve. A recurrence of the growth after operation would be inexcusable. A frozen section is always an important aid in diagnosis. Preservation of the pectoral muscles is worthy of most serious consideration. Removal of this group of muscles weakens to a certain extent the function of the extremity, not seriously, but in a way which deserves attention. In the case reported it was the patient's right arm. No other than a radical operation was justified in this case owing to the long standing of the lesion and the great probability of malignant degeneration.

In the differential diagnosis of benign tumors of the breast several different types must be considered.

1. Periductal Fibromata.—In these tumors there is an increase in the connective tissue surrounding the ducts. They are small in size, firm on palpation, the connective tissue hyperplasia predominating over the epithelial. They occur between the ages of 18 and 40 and are perhaps the most common type of benign tumor of the breast. They may be single or multiple, are not adherent to the skin, are usually painless, and have no axillary involvement. These are more frequent than any other tumor in the breast tissue of young women. They may remain with no increase in size for years or they may have periods of growth and then periods of quiescence. There is no discharge from the nipple.

2. Periductal Myxomata.—On palpation these are softer tumors and may contain areas of tissue which has broken down. These growths are larger in size. There is not the well-rounded or nodulous feeling on palpation present in the case of the fibromata. They are apt to be more rapid in growth. There is no axillary involvement. Little pain and no discharge from the nipple. If associated with inflammatory changes they may be adherent to the skin.

3. Cystadenomata, particularly if papillary, are apt to show a discharge from the nipple. Simple cysts frequently occur in the breast. These are often difficult to diagnose. In these cases it is not uncommon for the patient to complain of sharp shooting pains in the breast. On palpation a cyst may present similar characteristics to the periductal myxomata. Aspiration of a cyst will frequently aid in the diagnosis. This has been recommended by some surgeons in place of excision. It is, of course, a very simple procedure and some good results have been reported. It cannot be considered the best type of surgical treatment. Dermoid cysts of the breast are rare.

4. Inflammatory Types.—The various types of chronic inflammatory processes in the breasts usually present more or less characteristic symptoms of the lesion, causing the primary inflammation. On careful questioning of the patient either the previous history, or, on examination, the clinical nature of the growth aided by careful laboratory tests will lead to a definite diagnosis. Axillary involvement is here common.

It is difficult to differentiate clinically from the fibrocystic tumors those combining with simply a fibrous hyperplasia a marked increase in the epithelial cells relegating them to the class of adenomata or fibrocystic adenomata. In all these tumors the type depends on the proportion present of fibrous tissue or epithelial cells, and they constantly merge one into another. Pain seems to be, as a rule, much more frequently present in the cystic type than in the fibrous. Why this is true is difficult to state, but clinically it is a fact. Regarding the danger of the tumor a safe statement would be that the greater the proportion of the epithelial element the greater the possibility of a serious outcome.

Paget's disease of the nipple should be mentioned at this point, though it belongs to the carcinomata. It usually commences as an eczematous inflammation at the base of the nipple often rather late in life. There is first an itching or burning sensation around the nipple. This gradually involves the areolar at its base and the adjacent skin. Retraction of the nipple occurs early in the course of the disease. There is induration of the skin. The primary condition may exist for a considerable time but eventually a carcinoma of the breast develops. The origin of this type of carcinoma is probably the epithelial cells of the lacteal ducts. In Paget's disease there is frequently a seropurulent discharge from the nipple. The treatment should be radical.

Benign tumors of the breast are best treated by complete excision, using this term to include removal of the breast. It is not necessary always to do a radical operation. Like the statement so frequently heard about appendicitis, "many appendices have been removed too late but none too early," so we have yet to hear of a breast removed too soon in these cases. The axiom should be complete excision, removal of the muscles, and a dissection of the axilla in all doubtful cases. The surgeon of wide experience might be justified in taking a chance which would be entirely unjustifiable in one of less ability. It is far wiser to be too radical than to risk the blame sure to follow a recurrence. Each case must be weighed as a clinical entity to be decided by itself. No general rule can be safely laid. Occasionally a transverse incision along the lower border of the breast will be found advisable. In any and all cases it is a wise precaution to secure from the patient permission to make the operative procedure as extensive as is deemed necessary, otherwise a weakened arm and prolonged convalescence may cause considerable inconvenience to the surgeon as well as to the patient.

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MEDICAL RECORD.

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RETROPERITONEAL RUPTURE OF THE DUODENUM.

ONE of the not uncommon though usually overlooked results of a severe contusion of the abdomen is retroperitoneal rupture of the duodenum. It is curious to note in this season of football enthusiasm that two cases of the above condition reported by R. Lawford Knaggs in the *Proceedings of the Royal Society of Medicine*, July, 1913, occurred in players during football games. Both of the victims were struck by another player's knee in the region of the umbilicus. A fatal outcome ensued in each instance despite operative interference. Three important facts stood out clearly in the study of these cases: first, the difficulty of reaching an early decision that the abdomen ought to be opened; second, the absence of peritonitis; and, third, the widespread character of the retroperitoneal extravasation. The difficulty of making a diagnosis of retroperitoneal rupture of the duodenum resides in the fact that peritonitis does not set in until a late stage, when leakage from the retroperitoneal extravasation may occur. This extravasation is the most important feature of retroperitoneal rupture of the duodenum. In both of the author's cases it constituted an abundant dark bile-stained fluid that permeated the retroperitoneal connective tissue on the right side of the spine, accumulating in the vicinity of the right kidney, and extending upward to the diaphragm and downward to the pelvis. The extravasation is mixed with pus. The peritoneum covering it may be stained yellow, or there may be large olive-green or black areas where the subjacent fluid or gangrenous subperitoneal tissue shows through the serous membrane. There is apt to be a cushion-like swelling on the right side of the spine, lifting up the ascending colon and cecum.

The fact is emphasized that in an exploratory operation following a severe abdominal contusion the retroperitoneal extravasation may escape recognition, owing to the fact that at first it is so small in amount. The only physical sign given by this effusion during life is a right-sided dullness continuous above with the liver dullness, gradually increasing from day to day, and not shifting. This is regarded as a sign of great value, but when it is elicited the condition of the patient is already practically helpless owing to the septic absorption from the effusion.

There are now on record sixteen cases of this condition, the first having been reported by Alexander Thomson in 1854. None of the patients recovered. The injuries constituted blows upon the abdomen from the kick of a horse or the knee of a human being, catching of the body between the buffers of two railway carriages, run-over accidents, etc. The condition of the peritoneum following retroperitoneal rupture of the duodenum may be as follows: there may be present a quantity of dark bile-stained fluid; there may be no peritonitis at all; there may be a localized plastic peritonitis in the neighborhood of the duodenum; or there may be a generalized peritonitis. Blood may be found beneath the peritoneum or in the substance of the mesocolon, mesentery, omentum, or adjacent parts to which it may have tracked from the wound in the duodenum. Emphysema of the retroperitoneal tissues or of the abdominal wall, if met with during an operation following abdominal contusion, is an important sign, for it indicates a retroperitoneal rupture of the duodenum or large intestine. Emphysema of the abdominal wall is regarded as of particularly grave omen, for it is associated with a widespread extravasation of duodenal contents.

Realization of the late onset in the symptoms of retroperitoneal rupture of the duodenum emphasizes the need of early exploratory operation whenever there is reason to suspect that this condition is present. The question arises: What is the correct surgical procedure if this suspicion is confirmed? The rent should be sutured if this is possible. But the real problem is how to deal with the retroperitoneal extravasation. Drainage from the front across the peritoneum is of no avail, as is also drainage by means of a tube inserted through the loin from inside the abdomen. Knaggs believes that so far as possible the extravasation should be dealt with on similar lines to those adopted in extravasation of urine. The retroperitoneal space should be opened up by a wide incision, like Morris's incision for exploration of the kidney, and incisions at right angles to the main one would help to open up effectually the infiltrated area. The use of large drainage tubes and a light gauze packing may crown with success this heroic procedure in a condition which up to the present time has been uniformly fatal.

BESREDKA'S METHOD OF ANTITYPHOID VACCINATION.

THERE is absolutely no doubt of the great value of the prophylactic vaccination against typhoid fever. The statement has recently been made that during the first nine months in the present year there was not a single case of typhoid in the United States Army, an achievement hitherto unapproached and attributable solely to the use of vaccines. The method in use has been the familiar one of Wright, that is the subcutaneous injection of an emulsion of killed typhoid bacilli. A few years ago Besredka devised the employment of sensitized instead of killed organisms and for the past two years has used them entirely. Theoretically the more nearly the organisms in the vaccine approach

the normal live bacteria, with the exception of the latter's ability to grow in the body, the more apt will the vaccine be to call forth the production of protective antibodies. When a bacterial emulsion is killed by heat it is probable that the bacterial protein suffers a certain amount of change and, therefore, it is argued the antibodies developed by its use will not be exactly adapted to the destruction of live virulent typhoid bacilli. Besredka robbed his organisms of their virulence by sensitizing them and thus hoped to bring about the production of more powerful antibodies.

In three articles by Metchnikoff and Besredka, Besredka and Ardin-Delteil, and Negre and Raynaud (*Annales de l'Institut Pasteur,* 1913, xxvii, 597, 607, 644), the work for the past two years is briefly summarized. It is found that this method produces immunity rather rapidly but that the dose should be as large as is that of the dead bacilli. The authors definitely determined that while living bacilli remained in the vicinity of the injection for about five days, the blood, urine, and feces at no time showed typhoid bacilli and that the individuals so treated were not in danger of becoming bacillus carriers. The percentage of marked reactions was apparently not greater than with the older form of vaccination. Further, this preparation has been used to a limited extent in the treatment of cases of the disease and the results have been apparently satisfactory. It has thus been shown that the sensitized bacilli may be administered without injury to the recipient and with results as beneficial as those obtained by the use of the killed vaccines. No distinct advantage has been shown for the proposed method, however, and, indeed, it would seem to be very difficult to improve upon the results which have been obtained in the Army by the present technique. The preparation of the sensitized vaccine is more difficult than that of the killed emulsion so that it is improbable that it will attain very general use.

SEX HYGIENE.

Probably nothing better illustrates the old adage that a little knowledge is dangerous than the present campaign for the teaching of the so-called sex hygiene in the public schools. The public has just been made to realize by the medical profession the direct as well as the indirect effects of sexual diseases, and the necessity for preventing them. But in its enthusiasm the public has failed to see the proper methods of application and the difficulties of application, as well as the profundity of the whole subject. The enthusiasts seem to think that the ones to be taught are the young, probably on the principle that if they are forewarned of the dangers long before they arise, they will be able to anticipate them. Were the latter a fact the campaign would be well advised. There is little doubt that, while sexual diseases are present in the young, the amount due to ignorance is very little and is negligible. The majority is due to non-sexual infections from adults. Sexual diseases usually have inception in adults and it is the adult who must be educated if he does not already know. It is he who has sufficient understanding to appreciate the real and not the analogous or illustrative value of sex teachings. It is he who must face the world where sex diseases must be counted as one of the adversities. And whether moral teaching of the adult will result in continence is still an ultra-medical question. Suffice it to note that merely a proper understanding of the dangers of incontinence alone does not always act as a check, as shown by the fact that infection among medical students is probably as large as among any other student class.

The sex maturity of children of the same mental and physical age varies so much that a general teaching of this subject cannot apply with equal force to all. The likelihood, then, that some will learn it in a hazy and vague manner is especially dangerous, for in discussing this among themselves the subject will become distorted, with an obvious tendency to work harm. Will not the children who have vicious sex habits have the best opportunity to impress them upon the others? It is a question how much children can learn by sex teaching with plants as objectives, and how far this will go to explain the human organism; or how far the explanation will prevent harm. It is quite possible that the natural propensity of children for experiment will open fields of abuse which ignorance at least would not.

Sex hygiene should be taught—but to the parents. It is too intricate a question for the young, when so many parents are ignorant regarding this subject. Parents should be taught sex hygiene, and they should be taught to impart that knowledge gradually and at the proper time according to the maturity of their own children. The child should get just as much of this knowledge as it is able to appreciate from its physical, sexual and environmental development. There will then be no danger of experiment and abuse from discussion of the subject between the children.

ECZEMA AND SUDDEN DEATH.

Although of rare occurrence the fatal outcome of a case of chronic eczema in a child has been observed a sufficient number of times to merit close attention and study. An important contribution in this subject is made by P. S. Hichens (*Proceedings of the Royal Society of Medicine,* July, 1913), who notes that of twenty-eight cases of eczema treated in the children's ward of the Northampton General Hospital for the past twelve years, no fewer than six ended fatally. The history of two of these cases was particularly interesting. One was a six-months' old child that was apparently recovering from an eczema of the face and head, when she suddenly became extremely pale, collapsed, and died in the course of a few hours. The other case was that of an infant of the same age in whom recovery from a similar eczema was much more gradual, but in whom the same symptoms of shock supervened though more slowly, and death was ushered in by symptoms of cerebral irritation.

No satisfactory explanation is forthcoming as

to the cause of the fatal outcome in these cases and in cases reported by others. There is an old popular saying about the danger of driving in an eruption. Gaucher used to warn his students against treating cases of eczema in children too energetically, owing to the possibility of sudden death. Hichens suggests that in these cases the cutaneous eruption is the evidence of a toxemia finding a vent on the surface of the body and that the healing of the skin forces an excess of the poison upon the vital centers. He also suggests that the fatal outcome may be due to a physical alteration in the balance of the fluids of the body with an excessive accumulation of fluids in the brain and pressure on the floor of the fourth ventricle.

In the discussion that followed the reading of the author's paper, G. Pernet referred to cases in which an irritable dermatitis alternated with attacks of asthma. The latter occurred whenever the cutaneous condition improved. Leonard Guthrie said that up to the end of the eighteenth century, people who had "issues" were careful not to heal these too soon lest death should result. In view of the clinical importance which is nowadays attached to anaphylaxis, the temptation is strong to attribute the death occurring in the course of a rapidly healing eczema to the latter phenomenon.

Symmetrical Gangrene and the Balkan Wars.

The recent wars in southeastern Europe provided a large number of data of considerable value in military surgery. These data have been reported in several interesting papers read at the German and French surgical congresses during the past summer. During the last four months of 1912 German surgeons, including Wieting, Lauenstein, and others, working with the Turkish army, observed an epidemic of gangrene affecting the extremities, and attributed it to the action of cold upon the blood vessels, although the weather was not particularly severe. During the same period of time A. Welcker, surgeon to the Dutch ambulance attached to the vanguard of the Bulgarian army before Tschorlu, observed 160 cases of a similar gangrene among the troops. In the *Zentralblatt für Chirurgie,* October 18, 1913, he reports his study of these cases. He notes that almost without exception in 115 of these cases there had been from seven to fourteen days preceding the onset of gangrene, recovery from an attack of cholera, diarrhea, or dysentery. In 45 cases the gangrene occurred in the second or third week of typhoid fever or during the convalescence from this disease. The conclusion is drawn that the above diseases were the cause of the symmetrical gangrene, and that the affection on both sides of the Chatalje lines was of identical nature. An important factor in the production of the gangrene was malnutrition resulting from the monotonous diet. Bread, vegetables, and rice constituted the chief meal for months. Another factor was the damp and depressing weather and the privations to which the troops were exposed. With few exceptions, however, a further factor was necessary, namely, the occurrence of cholera, diarrhea, or typhoid fever. The disease was recognized as distinct from that caused by frost, and as the same as that described by various clinicians as a rare vascular complication of typhoid fever, cholera, etc.

The Results of the Pasteur Treatment of Rabies.

It is a pleasure again to note the record of the Pasteur Institute of Paris attained in their antirabic inoculations. Dr. Viala's report for 1912 (*Annales de l'Institut Pasteur,* 1913, xxvii, 794) shows that 395 persons received the treatment during the year and that none of these died. Of these, 71 were bitten by animals which were proven to have rabies by inoculation tests, 145 by animals which were declared rabid by veterinarians and the remaining 179 by animals suspected of having the disease. One person who received the treatment in 1911 died from rabies in 1912 so that the mortality for 1911 was raised to one. During the past five years the Institute has administered the Pasteur treatment to 2128 persons with a mortality of three (0.14 per cent.). These figures scarcely demand comment. It is sufficient to say that they furnish additional confirmation, were it needed, of the high value of this method of treatment.

News of the Week.

City Death Rate.—For the week ending November 15, the number of deaths in New York City was 1,250, giving a death rate per thousand of 12.14, as compared with a total of 1,216 deaths in the corresponding week of 1912, when the rate was 12.26. The decrease in the rate shows that the increase in the total number of deaths was proportionately less than the increase in the population. For the first forty-six weeks of the year the death rate was 13.81 per thousand, as against 14.12 for the same period of 1912, a decrease of 0.31 of a point.

High Cancer Death Rate.—The Equitable Life Assurance Society of New York has recently issued a review of its statistics, showing that during the past ten years the indicated death rate from cancer has increased thirty per cent. among males, and twenty-two per cent. among females in the United States registration area. The increase has occurred in every age group, but is, of course, largely due to more exact diagnosis.

Brain Weight.—In accordance with the wish of Prince Katsura, the Japanese statesman who died recently from cancer, his body was dissected by Dr. Nagayo, and the brain removed. The weight of the brain was found to be 1,600 grams, or nearly 300 grams more than the average.

Harvey Lecture.—Prof. G. H. Parker of Harvard University will deliver a lecture before the Harvey Society at the New York Academy of Medicine on Saturday evening, November 29, at half-past eight. Professor Parker will speak on "The Nervous System; Its Origin and Evolution."

Surgical Clinics.—Dr. Parker Syms will hold a series of surgical clinics at the Lebanon Hospital, New York, on Wednesday afternoons at three o'clock, from November 1 to March 1, to which all physicians are cordially invited. The hospital is most conveniently reached by the Subway (West Farms Division) to the Jackson Avenue station. Details of the clinics will be announced on the bulletin board of the Academy of Medicine.

Railway Accidents in Pennsylvania.—According to statistics published by the Accidents Department of the Pennsylvania Public Service Commission, 312 persons were killed on the steam railways in the State during the months of July, August, and September. Of this number 105 were employees,

6 were passengers, and 167 trespassers; 26 persons were killed at grade crossings. During the same three months 3,060 persons were injured on the steam railways, and 53 persons were killed and 949 injured on the street railways.

Anniversary of the New York Laryngological Society.—The Laryngological Section of the New York Academy of Medicine celebrated on Tuesday evening of this week the fortieth anniversary of the foundation of the New York Laryngological Society, the first society of throat specialists in the world which is now a section of the Academy. Dr. W. W. Carter presided. Dr. Clinton Wagner delivered an address on the history of the organization, and Dr. D. Bryson Delavan presented a bronze tablet commemorating the founders of the Society, and also an historical collection of laryngological instruments and books.

Sterilization Unconstitutional.—The statute recently enacted in New Jersey, authorizing the sterilization of the feeble-minded, epileptics, criminals, and other defectives, has been declared unconstitutional by the Supreme Court of the State. The act is held to be contrary to the Fourteenth Amendment to the Constitution of the United States guaranteeing equal protection of the laws to all, and to exceed the police powers of the State. The Court points out the danger of permitting Legislatures to prescribe those upon whom the operation should be performed, since, if sanctioned, the penalty might be extended to include those regarded as undesirable by a majority of a prevailing Legislature.

Centenarians Dead.—Joseph Jackson, a negro inmate of the State Hospital at Binghamton, N. Y., died recently at the reputed age of 113 years.

Mrs. Charlotte Campbell of Vineland, N. J., said to be the oldest woman in Southern New Jersey, died on November 16 at the age of 104 years. She was the mother of ten children, and had never been outside of New Jersey, her native State.

Lepers in London.—Sir Malcolm Morris of London, presiding at a lecture on leprosy on November 19, in that city, surprised his hearers by the assertion that London contains many lepers, and that efforts are now being made to provide a small institution for their care. England has no law preventing the entrance of lepers to the country.

Health Officials Quarantined—The seven laboratory employees of the State Board of Health of Mississippi, at Jackson, were found on November 20 to be suffering with diphtheria, and all have been quarantined. It is believed that the infection resulted from cultures sent to the laboratory for examination.

Providence Hospital.—The new Providence Hospital for Surgery, Providence, R. I., was formally opened at noon on November 17. The institution, which will be devoted entirely to the care of surgical cases, has accommodations for twenty patients. The operating room is said to be the finest in the State, and the other appointments of the Hospital are in keeping with it.

Oklahoma Statistics.—The report of the Oklahoma State Board of Health shows that during the year ending October 1, 1913, there occurred in the State 9,272 deaths and 30,134 births. Of the total number of deaths 3,209 were of children under six years of age, and 525 of children between six and ten; 651 occurred between the ages of ten and twenty; 887 between twenty and thirty; 762 between thirty and forty; 693 between forty and fifty; and 2,181 between fifty and seventy years. Six hundred and two deaths were due to external causes, such as homicide, suicide, accident, etc., while the preventable diseases were responsible for the following deaths: Tuberculosis, 732; typhoid fever, 399; malaria, 173; diphtheria, 131; cerebro-spinal meningitis, 127; whooping-cough, 109; measles, 91; septicemia, 87; smallpox, 84; pellagra, 72; dysentery, 53; syphilis, 40; erysipelas, 27; scarlet fever, 18; hydrophobia, 2; glanders, 2; total, 2,128.

Montefiore Home.—On November 22, the new buildings of the Montefiore Home for Chronic Invalids, at 210th Street and Gun Hill Road, New York, were opened to its patients, and the transfer of the 300 invalids from the old building to the new was successfully accomplished. All of the hospitals in the city loaned their available ambulances to facilitate the removal of the patients, and private ambulances also were pressed into service. A formal reception will be held in the new home on Sunday afternoon, November 30.

Fire in Hospital.—A fire in the store-room of the Philanthropic Hospital, New York, on November 19, caused some alarm among the patients, but was successfully controlled with only about $500 damage. The hospital staff showed the results of good training and made preparations for removing the patients without confusion if it became necessary. Fortunately the fire was confined to a small area.

The Legal Status of the American Medical Association.—The Trustees of the A. M. A. announce in the *Journal* of November 22, that the decision of the Appellate Court of Illinois, recently referred to in this column, did not affect the Association directly but only ordered the State's attorney to bring quo warranto proceedings against the Trustees. The State's attorney has appealed against this decision, but if it is sustained by the Supreme Court he will be forced to bring an action for illegality against the Association as represented by the Trustees.

Personals.—Fräulein Rachel Hirsch of Berlin has recently received signal and unusual honors in being given the title of professor. She is the first woman in Berlin to be so honored. Prof. Dr. Hirsch has for several years been the chief assistant to Prof. Kraus and in this capacity has conducted clinics for both men and women in some of the Berlin hospitals.

Dr. Maria Montessori, whose new method of teaching has attracted great attention, has left Italy for a visit to this country. While here she will give a course of lectures on the Montessori method and will also study our system of education.

Professor Ettore Marchiafava, physician to Pope Pius X, has been created an Italian Senator.

Gift to Medical Library.—The Boston Medical Library is the residuary legatee of the estate of the Miss E. B. Wyman of Newburyport, Mass., who died in Italy last February. The bequest will, it is estimated, amount to about $86,000, and is to be known as the Samuel Wheeler Wyman Memorial Fund in honor of the testator's father, a graduate of the Harvard Medical School in 1818.

The Elliot Operation for Glaucoma.—Col. R. H. Elliot, formerly of Madras, India, and at present of London, will be in New York, December 5 to 11. He will operate according to his method for

glaucoma at the New York Eye and Ear Infirmary on Friday afternoon, December 5; at the Herman Knapp Memorial Hospital on Monday afternoon, December 8; at the Manhattan Eye and Ear Infirmary, Tuesday afternoon, December 9, and at the Post-Graduate Hospital on Wednesday afternoon, December 10. Colonel Elliot's address, while in New York, will be 46 West Fifty-third Street.

Dr. Porter Endorsed.—At the thirteenth annual conference of health officers of the State of New York, held in Utica on November 20, resolutions were passed endorsing the work of Dr. Eugene H. Porter, the present State Commissioner of Health.

Yale Medical School.—The New Haven Hospital and the Medical School of Yale University recently entered into an agreement by which the school obtains the privileges of the hospital for the instruction of its students provided that before July 1, 1914, it is able to secure the sum of $600,000, to be used for the erection and equipment of a clinical and pathological laboratory for the hospital, and for the endowment of the same. The University is now making efforts to obtain this sum, in order to consummate the arrangement, which is of the utmost importance in the proper development of the school.

Army Medical Corps Examination.—The Surgeon-General of the Army announces that preliminary examinations for appointment of first lieutenants in the Army Medical Corps will be held on January 19, 1914, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements are that the applicant shall be a citizen of the United States, between twenty and thirty years of age, a graduate of a recognized medical school, of good moral character and habits, and have had at least one year's hospital training after graduation. In order that all necessary arrangements for the examinations shall be perfected, applications must be sent in at least three weeks before the date of the examination, and early attention is therefore enjoined upon all intending applicants. There are at present twenty-six vacancies in the Medical Corps of the Army.

The American Society for the Study of Alcohol and Other Narcotics will hold its forty-third annual meeting at the Rittenhouse Hotel, Philadelphia, on December 3 and 4, 1913. Two sessions will be devoted to the practical work of hospitals and sanatoria for inebriates. Further particulars may be obtained from the secretary, Dr. T. D. Crothers, Hartford, Conn.

American Sanatorium Association.—The ninth midwinter meeting of this society will be held at Otisville, N. Y., on December 6 and 7, 1913, when the members will be the guests of the Department of Health of the City of New York at its Tuberculosis Sanatorium. Dr. Hermann M. Biggs will speak, by invitation, on "Some Desirable Features of a Large Municipal Sanatorium"; Dr. Charles W. Mills will present a paper on "Gastrointestinal Complications of Tuberculosis," and Dr. S. A. Knopf one on "Occupations for Afebrile Tuberculous Patients." Opportunity will be afforded for an inspection of the sanatorium building and the antitoxin laboratories.

Medical Society Elections.—Suffolk County (N. Y.) Medical Society.—At the annual meeting held on October 30, at Riverhead, the following officers were elected. *President*, Dr. S. R. Corwith, Bridgehampton; *Vice-President*, Dr. B. F. Many, Port Jefferson; *Secretary*, Dr. F. Overton, Patchogue: *Treasurer*, Dr. B. D. Skinner, Greenport.

Washington Society of Nervous and Mental Diseases.—At the annual session held recently the society reelected its officers, as follows, for the ensuing year: *President*, Dr. Tom A. Williams; *Vice-President*, Dr. W. M. Barton; *Secretary*, Dr. W. M. Hough.

Montgomery County (Ala.) Medical Society.—The annual meeting was held at Montgomery on November 8, officers for the ensuing year being elected as follows: *President*, Dr. Fred W. Wilkerson; *Vice-President*, Dr. J. Brannon Hubbard; *Secretary*, Dr. P. S. Mertins; *Treasurer*, Dr. C. G. Laslie.

Southern Illinois Medical Association.—At the annual meeting held in Duquoin, on November 6 and 7, officers were elected as follows: *President*, Dr. Charles W. Lillie, East St. Louis; *Secretary*, Dr. Alonzo B. Capel, Shawneetown; *Treasurer*, Dr. James W. Armstrong, Centralia.

Chickasaw County (Ia.) Medical Society.—The following officers were elected at the annual meeting on November 3: *President*, Dr. A. D. McKinley, Lawler; *Vice-President*, Dr. S. B. Zoller, Fredericksburg; *Secretary-treasurer*, Dr. Paul E. Gardner, New Hampton.

Scott County (Ia.) Medical Society.—The annual meeting was held at Davenport on November 4, officers being elected as follows: *President*, Dr. Peter A. Bendirsen; *Vice-President*, Dr. A. P. Donohoe; *Secretary*, Dr. J. V. Littig; *Treasurer*, Dr. T. W. Kemmerer, all of Davenport.

American Association of Clinical Research.—At the fifth annual meeting of this society, held in Chicago on November 8, the following officers were elected: *President*, Dr. Leonard K. Hirshberg, Baltimore; *Registrar*, Dr. Jefferson D. Gibson, Denver; *Secretary-Treasurer*, Dr. James Krauss, Boston.

Southern Homeopathic Medical Association.—The annual convention was held at Atlanta on November 13 and 14. The following officers were elected: *President*, Dr. Harry E. Koons, Danville, Va.; *Vice-Presidents*, Dr. S. D. Sloan, Atlanta, Ga., and Dr. Lee Norman, Louisville, Ky.; *Treasurer*, Dr. H. R. Stout, Jacksonville, Fla.

Obituary Notes.—Dr. Warren Oscar Plimpton of New York, a graduate of the College of Physicians and Surgeons, New York, in 1888, formerly professor of surgery in the New York Post-Graduate Medical School, attending surgeon to the Post-Graduate Hospital and the Daisy Field Hospital of Englewood, N. J., and consulting surgeon to the Tarrytown Hospital and the Mary Immaculate Hospital of Jamaica, and a member of the New York State and County Medical Societies and of the American Medical Association, died at his home in Westport, Conn., after a long illness, on November 19, aged 55 years.

Dr. James H. McClelland of Pittsburgh, Pa., a graduate of the Hahnemann Medical College and Hospital of Philadelphia in 1867, professor of surgery in the Hahnemann Medical College in 1876-77, president of the American Institute of Homeopathy in 1893-94, honorary president of the International Homeopathic Congress in Paris in 1900, and a former president of the Homeopathic Medical Society of Pennsylvania, died after a short illness at his home on November 14.

Dr. Edward Francis Denner of Paterson, N. J., a graduate of the College of Physicians and

Surgeons, New York, in 1894, a member of the Medical Society of New Jersey, the Passaic County Medical Society, and the Association of Physicians of New Jersey, and chief surgeon at St. Joseph's Hospital, Paterson, died in the hospital from typhoid fever, after a brief illness, on November 14, aged 41 years.

Dr. Philip X. Ryan of New York, a graduate of the College of Physicians and Surgeons, New York, in 1901, died at his home on November 17, aged 36 years.

Dr. Douglas Ayres of Fort Plain, N. Y., a graduate of the Albany Medical College, New York, in 1865, a member of the Medical Association and of the New York State and Montgomery County Medical Societies, having been first vice-president of the State society and at one time president of the county association, of which he was the oldest member at the time of his death, and for twenty-five years president of the Board of Education of Fort Plain, died at his home from heart disease, on November 20, aged 71 years.

Dr. Marion H. Jackson of Neely, Ark., died at his home suddenly, on November 7, aged 36 years.

Dr. William A. B. Treadway of Stamford, Conn., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1883, and a member of the American Medical Association and the Connecticut State and Fairfield County Medical Societies, died at the Stamford Hospital, from pneumonia, on November 17, aged 54 years.

Dr. Augustine C. Haub of Boston, Mass., a graduate of the Boston University School of Medicine in 1893, died on November 14, aged 33 years.

Dr. George Bassett Sawtelle of Malden, Mass., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1866, a member of the Massachusetts Homeopathic Medical Society, and formerly on the staff of the Malden Hospital, died suddenly at his home on November 14, aged 75 years.

Dr. Edgar Clarence Collins of Springfield, Mass., a graduate of the Albany Medical College, New York, in 1880, and a member of the Massachusetts Medical Society, the Hampden District Medical Society, and the Springfield Academy of Medicine, died suddenly at the Collins Emergency Hospital, Springfield, on November 14, aged 55 years.

Dr. Charles Sumner Collins of Nashua, N. H., a graduate of the Boston University School of Medicine in 1875, and for several years a member of the New Hampshire State Legislature, died at his home after a long illness on November 16, aged 60 years.

Dr. William Pennington Mullin of Chestnut Hill, Philadelphia, formerly a resident of Vineland, N. J., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1881, died at St. Luke's Hospital, Philadelphia, on November 14, aged 53 years.

Dr. John S. Walker of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1871, but never actively engaged in the practice of his profession, died at his home on November 15, aged 66 years.

Dr. Thomas Benjamin Amiss of Luray, Va., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1861, a member of the Medical Society of Virginia and of the District Medical Society, and a surgeon in the Confederate Army throughout the Civil War, died at his home on November 9, aged 75 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HYSTERIA IN SOME OF ITS ASPECTS—GRESHAM LECTURES—ASTROLOGY IN MEDICINE—OPEN-AIR SCHOOLS AND PREVENTIVE MEDICINE—OBITUARY.

London, Nov. 7, 1913.

The Bradshaw lecture at the College of Physicians was delivered on Tuesday by Dr. T. R. Glynn, professor of medicine of the University of Liverpool and consulting physician to the Infirmary. He selected for his subject "Hysteria in Some of Its Aspects," which he admitted at the outset was a little out of fashion, since hysteria is well-nigh incapable of definition, and is without pathology or pathognomonic symptoms. Modern research and speculation, far from showing light on it, he thought, rather rendered its problems more obscure and served to create doubt. Charcot's views have been subjected to vigorous criticism for these twenty years. Janet's theory of a restricted field of consciousness appealed to most. But the theory of Breuer and Freud, though very ingenious so far as a mental trauma went, was repellant as regards their contention concerning its being always related to a sexual disorder. He rather agreed with the view that the malady was concerned with the vasomotor system, and of a certainty was not entirely psychical. Paget pointed out the so-called bad circulation of some patients, and Dr. Savill amplified his observations, concluding that all the symptoms suggested the neurovascular system. Dr. Glynn supported these views and illustrated them by reference to numerous cases in which the stigmata of hysteria were associated with other disorders, particularly epilepsy, chorea, chlorosis, and gastric and cardiac diseases. So he continued recognized antecedents of hysteria were rheumatism, typhoid, influenza, tuberculosis, and other specific disorders, as to which he added that at times hysteria may develop during the course of any of these and complicate them. In concluding he said his chief object in selecting the subject of his lecture would be attained if he succeeded in rousing more interest in the study of hysteria, as is met with in association with other diseases.

Dr. F. M. Sandwith is this year the Gresham Professor of Physic, and has just given the course of lectures required by that office, in which he has discoursed discursively about Harvey, Darwin and Huxley.

As to the first he observed that at a time when ancient beliefs were blindly accepted Harvey made perhaps the greatest discovery ever made in physiology, approaching the problem from an astonishingly modern standpoint. He sought the truth by experiments extending over long years, accepting no fact till he had indisputable evidence. By a happy chance the manuscript notes of his Lumleian lectures on anatomy in 1616, in which he declared his discovery to the College of Physicians, were preserved in the British Museum. They were about one hundred pages written in a cramped hand on both sides. Harvey seemed as familiar with Latin as English, and expressed himself as easily in one as the other, and the two were mixed in a way quite quaint to modern readers. For twelve years he continued to lecture, but we have no evidence that he had much effect on medical teaching at that time. It was astonishing, in the light of mod-

ern investigation, to observe how accurate were Harvey's deductions, for the microscope then did not make it possible to follow the blood from the arteries into the capillaries and thence into the veins—this final proof being left for Malpighi, discoverer of the capillary system. At first Harvey's views were disapproved, especially abroad, and at home he declared his practice fell mightily. Aubrey wrote that the vulgar thought he was "crack brained," and all the physicians were against him. But in time the more enlightened adopted his doctrine and Harvey was one of the happy few who lived long enough to find the opinions for which he had fought almost universally accepted.

In considering Darwin the Gresham professor held that both desired to get at the truth, both were slow to publish their conclusions, and both lived to see their discoveries adopted. Darwin's dislike of seeing operations made him abandon the idea of studying medicine. He wasted some time at Cambridge, but got appointed naturalist to the *Beagle*, though his father thought it a useless undertaking. On his return he determined to devote himself to science. It was by slow and careful study that in a few years he reached his convictions on natural selection, but his minute labor would have gone for nothing without his unparalleled power of theorizing. The coincidence of Russell Wallace's discoveries led Darwin to publish earlier than he would have done and his book was received with furious but undeserved attacks. Even Lyell was slow to accept the ideas put forward in the "Origin of Species," but Hooker was an early convert, and Huxley wrote that he was "sharpening his teeth and claws" for the fight. When little more than a decade afterwards "The Descent of Man" was published the criticisms were not nearly so violent. In fact, Darwin's theories were then widely prevailing. In 1882 he died and was buried in Westminster Abbey.

Huxley, the Gresham professor described as a fine, incisive and convincing speaker, who early proclaimed himself an enemy of the ecclesiastical spirit which resisted science. He was greatly influenced by Carlyle. By the voyage on H. M. S. *Rattlesnake*, lasting four years, he learned discipline—"the facts of life," as he said. His first paper sent to the Royal Society was accepted, but he did not know it till long after it was published. When elected he had no money to publish books. "Science," said Huxley, "does everything but pay; one can earn praise but not pudding." He obtained a lectureship at the School of Mines. He took interest in the zoological position of man, disagreeing with Owen, but his views were supported by Darwin's doctrines. For them he fought the more as they were opposed by church authorities. He fell foul of Owen, who had said the structural differences between man and the ape were less marked than those between the gorilla and the lower types of ape. The fight between Huxley and Wilberforce was described by the lecturer as leaving the bishop without a word to reply. Huxley's power of work was remarkable; he served on ten Royal Commissions, and joined the London School Board where he was regarded at first as a materialist. But that prejudice passed. The professor declared he was not a materialist, though his religion was "undogmatical." To the day of his death he took the keenest interest in all branches of science, including medical science.

Dr. C. A. Mercier yesterday at the Royal College of Physicians delivered his first Fitz-Patrick lecture—his subject "Astrology in Medicine." The position of astrology among the sciences he thought quite unique, forming a part of the life of every nation which had passed beyond barbarism. It had been studied in unbroken effort for thousands of years, and occupied some of the greatest intellects all along the ages. The universal system of medicine set forth by Bacon was founded on astrology. Even now people talk of being born under a lucky star and speak of persons being jovial, saturnine, or mercurial. We retain the names, Saturday, Sunday, and Monday. Nevertheless, the lecturer pronounced astrology to be now utterly extinct, having begun to decay during the Renaissance, and languishing on in the seventeenth century. Its death blow he thought was given by Swift's biting humor. Its study having begun in Chaldea in 1800 B. C., it had a history of nearly 4,000 years. Its chief factors were the four elements, but in medical astrology there were many others relating to the humors of the body. Speaking of astrological terms the lecturer said they were so obscure and expressed in Latin so canine and abbreviated as to be well-nigh unintelligible. In preparing his lectures he had had the advantage of the assistance of a Latin scholar, a professor of astronomy, and a professor of ancient history, and all had been unable to solve some of the problems. This promises well for the interest of the remaining lectures.

Sir Alfred Pearce Gould presided at a lecture on the "Place of the Open-Air School in Preventive Medicine," delivered on Tuesday at the University of London by Sir George Newman, chief medical officer of the Board of Education. The lecturer said that to stem the tide of physical and mental defect in the childhood of the nation they must proceed along the lines of the open-air school. Some had regarded the movement as a fad rather than a system of organized treatment. To understand it they must adopt a larger conception and study infont mortality. The deaths under school age, *i.e.* under five, were many; during school age (five to fifteen) few, and were due to three or four groups of disease. Tubercle, heart disease, and pneumonia were the chief causes from five to fifteen, and the same prevailed up to thirty-five. The seeds were sown in childhood, and to lower the rate they must deal with their conditions from birth to fifteen. A great proportion were then remediable and should be grappled with during school age, and the open-air school was a process of preventive medicine, a process, too, of curative medicine, a process of liberal education, and a school of hygiene for both body and mind.

Mr. Edward Nettleship, consulting surgeon to the Royal London Ophthalmic Hospital, and consulting ophthalmic surgeon to St. Thomas' Hospital, died on October 30 at his country home. He had retired from active work for some years, and his health had failed latterly. He was at one time on the staff of the Children's Hospital. In 1875 he was appointed to report to the Government on ophthalmia in the public schools. His "Students' Guide to Diseases of the Eye" will be known to you, as there were several editions issued. He took the F.R.C.S. in 1870, after two years' membership, having previously (1867) been a member of the Veterinary College. He was elected F.R.S. last year.

Mr. A. Godson, formerly on the staff of the Royal Infirmary and the Royal School of Medicine

at Manchester, has died at Cheadle, where he has been Medical Officer of Health, at the age of seventy-seven. He took his M.B. in 1864. He has also served as president of the Stockport Medical Society and vice-president of the Medical Society of Manchester.

PITUITARY EXTRACT IN LABOR.

To the Editor of the Medical Record:

Sir:—Reports from many practitioners extol pituitary extract in labor for insufficient pains. Some claim to have avoided the low forceps operation in almost all cases where it seemed inevitable. We all know that the objection to ergot antepartum is that it induces tonic spasm of the uterus, endangering its integrity, delaying labor, and risking harm to the child by long-continued interference with its circulation. I deem it, therefore, important to report a case of tonic contraction induced by pituitary extract.

I. O., 26, primipara, went into labor Nov. 9, 1913, in the morning, with moderate pains. She had not slept well the two preceding nights. By 2 A.M., Nov. 10, dilatation was complete with the head still in the cervix. Shortly afterward the pains died out, and the patient went into a broken sleep, the best in two nights. 6 A.M., conditions were unchanged. Position L. O. A., membranes ruptured the previous day. No caput succedaneum. 8 A.M. the same. I gave a pituitary extract, 1 c.c., and within 10 minutes she was again actively in labor. In an hour pains were dying out, and 1 c.c. more of pituitary extract was injected. Almost immediately the uterus went into tonic contraction, lasting 10 to 15 minutes, then relaxed, and after that intermittent contractions appeared. After all, a low forceps operation was necessary. Child lived; mother doing well.

B. A. Fedde, M.D.

Brooklyn, N. Y.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 13, 1913.

1. The Nutrition of Anemic and Tuberculous Children. E. A. Locke.
2. Carcinoma of the Rectum. D. F. Jones.
3. Artificial Pneumothorax in the Treatment of Chronic Infection of the Pleura and the Lungs. C. Floyd.
4. The Better Training of Nurses in Insane Hospitals. W. Channing.
5. A Case of Orthostatic Albuminuria Treated by Exercise. H. J. FitzSimmons.

3. Artificial Pneumothorax.—C. Floyd is impressed with the relatively small number of those afflicted with pulmonary tuberculosis who are really suitable cases for treatment by means of artificial pneumothorax. Well marked or advanced strictly unilateral cases are not especially common even in large clinics for pulmonary tuberculosis, and some observers believe that such cases are always bilateral. If this type of cases is strictly adhered to the results obtained in cases in which the method is carried out conscientiously will be uniformly good, and the percentage of patients markedly improved or even arrested will be as large as 40 or 50 per cent. If, on the other hand, as is the tendency with most men, almost any otherwise hopeless case in which satisfactory compression can be obtained, is given a chance of obtaining relief at least from persistent symptoms, the results will not be brilliant, and not more than 5 or 10 per cent. possibly of such cases will be arrested. Artificial pneumothorax is of real aid in the chronically recurring tuberculous pleural effusion, and in some cases of bronchiectasis and pulmonary abscess in which the inflammatory conditions to be met are not too extensive. But even if this group of diseases may be benefited by the use of this method, its field in the treatment of diseases of the chest is still relatively a narrow one. It is most applicable when the patient is under the supervision of hospital or sanatorium management, and has failed to do well with the older and well established methods.

5. Orthostatic Albuminuria Treated by Exercise.—H. J. FitzSimmons reports the case of a girl nine years old who was apparently normal except that when she assumed her usual erect position her kidneys excreted albumin. From the observations made upon children with chronic constipation, where the condition was cured by exercise, the author had noticed that decrease in the lumbar lordosis was coincident with a lessening of the complaint. Exercises were, therefore, commenced and carried on vigorously. All muscular exertion which tended to lessen the lumbar lordosis was encouraged, while all positions which increased it were forbidden. These exercises were definitely arranged, first to increase the muscle power of the abdominal walls. Particular attention was paid to the recti, the superior and inferior obliques and the transversalis. These exercises for muscle power were carried on simultaneously with instructions in "muscle control." Muscle control is very important, since by this means the patient has not only the power to hold a given position, but assumes this position first consciously during the training of certain muscles, then unconsciously. From this unconscious assumption of this position she passes into a condition in which she assumes a proper attitude. This condition was obtained by insisting during all the exercises, of a concentration upon the exercises, and the absolute exclusion of all other thoughts or actions.

New York Medical Journal.

November 15, 1913.

1. The Family Substance and the Theory of Coincident Disease in Blood Relations. B. Holmes.
2. The Medical Care of the Aged. I. L. Nascher.
3. The Sexual Theories Formed in Early Childhood, and Their Rôle in the Psychoneuroses. H. W. Frink.
4. Ocular Vertigo. A. Bray.
5. Vincula Præteritorum. W. P. Cunningham.
6. Laboratory Studies of the Manic Depressive Group. J. A. Jackson.
7. Charity: Some Thoughts on Its Use and Abuse. E. Tompkins.
8. Blood Letting Apparatus. E. C. Burrows.
9. Clinical Observations on Cancer; Its Treatment and Cure by Chemicals Alone. K. F. Junor.

1. Fliess and His Theory of the Family Substance.—B. Holmes discusses the theory propounded in 1906 by Wilhelm Fliess as to certain biological rhythms, and characterizes this theory as the most remarkable mystical, mathematical, and biological compilation of modern times. It appears that Fliess discovered that women menstruate regularly once in twenty-eight days and that many of them have irregular menstruations, which can be easily made to correspond with nodes produced by the coincident, or aggregated, or interfering rhythms of twenty-eight and twenty-three days. From such a system of examining irregular menstruations Fliess comes to the conclusion that there is in each individual a family substance having a male and a female manifestation, the rhythm of the former being twenty-three days from node to node, while the latter is twenty-eight days. He shows further that the eruption of the teeth in the children, the appearance of menstruation in the girls, and the various sicknesses of both the boys and the girls stand in a remarkable coincidence to the menstruation of the mother. The period of gestation is shown by Fliess to be a multiple of twenty-eight and twenty-three, and furthermore, that the appearance of the next pregnancy, the next gestation, and the next birth correspond similarly with these mystic numbers. Holmes regards the above theory as the flower of modern mysticism, as the sublimation of Freud's neo-phallicism.

2. Medical Care of the Aged.—I. L. Nascher states that much can be done to overcome the mental depression of the aged. One should induce the old man to make the effort to improve his appearance, stimulate his sense of pride and let those around him tell him how young he looks. The psychic effect is instantaneous. Association with the young has a rejuvenating effect, and if the young people treat the aged as one of themselves, it will arouse a youthful spirit in the old folks. One must make an effort to keep their minds pleasantly occupied. If they have nothing to do they think of their past and the future, and they brood. The action and appearance of the aged individual are more certain indications of the condition of his health than his statements. The family should know that there may be fever in spite of a cool forehead, that mumbling in sleep is often delirium, that when the old man or woman shows a disinclination to get out of bed at the usual hour it usually means a serious disease, though the patient does not complain of pain or other discomfort than weakness. Every symptom arising suddenly, even the sudden relief from a symptom, as sudden relief from dyspnea, is a grave omen. The family should know that the absence of pain does not exclude a disease which is usually painful, the absence of surface elevation of temperature does not exclude fever, the absence of cough does not exclude pneumonia, the absence of the accustomed snore does not exclude a coma from which the patient will never awake. The physician in dealing with the aged should apply to them sympathy and science; sympathy, to relieve distress wherever he may find it; science, to study life and how to prolong it. But the aged need more than these. They need the support of the humanitarian, who will help and cheer them.

Journal of the American Medical Association.

November 15, 1913.

1. The Protein Poison and Its Relation to Disease. V. C. Vaughan.
2. Acute Acid Intoxication in Children. T. C. McCleave.
3. Legal Aspect of the Federal Protection of the Public Health. W. C. Rucker.
4. The Need of Whole-Time Health Officers. H. B. Wood.
5. Osteochondritis Dissecans. J. Ridlon.
6. Results of Bone Plastic and Graft Operations on the Spine for the Cure of Pott's Disease. J. J. Nutt.
7. Charcot Joints as an Initial or Early Symptom in Tabes Dorsalis. H. L. Taylor.
8. The Recognition of Early Change in the Larynx in Tuberculosis. W. E. Casselberry.
9. Autoplastic Operations to Cover Stumps Subsequent to Amputation of Leg or Thigh. C. E. Phillips.
10. The Significance of Gastric Ulcer with Respect to Gastric Cancer. A Study of Five Hundred and Sixty-six Consecutive Operatively and Pathologically Demonstrated Cases of Cancer of the Stomach. F. Smithies.
11. The Medicine of Our Forefathers. J. J. Walsh.
12. An Etiologic Study of Hodgkin's Disease. Preliminary Note. C. H. Bunting and J. L. Yates.
13. Who is Responsible? The Position of Chemistry in Medical Education. J. H. Long.
14. Vaccination with Mixed Cultures from the Nose in Hay-Fever. C. B. Morrey.
15. The Cerebral Form of Pernicious Malaria. J. F. Patterson.
16. Case of Stab Wound of the Heart. Operation and Recovery. S. Bradbury.
17. A Preliminary Note on Spirochæta Pallida and Living Tissue-Cells in Vitro. E. Steinhardt.
18. The Preparaton of Albumin Milk in the Home. J. M. Brady.
19. A Case o Aneurysm of Aorta Rupturing Into the Vena Cava. O. H. Petty.

1. Relation of Protein Poison to Disease.—By V. C. Vaughan. (See MEDICAL RECORD, June 28, 1913, page 1188.)

2. Acute Acid Intoxication in Children.—By T. C. McCleave. (See MEDICAL RECORD, June 28, 1913, page 1187.)

5. Osteochondritis Dissecans.—John Ridlon reports three cases of this condition in otherwise healthy young men in whom the disorder gave little trouble except for a slight swelling and a lack of full extension at times from the contracted hamstring muscles. These cases may go on for years and give comparatively little trouble. Our present knowledge of the condition would not warrant discussion of its relations to other loose and partially detached bodies in the knee-joint or of its possible relation to arthritis.

7. Charcot Joints as Early Symptom of Tabes.—H. L. Taylor presents the history of twenty-three cases of tabes in which Charcot joints and spontaneous fractures were prominent symptoms, in some instances the earliest symptoms observed. In eleven of the cases lues was denied, but in the most of these it was extremely probable from the clinical evidence that syphilis was the underlying cause. The author concludes that Charcot joints and spontaneous fractures are often initial or early symptoms of tabes dorsalis. They often precede the ataxic gait, and are of diagnostic importance in calling attention to the underlying tabes. Charcot joints are frequently of traumatic origin and often follow fractures and lesser injuries. The results of orthopedic treatment in early or moderately advanced cases of Charcot joint are extremely satisfactory. Orthopedic treatment by protective splinting should also be used in the loose joints of tabes due to hypotonus before the appearance of swelling and effusion. As ataxia is frequently one of the later symptoms to appear the term "locomotor ataxia" to designate the affection is misleading and should be discarded. The term tabes dorsalis should be used in its stead.

10. Gastric Ulcer and Gastric Cancer.—F. Smithies analyzes a series of 566 consecutive cases of cancer of the stomach, demonstrated by operation and also pathologically. Many cases admitting only a clinical diagnosis of ulcer are shown by operation to be malignant, and the object of his study has been to determine how frequently chronic ulcer precedes cancer. The set ratio in gastric cancer is approximately that of chronic gastric ulcer (3.33 males to 1 female) and the age relations are similar. Precancerous history indicates that 41.8 per cent. of proved cases of cancer presented early symptoms of gastric ulcer; 16.7 per cent. presented the early symptomatology of "irregular" gastric ulcer, and 32.1 per cent. had the symptom complex of gastric cancer without a previous gastric disturbance. Thus over 60 per cent. of the cases of gastric cancer had early dyspeptic symptoms, usually of chronic ulcer. The length of time of all the symptoms of the primary cancerous group (162 cases) was 7.1 months. The average duration of the precancerous dyspeptic periods was 11.4 years in 239 cases. In this group the duration of evident malignancy averaged 6.1 months. The development of a precancerous history permits laparotomy in more than one-half the cases at a stage in which the surgical advantages of a localized process are available. Periodicity was observed in the preliminary dyspeptic symptoms in 81 per cent., while it was absent in 99 per cent. after the process became evidently malignant. Relief of pain by eating was experienced in more than one-fifth of the cases in which malignancy followed a clinical gastric ulcer and in 3 per cent. of the primary cancer group. The analysis of other symptoms such as hemorrhage, vomiting, occult blood, etc., is given in detail. In about 10 per cent. of the cases of a gastric cancer the roentgenogram and fluoroscope were of value in enabling one to make an absolute diagnosis. More than 98 per cent. of the gastric cancers were adenocarcinomas. Sarcoma was seen but once. There is a group of cases of chronic ulcer in which examination reveals cellular or intracellular variations warranting the designation of precancerous ulcer. It is often impossible to distinguish stages of simple and malignant hyperplasia histologically. Benign duodenal or gastric ulcers may coexist with cancer in the same person.

12. Etiological Study of Hodgkin's Disease.—C. H. Bunting and J. L. Yates refer to a previous publication in which they described a diphtheroid organism obtained in pure culture in four cases of Hodgkin's disease and observed in three others. They report experiments on monkeys by the inoculation of the cultures of this organ-

ism, and while they cannot claim as yet that they have produced Hodgkin's disease in the animals they state that by repeated injections they have produced progressive enlargement of a single group of lymph nodes which show histological changes identical with those observed in the lymph nodes in human beings in whom the disease is of the same duration

The Lancet.

November 1 and 8, 1913.

1. The Influence of Harvey's Work in the Development of the Doctrine of Infection and Immunity. J. M. Bruce.
2. The Nature and Degree of Specific Differences Among Bacteria. F. W. Andrewes.
3. Two Years' Experience with Salvarsan. Sir Malcolm Morris and H. MacCormac.
4. An Arteriovenous Aneurysm of the Axillary Vessels of 30 Years' Duration. Sir William Osler.
5. The Visceral Complications Met with in Hysterectomy for Fibroids and the Best Methods of Dealing with Them. Sir John Bland-Sutton.
6. A Case of Pituitary Tumour and Sellar Decompression. W. Harris and C. Graham.
7. Heredity and Inheritance as they Concern the Physician. C. Mercier.
8. Hysteria in Some of Its Prospects. T. R. Glynn.
9. On the State of the Bloodvessels in Shock. J. D. Malcolm.
10. Fourth Report on Typhoid Carriers. D. S. Davies and I. W. Hall, with the assistance of G. S. Williamson and B. A. I. Peters.
11. Diseases Due to Deficiencies in Diet. F. Gowland Hopkins.
12. Sensitized Virus Vaccination in Gonorrhea, and Especially Its Complications. L. Cruveilhier.
13. Some Additional Experiences of Nerve Surgery. A. H. Tubby.
14. Public Measures for the Prevention of Tuberculosis. N. Raw.
15. The Bacteriological Diagnosis of a Case of Plague. W. J. Tulloch.
16. The Estimation and Significance of Amino-Acids in the Urine in Diabetes Mellitus. P. J. Cammidge.
17. The Mortality of Children from Burning. W. A. Brend.
18. Research Work in Insanity and the Study of Curative Treatment of the Insane. H. O. Smith.

2. Specific Differences Among Bacteria.—F. W. Andrewes notes that much more variability is to be seen in some genera of bacteria than in others, and the general rule may be laid down that small genera, containing only one or two forms, show much more constancy than the large genera. Thus the anthrax bacillus has few or no close allies; it is almost a genus to itself and it shows hardly any variability. This is true also of *Micrococcus melitensis* and *Bacillus mallei*. In contrast to these we find such genera as the streptococci, the diphtheroids, and the coli-typhoid group, which are excessively abundant in nature, rich in the number of their forms, and present the highest degree of variability. It is in such genera as these latter that the chief disputes have arisen among bacteriologists as to what are species and what merely varieties. In such genera as the streptococci or the *Bacillus coli* group, one perceives a mass of variable forms, representing, as it were, the melting-pot in which species are made, and from which even now species are emerging. One may actually trace the process of emergence by the application of suitable methods, and all the stages of the process can be watched. Thus, from the *Bacillus coli* group we see the typhoid bacillus already emerged as a species almost fully fixed and defined, while in Salmonella we have a subgroup of coliform organisms struggling upwards into differentiation, separable as a subgroup, but with specific limits recognizable only by the doubtful criteria of serology. There is an aspect of the subject which is at the present day largely conjectural, but which is beginning to attract the attention of many workers, and which has recently been discussed by Eccles in the MEDICAL RECORD. This is the idea of "chemical evolution." The protein molecule is essentially built up of amino-acids, limited in number to some 20 or more. The different specific proteins owe their characters to the proportions of these different amino-acids present, and to their relative positions in the configuration of the molecule, affording an infinite variety of combinations. These minute structural differences in the configuration of the protein molecule have arisen by natural selection—as a result of the survival of the chemically fittest molecules in the struggle for existence of the organisms to which they belong. The conception of chemical differences between species is a relatively novel one, and although precipitin reactions are applied in distinguishing between the blood of one known animal and another, no one has yet dared to define species on chemical grounds alone. The author closes with the confession that he does not know by what criteria one can judge of actual specificity among bacteria.

3. Two Years' Experience with Salvarsan.—Sir Malcolm Morris and H. MacCormac state that in all their primary cases the disease has been immediately arrested, and in none which they have been able to follow up have secondary symptoms developed, with the exception of sore throat. In secondary and tertiary cases the skin lesions, without a single exception, have rapidly disappeared. The authors did not rely solely upon salvarsan, but supplemented it with mercury wherever patients could be prevailed upon to take a course of that drug. Even then their cases have not been free from recrudescence. In a few instances the patients have returned after two or in some cases three injections, with a complete relapse. In all of the secondary cases there has been a rapid disappearance not only of cutaneous but also of mucous membrane lesions. The rash has quickly faded, but some pigmentation has usually persisted for a considerable time. The general condition also has greatly benefited, the appetite improving, and the patients putting on weight and gaining color. In the group of tertiary cases, even in case that had proved obdurate to mercury and iodide of potassium vigorously and perseveringly administered, the authors have not had a single failure where the integumentary system was attacked. Almost as much may be said of lesions of the tongue. As between the salvarsan and neosalvarsan, the results inclined the authors to give the preference to the earlier one. Neosalvarsan is not only less stable than salvarsan, so that unless it be used at once its toxicity may be intensified to the danger point, but it is less rapid in its effects, lesions disappearing less readily under its influence, and the Wassermann reaction remaining positive longer. Although salvarsan may in some cases abort the disease in the primary stage, and may effect a permanent cure in later stages, these results cannot be confidently counted upon, and prudence dictates that in every case this remedy should be supplemented by a course of mercury. On the other hand, that salvarsan has a more rapid and powerful effect upon the spirochæte than mercury seems indisputable. In some of the authors' cases malignant and less severe types of syphilis that had proved absolutely resistant to mercury, or to mercury plus potassium iodide, have promptly yielded to salvarsan. With mercury alone, however administered, lesions are much more persistent, and in nearly all cases the Wassermann reaction remains positive during the first year and in about a third of the cases for over two years.

5. Visceral Complications Met with in Hysterectomy for Fibroids.—Sir John Bland Sutton discusses the manner in which surgeons deal with certain visceral lesions which occasionally complicate fibroids, such as cancer of the colon, injury of the ureters, and gall-stones. The author has had careful observations made on the cardiac condition of women with fibroids, and there is nothing which can be described as peculiar to the influence of these tumors. On three occasions the author has removed a uterus containing fibroids from women who at the time of the operation possessed goiters. He has been surprised on seeing the patients six months after the hysterectomy to notice a marked diminution in the size of the goitrous thyroids. The presence of sugar in the urine is as a rule a contraindication to hysterectomy for fibroids. The urine of patients with a large cervical fibroid, or a fibroid of the body of the uterus impacted in the pelvis, often contains slight traces of albumin. This is not a contra-

indication to operation, and the albumin quickly disappears after the tumor has been removed. One of the most serious accidents that happens in the course of hysterectomy is an injury to both ureters. It has happened to the author on several occasions in the course of removing the uterus for fibroids to find cancer of the sigmoid flexure. After completing the hysterectomy he excised the cancer in the colon and joined the cut ends of the bowel by an end-to-end anastomosis. As regards the coexistence of fibroids and gallstones the author lays down a general rule, as follows: If a woman deeply jaundiced in consequence of a stone impacted in the common duct also suffers from a uterine fibroid, which so troubles her as to make it desirable to remove the uterus, it is preferable to remove the stone from the common duct first because it is well known that cholemia predisposes to hemorrhage. Hysterectomy in a woman with persistent jaundice is an operation which would place her life in the gravest peril from postoperative bleeding.

7. Heredity and Inheritance as They Concern the Physician.—C. Mercier points out that breeders of animals breed for single qualities or for simple combinations of qualities, but the controllers of eugenics in the human race would breed for a vast number of complex qualities and would breed for them all at once. They would breed for physical robustness and capacity to resist disease, for physical beauty, for moral elevation, for intellectual genius and for manual dexterity. The author believes that neither biometrics nor Mendelism is of the slightest value to the practising physician. Moreover he does not believe that insanity is ever inherited. What is inherited when nervous disorder of this and other kinds appears in successive generations, is a certain instability or vulnerability of the nervous structure in the highest regions of the brain, such that they readily become disorganized when exceptional demands are made upon them, or even when demands are made upon them that are not exceptional.

8. Hysteria.—T. R. Glynn notes that the stigmata of hysteria are present in about 20 per cent. of epileptics. Some of the stigmata were found in 25 out of 96 cases of chorea. The infective diseases may provoke hysteria. Chlorosis is very frequently attended with hysteria. In Graves' disease the hysterical stigmata are present in 35 per cent. of cases. There was evidence of hysteria in three-fourths of the cases of simple gastralgia in young women. The relation of hysteria to heart disease is of special interest. Such hysterical affections as pseudo-angina, or simple pain over the heart, palpitation, dyspnea, and syncope, when the heart is normal arouse fears of cardiac disease in the patient, and worry the medical attendant till he lights on the explanation of the symptoms, and when these hysterical accidents occur in cases in which there are signs of organic heart disease they are likely to cause the patient's condition to appear more serious than it is.

12. Sensitized Virus Vaccination in Gonorrhea.—L. Cruveilhier employed sensitized living gonococcus vaccines in the treatment of gonorrhea and more particularly, of its complications. Cases of epididymitis were greatly benefited. This was also true of adnexal complications of gonorrhea in women. In acute gonorrheal rheumatism the action of sensitized virus vaccination was very rapid. In a refractory case of chronic gonorrheal arthritis great improvement was noted as the result of this treatment.

13. Nerve Surgery.—A. H. Tubby states that brachial plexus lesions, if traumatic, are hopeful, if the loss of power has not existed for years. If due to other causes the outlook is not so good. However, one should not despair of a case recovering, even five years after the operation, provided that the improvement has set in within three months after the operation and is continuous. Popliteal neuroplasty for infantile paralysis has proved disappointing for the reasons given previously. Injuries about the wrist should never be sewn up until the continuity of the nerves has been ascertained, and until all the electrical reactions have been tested. If the lesion of the nerve is compression by a scar the outlook after operation is most hopeful. If the nerve has been severed primary operation is very hopeful, but secondary suture rarely permits a complete recovery. No case, however, of traumatic nerve lesion should be regarded as hopeless, in view of the achievements of neuroplasty.

14. Public Antituberculosis Measures.—N. Raw discussed the general measures for the control of tuberculosis, which are as follows: (1) Voluntary and compulsory notification; (2) removal of affected children from school and home; (3) treatment of children in special children's sanatoria; (4) education of the general public with regard to the disease; (5) provision of municipal dispensaries in every community; (6) provision of sanatoria for the cure of early cases; (7) institutions for advanced cases; (8) home training and supervision among the working classes; (9) rigorous supervision of the milk supply; (10) extermination of tuberculosis among cattle; (11) assistance to family in the absence of the breadwinner; and (12) provision of suitable employment for cured cases and those in whom the disease is arrested.

16. The Amino-Acids in the Urine in Diabetes.—P. J. Cammidge has found that the urine in simple cases of glycosuria shows no amino-acid nitrogen excepting when there is evidence of a gouty condition or serious hepatic derangement; there may then be as much as 0.5 gram in 24 hours. In such cases the urine may contain traces of acetone, but it is free from aceto-acetic and oxybutyric acids. When secondary disturbances of metabolism occur and the patient has reached the third stage, the amino-acid nitrogen is small in amount at first, 0.05 gram or less, but as the disease progresses, and especially if it is not controlled by suitable treatment, it generally increases rapidly, often much more rapidly than the acetone bodies, until 2 grams or more are being excreted daily. Finally, the amino acids may be present in such abundance that the relatively insoluble tyrosine crystallizes out and can be recognized in the urinary sediment with the microscope. In some cases the excretion of amino-acids and acetone bodies run parallel, but this is not always the case, and one sometimes meets with a high excretion of acetone bodies and a low amino-acid nitrogen, while other cases show the reverse condition. The former often do surprisingly well, but the latter frequently die suddenly, with symptoms of heart failure, so that as a rule the author places more reliance on the amino-acid content of the urine in giving a prognosis, particularly in cases in which amino-acids are found in the urine. It is now generally recognized that many diabetics, and more particularly those of a severe type, do better when the amount of meat taken is strictly limited and intervals of meat-free diet are interposed. This is the basis of the "oatmeal cure," the "potato cure," and similar methods of treatment, and of the vegetable days which are prescribed for most diabetics who are being treated by modern methods. The reason for their use is often not appreciated, however, and they are consequently prescribed in a haphazard manner. The common policy of allowing patients with glycosuria an unlimited amount of meat is pernicious in all cases, for even when no amino-acids are being excreted in the urine, and it is evident that they are being utilized by the organism, one should remember the high specific dynamic effect of protein foods, and bear in mind that it has been proved experimentally that a purely protein diet stimulates metabolism 40 per cent. over the fasting standard, as compared with 6 per cent. for carbohydrates and 14 per cent.

for fats. The appearance of amino-acids in the urine in recognizable amounts is usually a sign that too much protein food is being taken, just as the presence of sugar is an indication that more carbohydrate is being consumed than the patient can deal with efficiently. Their persistent increase, in spite of careful dieting, is of bad prognostic significance, but a steady diminution following a regulation of the protein intake suggests that, with care, the life of the patient may be prolonged for months or even years.

17. **The Mortality of Children from Burning.**—W. A. Brend presents the following table which is compiled from the reports of deaths in England from 1906 to 1911 of infants and children caused by burning, chiefly from ignition of clothing:

Ages.	Boys.	Girls.
0 to 1	214	234
1 to 2	443	466
2 to 3	840	623
3 to 4	580	729
4 to 5	368	775
5 to 10	389	1427
10 to 15	47	369
15 to 20	33	261

It will be seen that there is a very marked difference between the mortality of boys and girls. In the case of boys the figures increase rapidly up to the age of 3, drop nearly as quickly to the age of 6, and then gradually fall away to almost nothing. The mortality of girls continues to increase up to the age of 5, and then declines, though to not nearly the same extent as among boys. It remains higher through the ages of adolescence, being between the ages of 15 and 20 about eight times as great. This remarkable difference in the mortality is probably due to the difference in the style of clothing worn by the two sexes. Up to about the age of 3 boys are dressed in the same way as girls. From 3 to 4 they are put into male attire and there is an abrupt and marked fall in the mortality from burning. With girls it is not until the age is reached at which they are better able to take care of themselves than the figures show a decline. The generally greater mortality of girls from burning is to be attributed to the loose and inflammable nature of their clothing. Flannelette is particularly pernicious in this respect.

British Medical Journal.

November 1, 1913.

1. Chronic Intestinal Stasis. Sir W. Arbuthnot Lane.
2. Chronic Intestinal Stasis, with Reference to Conditions Found at Operation and the Mortality. W. S. Bainbridge.
3. The Visceral Complications Met with in Hysterectomy for Fibroids and the Best Methods of Dealing with Them. Sir John Bland-Sutton.
4. Remarks on the Treatment of Spastic Paraplegia (Little's Disease). E. M. Little.
5. Hereditary Transmission of Sarcoma. J. S. Manson.
6. A New Method of Dealing with Scars by Multiple Incision and Thiosinamin. By A. H. Tubby.

1. **Chronic Intestinal Stasis.**—Sir W. Arbuthnot Lane points out that the symptoms that result directly from the autointoxication of chronic intestinal stasis are (1) loss of fat; (2) wasting of the voluntary and involuntary muscles; (3) degenerative changes in the skin; (4) reduction of body temperature and particularly that of the limbs; (5) an apathetic mental condition; (6) pains in the muscles, joints, and skin; (7) wasting of the thyroid; (8)increase or decrease of blood pressure; (9) degenerative changes in the breast; (11) dyspnea on exertion; (12) degenerative changes in the heart; (13) chronic nephritis; (14) canities and alopecia; (15) indurative, inflammatory, and malignant changes in the pancreas; (16) diseases of the liver and biliary tract; (17) degenerative diseases of the eye. The indirect changes, or those that result from the lowered resisting power of the tissues to the invasion of organisms produced by autointoxication, can hardly be separated abruptly from all those conditions described as being caused directly by it. The most obvious are: (1) Infection of the gums causing the condition commonly described as pyorrhœa alveolaris. (2) Tuberculous infection, when not produced by direct inoculation. (3) Rheumatoid arthritis. This, like tubercle, cannot develop except in the presence of defective drainage of the gastro-intestinal tract. (4) Infection of the genitourinary tract, either directly or indirectly, through the blood stream, by organisms other than tubercle, producing nephritis, cystitis, pyelitis, endometritis, salpingitis, etc. (5) Development of changes in the thyroid gland, whether as adenomatous tumors, general enlargement of the thyroid, or exophthalmic goiter. (6) Still's disease. (7) Infections of the skin of a pustular nature. (8)Infection of the large intestine by organisms which produce the several varieties of mucous and ulcerative colitis. (8) Ulcerative endocarditis.

6. **A New Method of Dealing with Scars.**—A. H. Tubby describes a method which he has employed in the ment of scars of very considerable dimensions, in the axillæ, in the groin, about the neck, at the wrist, and on the fingers. Having frequently failed to obtain any satisfactory result by excision of scar tissue, even if followed by extensive skin grafting, he devised the following original method: With a fine and strong-backed tenotomy knife a large number of multiple incisions are made transversely to the bands of keloid material. The incisions are placed close together, not more than one-tenth of an inch apart; and great care is taken that they should penetrate not only into the subcutaneous fat, but also extend one-quarter or half an inch into the neighboring healthy skin. No attempt is made to arrest the hemorrhage except by pressure, and when bleeding has ceased, a solution of thiosinamine is vigorously rubbed in; and, if the scar tissue is very thick, a few drops are injected into the most prominent bands. The author has had no hesitation in injecting, in children, 15 minims at a time, and in adults 20 minims; in only one case was there any effect on the heart. In that instance some slight cardiac collapse occurred for a few minutes; the patient, however, was over sixty years of age, and, happily, no permanent ill results followed. After the operation the part is put up on a splint, in as much extension as possible, without tearing the soft parts, and is allowed to heal. This is accompanied by no excessive reaction and very little pain. The author believes that the absence of those signs is due to the fact that the thiosinamine is not pent up within the tissues, but freely exudes through the incision. After ten or fourteen days the wound will be healed, and the mobility of the part is increased by 50 per cent. The operation is then repeated, and it rarely may be required three or four times. The result is most satisfactory; scars which have been tough, resistant, and, in the case of the fingers, wire-like, have become soft and supple, the part has regained its mobility, and its usefulness has been restored.

Berliner klinische Wochenschrift.

October 20, 1913.

Cultivation of the Exciter of Rabies.—Noguchi mentions in succession the labors of Gattier, Pasteur, and associates Negri, Babes, J. Koch, and others, concluding with Proescher, a recent writer. The discovery of "Negri's bodies" in the ganglion cells was of critical importance, while other men found minute granules in the central nervous system. Finally Proescher's minutest, pleomorphic organisms were found in the nervous substance of rabbits killed with fixed virus. But not one of these bodies has been accepted as the cause of the disease. All are probably reactive phenomena of the virus of the dis-

ease which is filtrable in character. The author has been attempting to obtain serial cultures without absolute isolation of the germ, such as is commonly practised in diseases due to an invisible, unknown microorganism. He began his studies in 1912. The first or infective material was the sterile brain of an animal dead of rabies. This was passed through cultures of all kinds, and in different animals, causing an epidemic of experimental rabies. After eighteen months it was learned that many cultures had died out, and that no organisms could be brought to view. Minute chromatin corpuscles were visible and these could be carried through many generations. They corresponded to living formations, and in certain cases to Negri's bodies. Very small chromatin granules answered to Negri's spores. Thus far nerve substance containing these bodies caused typical rabies.

Pathology of Shock.—Henderson does not agree wholly with the Crile school as to the nature of this phenomenon. He believes that shock is a collective term and that we should study its individual phases. Sudden deaths were once supposed to be shock deaths, and while the mechanism was usually visible there was in many cases no trauma. Anaphylaxis to-day explains some of these instances. Psychic shock leading to death is also partially understood. Sudden death from electricity is commonly spoken of as due to electric shock, although these deaths may differ much among themselves. Death in chloroform narcosis (chloroform death) is regarded as due to a cardiac shock. Death from drowning is more or less a shock death, in cases in which resuscitation is impossible even after but two or three minutes of immersion. For the gynecologist shock is the result chiefly of hemorrhage; for the surgeon shock means a strong depression of all of life's functions not conditioned by loss of blood; for the military surgeon shock is due largely to the depression produced by prolonged operations. The phenomenon of acapina is discussed very fully and it is questioned whether or not it should be included under shock. It at least seems to be visible in the course of certain shock deaths. This relationship will doubtless be a great problem for the future. The relation of various functions to shock constitute problems of equal significance. Thus the question of circulatory shock must first involve the status of each structural component as venous pressure, the blood supply of the right heart, the influence of the nervous system (vasomotor). The venous pressure is not disturbed by an injection of adrenalin which causes a marked rise of arterial pressure. The author closes in recapitulation the extremely obscure nature of circulatory shock.

Münchener medizinische Wochenshrift.

October 28, 1913.

New Viewpoints for the Therapeutic Application of Camphor.—Leo has recently injected a watery solution of camphor having a high content of the latter, and finds it much superior to camphor oil. It stimulates the cortex and respiratory centre and under certain conditions raises the blood pressure. Camphor has long been known as of value in fevers, although the rationale has never been understood. It has recently been claimed that the drug acts as a bactericide in the circulation, with a quasi-specific action in pneumonia and pneumococcus sepsis. In animal experiment it has been found that the drug inhibits the development of pneumococci. Recent work at the Ehrlich Institute has shown that camphor oil exerts an undoubted prophylactic action on pneumococcus sepsis in rabbits and guinea pigs, while in mice it shows beyond doubt still greater possibilities suggesting cure. In croupous pneumonia in man we have either a localized process with a general reaction or a generalized sepsis such as occurs in animals. Nevertheless in croupous pneumonia in man there are always pneumococci in the blood, even if sepsis does not develop. In all of the different phases in man and animals there seems to be an indication for camphor. A study of history shows a marked germicidal power of camphor in infectious diseases. Thus Pirogoff praised it highly in erysipelas. At present much effort is being devoted to seek out the best preparations and methods of exhibition. We cannot rely on camphor alone, for in each disease the best general treatment must be followed up. In pneumococcus infection we should doubtless combine it with serotherapy and ethyhydrocuprein. Camphor should be used as a last resort by the intravenous route.

Traumatic Delayed Apoplexy.—Schuster refers to cases in which a cerebral lesion or vascular injury is the first step towards an apoplexy. The nature of the injury is apparent from the symptoms of focal irritation. A period of latency now sets in, of from 1 to 6 weeks on the average, with the maximum of nine months (Mendel). Cases no doubt occur not under medical control in which the interval may be years. Sooner or later apoplexy is certain to supervene. A case is described at great length. An injury had occurred in the floor of the fourth ventricle, a place of predilection, and the focal symptom was abducens paresis. Just what followed at the site of injury is problematical. There may have developed a focus of softening involving the vessels secondarily or the opposed condition may have ensued. In any case the vessels must have been damaged sufficiently in the fifth week for a rupture to occur. Under slight muscular overexertion a blood vessel ruptured in the left ventricle. The patient had a modified Graves' disease and the thyreotoxicosis may have injured the blood vessels, but such a sequence has never been established.

Deutsche medizinische Wochenschrift.

October 23, 1913.

New Principles in the Treatment of Gonorrhea.—The three first papers in this number deal with certain trademarked substances for the prophylaxis or cure of gonorrhea, the names of which need not be given but only the principles involved. Bruck has attempted to obtain combinations of silver with other substances intended to secure diffusibility and deep action with special regard to prophylaxis, where they are applicable in the form of bougies after intercourse. Sommer discusses the use of these in the clinic, while Glück studies the behavior of gonococci in the presence of the solution. The principal diffusive substance united with silver is uranin.

Benzol Treatment of Leucemia.—Mühlmann sums up as follows the results of treatment of a case of lymphatic leucemia with benzol. The patient died and extensive necroses were found in the liver. Neumann's find in a case of myelogenous leucemia was the same. Pappenheim gave benzol internally to rabbits with the same result. While we cannot say that benzol was responsible for the hepatic lesions in these cases, we must henceforth be cautious in the use of benzol for leucemia, giving small doses and strictly controlling the state of the hepatic functions by appropriate tests.

Complement Deviation in Whooping Cough.—A. Netter and M. P. Weil as the result of a systematic examination of the blood serum in children suffering from whooping cough, which examination was conducted at different stages of the disease, find that the specific amboceptor appears only during a relatively late period of the disease, *i.e.* in the second, and principally in the latter half of the second, week. On the fifteenth day the reaction was regularly positive. The complement-deviation reaction is therefore of little diagnostic value in whooping-cough.—*Comptes Rendus Hebdom. de la Société de Biologie.*

Insurance Medicine.

Educational Value of Cancer Statistics to Insurance Companies.—Before the Clinical Congress of Surgeons of North America, Mr. Frederick L. Hoffman read a paper on the educational value of cancer statistics to insurance companies. The opinion was expressed that the cancer death rate in the United States is unquestionably on the increase among both sexes at all ages over forty and for all important organs and parts.

From the standpoint of life insurance cancer presented itself in a threefold aspect: *first*, as a problem in selection in insurance medicine; *second*, as an element in insurance experience; and *third*, as a question of state medicine, with special regard to the educational value of cancer statistics and the feasibility of cancer control. The speaker briefly reviewed the literature of cancer in insurance medicine during the past half century. He thought that over-emphasis had been placed upon the alleged hereditary tendency in cancer, which theory had only been slowly given up in the view of increasing statistical and other evidence to the contrary.

The earliest data on insurance company mortality were of the London Equitable, for the period 1800-1821, in which, out of 1,930 deaths from all causes only 25, or 1.5 per cent., were deaths from cancer. The early experience of other English companies were all to the same effect, of an apparently low proportionate mortality from cancerous affections. Making allowance then for defects of registration, it was quite apparent that there had been an actual increase in the cancer mortality of life insurance companies.

The speaker reviewed the investigations of Messrs. King and Newsholme on the alleged increase of cancer, based in part upon the experience of the Scottish Widows' Fund. The conclusions of King and Newsholme to the effect that cancer was only apparently, and not actually, on the increase, were subsequently set aside by the still more thorough investigations by the medical officer of the Scottish Widows' Fund, Dr. Claud Muirhead, published in 1902. He concluded that there had been a slight decrease in the deaths from internal cancer and a distinct increase in the deaths from external cancer.

After reviewing the mortality experience of the Prudential Assurance Company, London, in its industrial branch, exhibiting a very low proportionate mortality from cancer as possibly typical of the working class, Hoffman reviewed the early experience of the Mutual Life of New York, the Washington Life, and subsequently the Clergy Mutual of England, the Northwestern Mutual of Milwaukee, the Gotha Life of Germany, and certain other German companies, all exhibiting a relatively high proportionate mortality from cancer during the most recent years of experience, and confirming to this extent the conclusion that cancer was actually on the increase in this as well as in other civilized countries.

According to the speaker, the most important contribution to the study of cancer as an insurance problem was the results of the recent medico-actuarial investigation of American companies for the period 1885-1908. The experience gained from these investigations, conclusively sustained the view occasionally expressed by writers on the subject of cancer occurrence, that the disease is more common among persons of overweight than among underweights, and by inference among the well-to-do and over-nourished, than among the less prosperous element but of more normal physique. The medico-actuarial investigation also considered the mortality from cancer according to conjugal conditions, proving quite conclusively that the death rate from cancer was distinctly less among unmarried women than among the married and the widows at every divisional period of life. Unfortunately, the investigation had not been carried far enough to disclose the variation in the cancer liability of married and unmarried women according to organs or parts of bodies affected, but possibly such an investigation may be made in the future, when a still larger amount of material will be available. The results of the numerous investigations seemed to lend force to the argument that the excess in the death rate from cancer among the well-to-do might be largely attributable to over-nutrition as a possible primary cause or irritant in the production of cancerous affections.

Hoffman recommended an educational propaganda, and also suggested that the Clinical Congress of Surgeons order a collective inquiry to be made into the facts of American surgical experience with regard to the immediate and after-effects of surgical operations for malignant and non-malignant tumors.

Mr. Hoffman concluded by saying that "There are the strongest possible reasons for believing that if the cancer facts, including medical and surgical experience, were brought together in authoritative form, they would not only materially aid the work of the American Society for the Control of Cancer, but the various cancer research funds, as well as the individual practitioner in his relations to his patients and the public at large. With this end in view, however, it is necessary that there should be intelligent and active cooperation between the laity and the profession, on the one hand, and the life insurance companies, and the Federal and State governments on the other. If by means of such cooperation the present upward tendency of the cancer death rate is only halted, and if by indefatigable efforts even a slight reduction in the rate from any or several forms of cancerous affections is brought about, the results will be well worth while, and the work done will be a genuine contribution to the well-being of civilized mankind."

Misrepresentations in Life Insurance.—An applicant for life insurance must act "in the utmost good faith" in disclosing to the insurer all things material to the risk about which information is sought. A misrepresentation in reference to any matter which materially affects the nature, extent, or character of the risk will void the policy; and the willful concealment of a material fact will have the same effect. Where an applicant for life insurance willfully conceals from the insurer the fact of a previous illness, such concealment will void the policy, if the disease was of such a character as to enhance the risk. The fact that the insured may have died a short time after the policy was issued, from a disease with which he was not afflicted when the policy was issued, does not conclusively show that the fact of the previous illness was not material, within the meaning of the general rule stated above.—Ætna Life Ins. Co. *v.* Conway, Georgia Court of Appeals, 75 S. E., 915.

Book Reviews.

A Text-Book on Gonorrhea and Its Complications. By Dr. Georges Luys, late assistant to the Urological Clinique, Hôspital Lariboisière, Paris; Prizeman of the Faculté de Médecine, Paris. Translated and edited by Arthur Foerster, M.R.C.S., L.R.C.P. (London); late Resident Medical Officer, London Dock Hospital. With 200 illustrations and three Colored Plates. Price $4.50 net. New York: William Wood & Company, 1913.

Books on genitourinary diseases are not lacking and there are several excellent ones in this country describing fully and satisfactorily the American methods of dealing with these affections. Methods differ somewhat, however, in different countries and for this reason a translation bringing new ideas and descriptions of new or at least not well known procedures is often to be welcomed. The French urologists are justly celebrated for their skill and therapeutic success, and high among the French urologists stands the author of this book. His "Traité de la Blurnorrhagic et de en Complications," which was reviewed in these columns nearly two years ago, achieved an instant success in France and among French-speaking genitourinary surgeons, and appeared in a second edition within a year. This well made translation by Mr. Foerster, himself no mean authority in venereal diseases, is of the second edition, with, however, some few changes, chiefly in the matter of illustrations.

Dr. Luys is an optimist as regards the therapy of gonorrhea for he holds that it is no longer "permissible for a medical man to allow a case of gonorrheal urethritis to go on without curing it." His optimism is justified for it is founded upon the results of the modern methods, aided by the urethroscope and other instruments, which he has obtained. The work consists of twelve sections, opening with an interesting chapter on the history of gonorrhea and its therapeutics. Then follow chapters on etiology and bacteriology, and one on the non-gonococcal forms of urethritis. The pathology is satisfactorily dealt with in a separate chapter, and following this are two excellent chapters treating of diagnosis and urotherapy. The numerous complications, including rheumatism and the other organic affections, are then reviewed, and a chapter is devoted to gonorrhea in women and children. The last two chapters are concerned with the treatment of acute and chronic gonorrhea.

The illustration are deserving of special commendation; they are numerous, well executed, and elucidative, making clear many points that are more or less unfamiliar to those who have not made a special study of genitorurinary surgery.

Ionic Medication. The Principles of the Method and an Account of the Clinical Results Obtained. By H. Lewis Jones, M.D., Fellow of the Royal College of Physicians of London; Consulting Medical Officer to the Electrical Department in St. Batholomew's Hospital, etc. Price $1.50. Philadelphia: P. Blakiston's Son & Co., 1913.

The author of this volume is evidently an enthusiastic believer in the efficacy of medication when introduced into the body in the form of ions by means of the electric current, and like most enthusiasts is inclined to go further in his advocacy than the average sceptical reader is willing to follow. The statement has been frequently made that the Americans are far behind Europe in the application of ionic treatment and it is perhaps well that an enthusiast has chosen to persuade them. An adequate discussion of the method is followed by a detailed consideration of the individual ions and their clinical application. The results reported are on the whole almost "too good to be true," but are evidently drawn from a rather wide experience.

Laboratory Methods in Agricultural Bacteriology. By F. Löhnis, Ph.D., Professor of Agricultural Bacteriology in the University of Leipzig. Translated by William Stevenson, B.Sc., N.D.A., N.D.D., Lecturer on Dairying and Bacteriology to the West of Scotland Agricultural College, and J. Hunter Smith, B.Sc., N.D.A., N.D.D., Lecturer on Agricultural Chemistry and Bacteriology to the University College of South Wales and Monmouthshire, and Revised by the Author. Price $1.75 net. London: Charles Green and Co.; Philadelphia: J. B. Lippincott Company, 1913.

With the introduction and development of courses in bacteriology in the agricultural schools came a demand for a laboratory book of methods adapted to such courses. Such a work is provided in Professor Löhnis' book and its translation will render it available for use in this country. It has been translated rather literally but still clearly, and its users will find it well suited to their demands. It is strictly a book of methods and a very good one.

The Microtomist's Vade-Mecum.—A Handbook of the Methods of Microscopic Anatomy. By Arthur Bolles Lee. Seventh Edition. Price $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

During the twenty-eight years since the first edition of this book appeared, the "Microtomist's Vade-Mecum" has been an indispensable aid in the histological and pathological laboratories. The numerous additions that have been made within recent years to histological technique are all included in the present edition, as may be concluded from the seven hundred new entries in its index. Among the recent methods described may be mentioned Gilson's new mounting media of camsal balsam and euparal, and the silver fibril stains of Bielschowsky and Ramón y Cajal.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by George Lovell Gulland, M.D., and James Ritchie, M.D. Vol. XII. Edinburgh: Oliver & Boyd, 1913.

This volume contains reprints of twenty-six papers on anatomy, pharmacology, pathology, and bacteriology, and represents the published work of the year. The articles cover a wide range of interesting subjects. Those of Wilkie on the omentum and retrograde venous embolism in the causation of gastric ulcer appear to be the most important, and those of Fraser on tuberculosis of the bone are scarcely less so. It is altogether a collection of unusually excellent articles.

The Relation of the Lachrymal Organs to the Nose and Nasal Accessory Sinuses. By Prof. Dr. A. Onodi, Director of the Rhino-Laryngological Clinic in the University of Budapest. With Photographic Reproductions, in natural size, of Forty-five Preparations. English Translation by Dr. Dan McKenzie, London. Price $4.25. New York: Wm. Wood & Co., 1913.

In the first section of this book, Professor Onodi describes the topographical anatomy of the lacrymal organs and their relations to the nose and the nasal accessory sinuses, with the aid of forty-five illustrations of preparations of adult and infant skulls. This supplies a gap left in most textbooks on anatomy and rhinology. Onodi reviews in the second section the different operations for the cure of diseases of the lacrymal efferent organs and concludes that Toti's operation should be performed when, together with obstruction to the passage of tears, there is great distention of the lacrymal sac. West's endonasal window-resection above the inferior turbinal is indicated when there is stenosis of the nasal duct without distention of the lacrymal sac; and von Eicken's operation of opening the nasal duct through the maxillary antrum is imperative in empyema of the antrum or in extensive complete occlusion of the nasal duct. The last named operation should also be preferred when preliminary interventions, such as removal of hypertrophied turbinals, spurs, deviations of the nasal septum, etc., are necessary, or when there is a destruction of the bony wall of the nasal duct. Illustrations are given of these operations and technical details are lucidly explained by the distinguished Director of the Rhino-Laryngological Clinic in the Budapest University. Dr. Bellin of Paris and Dr. Dan McKenzie of London have rendered into French and English the German original text.

Die Rassenhygiene in den Vereinigten Staaten von Nordamerika. Von Geza von Hofmann, k. k. österr-ungar. Vizekonsul mit einer Figur im Text. Price, 4 marks. Munich: J. F. Lehmann, 1913.

There have hitherto been no researches as to whether the State laws on eugenics are carried out with any rigor, and one of the Austro-Hungarian vice consuls in Chicago has now investigated the question and issued in German a book embracing information on the spread of eugenics in America, private and public enterprises for eugenic reform, the regulation of marriage, and the sterilization of the unfit. Herr von Hofmann believes that through the immigration restrictions America is now receiving practically the best of the European peasant and laboring classes, and warns Europe to redouble her energy in race hygiene, since she is thus depleted of the marrow of her lower social strata. There is a bibliography designed to give foreign students an idea of American eugenic literature.

Die Geschlechtskrankheiten und die Ärztliche Verantwortlichkeit. Von Dr. Gerhard Hahn, Breslau. Price, 1 mark. Halle a. S.: Carl Marhold, 1913.

Practitioners who through ignorance or carelessness neglect their venereal patients, should read this philosophic gem of ten thousand words. It contains much good advice and many well merited rebukes.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-ninth Annual Meeting, Held at New Orleans, La. October 23, 24, and 25, 1913.

THE PRESIDENT, DR. ALBERT E. STERNE, INDIANAPOLIS, INDIANA, IN THE CHAIR.

Jackson's Membrane in Children.—Dr. JOSEPH RILUS EASTMAN of Indianapolis stated that pericolic membranes had been observed during abdominal operations upon young children by many surgeons, among whom were Roux, Stiles, Czerny, Willy Meyer, C. H. Mayo, M. L. Harris, Flint, Binnie, Coffey, Connell, Finney, Eisendrath, Gerster, McArthur, and Seelig. Often in young persons Professor Roux had observed a veil of new and almost free peritoneum containing young bloodvessels disposed transversely. The symptoms in these children were like those in chronic appendicitis. Roux observed these membranes at various levels upon the ascending colon. Stiles of Edinburgh had observed pericolic membranes in children from a few years of age upwards. Czerny had frequently seen anomalous peritoneal membranes upon the colon in children. M. L. Harris observed a typical Jackson's parietocolic membrane in a boy of twelve. Flint observed the membrane in children of eight, ten, twelve and sixteen years, and believed that they occurred in the same incidence in children as in adults, the reason that they were not more frequently seen being due to the fact that we operated upon adults ten times more frequently than upon children. Dr. Samuel Harvey, instructor of pathology in Columbia University, did 108 autopsies on infants from one to two years of age. In 16.6 per cent. of the cases he found membranes of the parietocolic type. In 13.9 per cent. of cases he found a membrane covering the *caput coli*. Lane's band or Reid's genitomesenteric fold was found in 9.3 per cent. of cases. For the convenience of study anomalous pericolic membranes may be divided as follows:

Group 1.—Those peritoneal sheets or ribbons which, because of their position and attachments, seemed to represent exaggerations of normal anatomical folds or ligaments; for example. (*a*) Those representing in an exaggerated or modified form the phenocolic ligament of Toldt, the costacolic ligament, the hepatocolic ligament, the nephrocolic ligament, etc. (*b*) Those representing in an enlarged or modified form the bloodless fold of Treves. (*c*) Those representing in amplified form the fold of Reid (genitomesenteric), Lane's band. (*d*) Those representing in amplified form the crescentric upfoldings of serosa which divide the space lateral to the ascending and descending colon into peritoneal fossæ. (*e*) Those representing in amplified form the attachments of the great omentum to the colon occasionally resulting in fusion of the omental serosa to the peritoneum of the colon throughout its length.

Group 2.—Peritonic membranes which corresponded in form and position to anomalous peritoneal folds which appeared occasionally in the fetus, as the: (*a*) Parietocolic fold of Jonnesco. (*b*) The several so-called root folds. (*c*) Nondescript peritoneal folds about the appendix and *caput coli*. (*d*) Adhesion of the peritoneum of the colon to the upfolding peritoneum of its own mesentery (Robinson and Reid).

Group 3.—A blanketing of the colon by the fused anterior and posterior peritoneal laminæ of the great omentum. The fat of the omentum was replaced by an abundance of young parallel coursing bloodvessels which vessels were disposed, as a rule, transversely to the colon.

Group 4.—Membraniform adhesions occurring about the colon the result of mild recurring peritonitis often secondary to chronic colitis (Gerster). These were similar to the pseudoperitoneums seen occasionally upon the broad ligament, the fundus uteri, and the uterine adnexæ. Such formations were essentially different from congenital membranes, although the two forms were frequently associated.

Group 5.—Changes in the peritoneum of the colon due to pathology of the circulation; as hyperemia or variocosities (Hertzler).

All of the varieties of pericolic membranes enumerated above had been observed in the fetus, and, whatever the fundamental processes of pathology which caused these fusions and adhesions might be, it seemed reasonably certain that those processes were often active in fetal life, and that all forms of pericolic membranes, with the possible exception of those embraced in groups 4 and 5, could be traced to fetal fusion.

Dr. F. DENEGRE MARTIN of New Orleans stated that from his experience with the Jackson membrane he was today more inclined to let it alone than to attempt to correct the condition. He had not yet found a case where the Jackson membrane was so situated—and so far he had had but nine cases—that did not have unmistakable signs of appendicitis. In the beginning he tried in several cases to correct the condition by doing what was suggested, severing the membrane and connecting it at some place if he could, but those cases in which that was done gave him more trouble than if he removed the cause and allowed the membrane to remain.

Dr. DANIEL N. EISENDRATH of Chicago said this subject was attracting considerable attention in the surgical world, because a great many clinical pictures had been described of this membrane, and a great deal of harm had been done by misinterpreting the membrane as pathological, when really it was nothing but a normal structure. In dissecting a number of fetuses he had found the membrane existed in the left side as well as on the right; it had the same character of vascularity, the same attachment from the splenic flexure to the sigmoid, and it was a sort of membrane which corresponded to the veil of Treves. A girl on whom he operated for appendicitis came back three years later with symptoms and he found what was known as a double barrel shotgun constriction of the membrane, causing the colon to become kinked. These cases called for cecosigmoidoscopy.

Dr. W. D. HAINES of Cincinnati said that his work in connection with children had been confined largely to perforated appendices, to traumatic perforation or ileus. It was emergency work that did not give much time for carefully looking about for anatomical anomalies.

Dr. RICHARD A. BARR of Nashville could not understand how a membraneous process could cut much figure except in two ways: First, by causing actual mechanical obstruction, which would give us the pathology of either acute or chronic intestinal obstruction. If we had symptoms of either acute or chronic, ordinary mechanical intestinal obstruction, we knew what to do, but, second, where we had what appeared to be obstruction with pathology behind it, what were we going to do with it? It seemed to him reasonable to suppose in these cases the obstruction was apparent rather than actual, and that the gut had lost its tone, hanging over or from the peritoneum, showing some constriction, where there were connective tissue bands, and causing almost obstruction. Was that actual obstruction? If so, why didn't we have the pathology of obstruction behind it?

Dr. LOUIS GREENSFELDER of Chicago said it had been his fortune in the past year to have charge of the service at the Michael Reese Hospital, where the cases admitted to his service were all under thirteen years of age, so that he had had an excellent opportunity to observe in these children the absence or presence of Jackson's membrane. He had taken particular pains in nearly every laparotomy to observe whether in these younger children such a membrane existed. In nearly every case he was able to demonstrate the presence of such a membrane. Likewise, in cases where there were evidences of constriction the membrane was removed and some surgical procedure for its relief was undertaken.

Dr. WILLIAM FULLER of Chicago thought we would have to study this subject in adult patients in preference to the child at the operating table. He believed the surgery of most men in connection with children was emergency work, and there was no time for trying to find the existence or absence of this membrane high up in the abdomen. In acute suppurative conditions in children one was glad to get in and get out in the shortest possible time. He had never felt justified in such cases in going high up with a view to determining whether the Jackson membrane existed or not.

Some Phases of Kidney Surgery.—Dr. HENRY J. SCHERCK of St. Louis, Missouri, said that in his early work, like many others, he was inclined to suture back by one of the several methods those kidneys which were very movable. A review of the work done by him for the relief of floating kidney had been extremely unsatisfactory, and he now believed that it was indicated in but a very few cases. The objections to the operation were that we fix rigidly an organ which normally had considerable motion and further, as he had indicated, we seldom removed the symptoms for which the operation was done, for in so many patients the kidney was only one expression of a general enteroptosis, so that less benefit was derived from the operation than would have been the case had the patient been given a rest cure, fattening process and suitable binder. Perhaps in England the opinion was very different, if we were to judge by the statements

made by two English physicians who recently visited this country and who read papers on dropped kidney in a number of cities. They attributed to this condition every manner of ill from a mild neurasthenia to a pronounced insanity. An enlarged gallbladder was once mistaken by him, both anatomically and symptomatically for a dropped kidney. Nephropexy was not a popular operation among American surgeons. He did not believe that every case of stone in the kidney should be operated upon. How often had we seen at autopsy kidneys removed in which stones had probably existed without producing symptoms for many years, and the death of the patient in nowise connected with their presence? We should have, at least, some other indication and no pronounced contraindications before performing a nephrotomy. Railroad hospitals furnished more opportunities for the observation of traumatisms of the kidney than did general hospitals. While serving on the staff of the Missouri Pacific Hospital, for many years he had been called in all cases of traumatism to the kidneys. His present practice was to wait, and to be governed by the subsequent indications before operating. The majority of these cases did well and recovered without operation, provided infection did not take place. The operation could be delayed unless the patient showed symptoms due to continued loss of blood. His remarks in regard to ruptured kidney referred entirely to extraperitoneal conditions. He had never seen an intraperitoneal rupture, in which the patient was not so badly shocked and the condition associated with so much other intraabdominal injury that an operation was not to be thought of. Hematuria occurred in all cases that he had seen, with the exception of one, and in this instance the ureter was ruptured and discovered on opening a large hematoma over the kidney. Of the tumors that affected the kidney he mentioned only one, that of hypernephroma. He had had occasion to operate on quite a number. Unfortunately, in the majority of the cases the diagnosis was made rather late, and the records showed recurrences and metastases in the majority of those operated on. Clinically hypernephormata had always shown a much slower course than was usually the case with malignant disease elsewhere in the body, and unless they produced an intermittent hematuria and were perhaps discoverable by palpation, they were difficult of recognition. Practically, however, a sufficient percentage of cases operated on showed results which warranted operating as soon as we could make a diagnosis, either from symptoms or by exclusion. Persistent hematuria, either intermittent or constant, without evident explanation, had determined him in many cases, and was his present indication for an exploration, suspecting, in the presence of such symptoms hypernephroma. He had noted in many cases the predilection of hypernephroma for bone metastases. Recently a patient presented himself at the City Hospital with a growth on the frontal bone, a section of which when examined proved to be a tumor resembling hypernephroma. Palpation revealed a kidney tumor in this case. The technique he now followed in exposing the kidney was much simplified, due to the leg rest suggested by Dr. Eisendrath of Chicago, which held the patient fixed in the lumbar nephrectomy position, and to Kernig's incision, which consisted of a vertical cut by the edge of the erector spinae carried almost to the iliac crest, from which point it was curved forward towards the umbilicus and sometimes even through the rectus muscle. This incision gave much room and facilitated every step of a kidney operation. Clamps, instead of ligatures, he seldom used if they could possibly be avoided, but if used they must not remain on the pedicle too long. In dividing the kidney the silver wire passed through the kidney by means of a sliver needle and sawed through its structure undoubtedly minimized hemorrhage.

Anent the So-Called White-Slave Law.—Dr. J. T. WINDELL of Louisville stated that in the majority of the writings of those who had hitherto commented upon the Mann Act, the terms white slave and prostitute had been made to serve a synonymous and interchangeable purpose, whereas literally there existed an extremely wide divergence in the signification of each. The term prostitute was used to denote a female who, of her own volition, and for monetary consideration, promiscuously offered herself as a means for the sexual gratification of others. The word gratification was utilized in this connection instead of the more common expression sexual intercourse, the significance of which was limited to the sexual act normally performed, since the fact was well known that the activities of the average professional prostitute were not strictly confined to normal coitus, her customers being offered when occasion demanded the choice of devious other methods by which gratification might be obtained. In contradistinction to the foregoing, the word slave contained no meaning, which, by the most liberal interpretation, could be construed to indicate that the individual should be either a prostitute or a female. Literally the term slave was used to represent a person in bondage and wholly subject to the will of another, or who was held as a chattel with no freedom of independent action, and whose service was entirely under the direction and control of another. A slave, therefore, need necessarily be neither a prostitute nor a woman. A prostitute, however, must necessarily be a female, and to a certain degree her enslavement by another was possible. The combined designation white slave appeared to the writer as being exceedingly unfortunate and misleading, utterly failing to convey clearly the meaning evidently intended by those responsible for its origin, since the individual in question might be neither white nor a slave. Literally construed, however, the inference was obvious that unless the individual be white and also an undoubted slave, the protective aid of the Mann Act could not be invoked; and that a person of any other shade or color might be abducted or transported and held in abject slavery for an indefinite period without the perpetrator of the alleged crime being amenable to the provisions of the law. In the absence of mature consideration, the perusal of current so-called white slave literature invariably produced the unfortunate impression that the primary and essential object of the Mann Act was the suppression or limitation of prostitution. It was believed, however, further study would demonstrate that such an impression was at distinct variance with the facts, and that the original intent of the law was to prevent the further importation of alien women and girls into this country to be virtually sold into slavery. It was a matter of common knowledge that not many years ago the international traffic in women reached such enormous proportions, and the evil became so pernicious, that, as there existed no law by which it could be controlled, regulated, or suppressed, one became imperative for the protection of the unfortunate creatures whose lives were being bartered and enslaved. The number of young girls who had been imported into this country and ultimately sold into slavery could never be even approximately estimated, and this, too, in a presumably free country which boasted of the superior grade of intelligence, the high moral standing, and the ultra civilization of its its people. The emoluments accruing to those engaged in the international traffic became so attractive and alluring to a certain class of individuals in this country that the evil extended into practically every urban and suburban community of the United States, *i.e.* the interstate and interurban traffic in human life became so extensive that the importance was recognized of enacting an enforcible law by which, not only such international, but also the interstate traffic could be suppressed. The outcome of the deliberations of those having the matter in charge was the enactment of the present Mann Act, the ultimate purpose of which, in brief, was the eradication from the face of the earth of the interstate traffic in so-called white slaves. The number of convictions already secured amply testified to the fact that the law was being enforced by the Department of Justice. According to the literal interpretation of the law, any person who defrayed the expenses of transportation for a female from the boundaries of one country or State to another shall be deemed guilty of a felony, and may be fined or imprisoned, or both, provided the female testified before the proper authorities that she was induced or persuaded to migrate from her native country or State by the person whose money paid for her transportation, or that it was at his instigation that her transportation was effected. In not a few instances the evidence upon which conviction was secured for alleged violations of the Mann Act demonstrated that the female was a confirmed prostitute, yet this fact was considered by the court neither competent, pertinent, nor admissible, the man having been instrumental in securing interstate transportation for the woman being sufficient. An equally strange miscarriage of justice occurred in a case where two men were placed in penal servitude for accompanying a married woman to another State, and there remaining in her company for a brief period. It was difficult of understanding and appreciation how the provisions of the Mann Act could be so construed by the court as to be applicable under such circumstances. Certainly no married woman, unless she be feeble minded, or the subject of insanity, should be granted protection of the law in such a case, and especially in view of the fact that she left home of her own volition. In another case the man who secured the transportation for the woman from her native State was convicted, while the other who paid the return transportation was not even prosecuted

Social Factors in the Prevention of Insanity.—Dr. Frank P. Norbury of Springfield, Illinois, said it was through education, through the warfare of science against disease as shown in invention, research, and discovery, that the perils of physical environment were being lessened. Now let us through education—through the opportunities of disseminated knowledge—aid in the preferential social conditions which would lessen, first, the breeding of the unfit; second, develop social environments which add to and develop the moralization of mankind, develop humanitarianism, and the recognition of the social rights of others. Surely, as Baldwin says, "it is high time for society, as it becomes conscious of the principles of its own development and of its resources of control, to address itself directly to the problems of eugenics." Again, he believed concurrent with this eugenics movement we should extend the propaganda to all social conditions which were factors in the prevention of biological and sociological disorganization. The child not only had the right to be born right, but it had an inalienable right to live right, in an environment where the pursuit of happiness might be guaranteed, and where society was in duty bound to make his life compatible with the things that were worth while. "Society and the individual are not two entities, two forces acting separately, two enemies making forced and grudging concessions." No, "on the contrary, they are two sides of a growing whole, in which the welfare and advance of the one, ministers to the welfare and progress of the other. There is but one human interest, when all is said, and this is both individual and social." Our duty was to combat all social conditions which contributed to and were a part of the determining factors in the cause of mental disorders. People were what they were by virtue of inheritance and social experience. The insane were what they were by inheritance, social experience, and the exigencies of disease and accident. Man's entire being was social, and he invaded the life of others and was himself invaded by them. The physician's duty was to bear this in mind, and in his altruism, which was inherent to his profession, remember it was a vital demand of our nature to love our neighbor as ourself. This meant the growth of social consciousness—the greatest factor in the prevention of mental disease.

The Medical Profession and Race Betterment.—Dr. John D. Trawick of Louisville, Kentucky, said we could have no quarrel with those who contended that environment was the essential to development simply because there were mental, physical, and moral potentialities within every nature which had never been called into use. Use and necessity had developed what might otherwise have been latent and undeveloped, but there could have been nothing developed spontaneously by environment had nothing been given in the inheritance. Since the enthusiasm was subsiding which met the first enactment of the law calling for vasectomy we were beginning to see that undoubtedly some good was being accomplished, namely, in the actual prevention of the power for procreation of that element of unfit upon whom vasectomy had been done, but there arose an ethical social error that was fearfully significant, that same individual mutilated though he be, was still a potential active carrier of venereal disease now absolutely cut loose from moral restraint by the knowledge taught him at the time the operation was done that he might indulge in all his libertine passion without fear of procreation. Disease, and crime, and immorality were so clearly related in their biological, sociological aspects that it was no wonder the enthusiast might sometimes hope to check all together by one sweeping mandate of the law. He was convinced that with the thorough awakening referred to of the eugenic conscience of the physicians of the land, the statutes already enacted would be found sufficient for the present need, and more time and money would be devoted to investigation, to research, to education, and less to the maintenance of legislators who in the very nature of things could not be expected to be comprehensively informed. The physician had it within his power to help create a moral tone in society which was a stronger force for good than all law, because law that was effective was law that society demanded for its own protection. These "legislative inroads into the realms of morals" must continue to be effective *only in part* until we had learned to resist immorality with morality. Not only must we teach the young man the danger to health that lies in the venereal diseases, but deeper and more abiding must the social ethical principle be stressed. In fact, were this new science of eugenics limited to its biological phase, dependent merely upon the principles of heredity for application to human development, it was doubtful if much could be predicted from the study. There would be a clearer line drawn between necessary knowledge and indiscreet, hurtful anticipation. If we stood, therefore, for the best there was to be perpetuated in the generations to come we must teach the teachers, instruct those who must instruct, that our children may not merely escape the perils of immorality, but more, may have a high eugenical ideal so that their loving could not be base.

Medical Ethics and Social Hygiene.—Dr. Hugh Cabot of Boston, Massachusetts, uttered a word of warning about the effect of laws passed to this end. He had seen of late a flood of ill advised legislation requiring medical certificates which physicians knew to be wholly worthless. The average practitioner was not, and perhaps never would be, competent to diagnose with certainty the cure of a gonococcus infection or syphilis. It required, and might always require, the services of an expert. To require certificates was to foster fraud. The individual who wanted to know could always get the facts from the public clinic or the private expert. No contracting party to a marriage need remain in doubt on this question if he or she wanted an answer. There was one other phase of this question which often put the physician in a difficult position. What was his duty when he found a married woman infected with one of these diseases? It had been the custom to conceal from her the facts. If we communicated them we might disrupt a household and bring great suffering on children who should be protected. We had often, therefore, accepted what seemed the lesser evil and deceived the wife. This course he believed to be unsound and unethical. The woman came to us in good faith asking for the truth, and to the truth she was entitled. We might refuse to treat her, but we might not refuse the facts. They must be the facts beyond peradventure and we were not required to guess as to the origin of the infection. On this point we might have but little evidence. The responsibility for the result was not on our shoulders, and we could not assume it if we would. In the past we had been parties to a crime. An enlightened public opinion would not tolerate quibbling in this matter, and would demand that all be treated alike. No longer could the women in this country be treated as children. We must hew to the line, let the chips fall where they might. His tale was done. He had offered what he believed to be a sound answer to the riddle. The dignity of the profession demanded that the doctrine of privileged communications be rigidly adhered to. We must regard each individual as equally entitled to the facts if he wanted them. Justice could know no sex. Our knowledge of the damage wrought by these diseases we must hold to be a public trust which it was our duty to administer so that an enlightened public opinion might apply the remedy.

Various Aspects of the Social Hygiene Movement.—Dr. R. S. Yarros of Chicago said first of all, as physicains we had been rather tardy in furnishing the instructions that the public required and was clamoring for. If we wanted to meet this situation fairly we must give the public the necessary information. It was up to us to instruct the people of the dangers of venereal diseases. The women had the task of spreading the information in trying to solve this very complex problem. Our aim was to abolish this most ancient of evils, prostitution, and its consequent diseases. We must make a beginning if we expect to ever accomplish an ending. In the city of New York there were about 100,000 cases, and about the same in Chicago. In Vienna and the larger cities of the world there were probably more. It was not the exact number of cases of gonorrhea that concerned us most, but its increasing prevalence in all cities, large and small. It should be the duty of parents to instruct their children of the dangers of these diseases, but first we, as physicians, must instruct the parents. These diseases attacked young men 18 to 25 years of age, mainly, at which time the self-control and disease-resisting powers were at the lowest point. This was of social importance. There was a general tendency to think that this disease was mainly confined to women of the lower classes, but this was not true. It was very important for every one of us, men and women, to enlighten the public in every possible way. Half of the operations on women in hospitals could be traced to gonorrhea. Hospitals, insane asylums, institutions were filled with patients suffering from these diseases, and we had not sufficiently awakened to it. Where did these diseases come from? We had traced the sources of typhoid, malaria, tuberculosis, but we had not taken up the work of discovering the sources of gonorrhea and syphilis, which unfortunately were not simple. Physicians were prone to touch lightly on it. We must study the source of prostitution and be ready sooner or later to suggest methods of eradication. Another thing facing the women was to do away with the white slave traffic. Poverty meant poor living, poor everything, and we must

teach them the importance of understanding these conditions. We must have certain laws to guide us. Laws were passed requiring people to put up placards showing the presence in their homes of typhoid, etc. It was thought at that time the people would not do it, and that the physicians would lie, but we all knew the importance of it. We had to take up some such measures in this question. If a man married a woman of fine character he should have a certificate showing he was clean. The law should be an essential point.

Dr. Henry B. Favill of Chicago agreed with Dr. Yarros that we should never end unless we began. In the study of psychology there were two divisions, the complex psychology of the monkey and that of children. This question of instinct was so closely related to the question of social life and social hygiene that until we had studied it in its fundamental conditions we could not be considered as efficient on the relationship of sex to society. The special subject of heredity, at present, was only reasonably tangible. The results from biological studies at this time were comparatively negative. There would be a wider chasm between the various grades in human society in the future than there was today. Therefore, we should not have the idea that eugenics were going to be crowned with universal perfection. All sorts of questions arose in this connection. The question of marriage was the most frequent question before the physician. A man had such and such a family history and went to a physician he knew, and who knew of mental aberrations in his past, and what was his attitude? The physician essayed an adjustment on that marriage. What was his right based on such intelligence? It was a question which we dealt with casually on the whole. Again, we should find in connection with this movement that there must be a reaction of the progress which we were apparently making as a result of our enthusiasm. We were going faster than good judgment dictated. But even amongst the people of thoroughly definite purpose and of strong intellectual acumen, we were going to see a reaction against the tenor which we had adopted. There had been recited here the fact that vasectomy, which was thought to be a great achievement in sociological studies, was now in disrepute. He alone refused to sign this law when it was first proposed. He only foresaw the present situation. And something was going to take place with the Mann law. The Mann law had a legislative and highly moral purpose, and we all marveled about it. It was an instrument of good in so far as certain phases went, but in so far as conditions went in this country it was merely an instrument of blackleg. He knew of so many instances, that it was perfectly astounding what it could do as a pernicious influence. It was going to be nullified or reconstructed.

Dr. C. B. Burr of Flint, Michigan, said that readjustment would come to pass when the people considered means which were reformatory and when the people realized that they were in reality. Just as when the people got together for economical reasons, as in the home, municipalities, federation, etc., so would they resolve themselves into a unit to bring about these ends. Just as soon as they realized the gravity of it, the effectiveness would be greater than just one or two going alone. There were miscarriages of the laws, but the laws should not be condemned on that account. That it should be called a "White Slave Law" was rather strange, and that no provision should have been extended to cover other colors than white, was also strange. The law implied that it covered all women of whatever color or condition, but it did not.

Dr. Albert E. Sterne of Indianapolis said the time to begin this educational movement was at the time when the individual composition of the community was manifested where nature pointed the way, at the period when education was easiest attained; that was when nature passed from homo- to hetero-sex. Nearly all of us in our earlier years were homo-sex. Later we learned what we should do and what we should not do. This knowledge was not acquired through instinct. When we changed from homo- to hetero-sex was the time to tell the child what it all meant. It was easily done in the home and school. In later years it was entirely too late. If that were done, it seemed to him that we could bring about in the future generations a new viewpoint. The dual condition of morality in society was due to the good women; they permitted the young men to walk along different paths. If the good women said that they all should walk along this line, they would all do it.

(To be continued.)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 6, 1913.

The President, Dr. William M. Polk, in the Chair.

The scientific session was under the auspices of the Section on Laryngology and Rhinology.

Intracranial Complications of Accessory Sinus Suppuration.—Dr. John McCoy read this paper, the only one of the evening. He discussed the subject under the following general headings: bacteriology, suppuration of the sinuses, and extension to the endocranium, methods of extension, types of endocranial suppuration, the types from individual accessory sinuses, diagnosis, symptoms and treatment of types, and closed with general conclusions. The accessory sinuses of the nose consisted of three fairly large sized bone cavities, and one series of small bone cavities, accessory to the nasal cavity of each side. These were known respectively as the maxillary sinus or antrum of Highmore, the frontal sinus, the sphenoidal sinus, and the ethmoid bone cells. The last three were directly under and separated from the cavity of the cranium in a good portion of their situation by a thin plate of bone and, in some cases, even this thin plate of bone was not present in certain places. These sinuses were lined throughout with a mucous membrane periosteum which was continuous with that of the nasal cavity and which furnished nourishment to the bony structures. In three of the accessory sinuses under consideration this was an important factor to be considered. The blood supply of the mucosa of the maxillary sinus and antrum was furnished from a branch of the nasal artery. The walls of the antrum received a double blood supply as both sides were covered with periosteum. The frontal sinus received its blood supply through the ostium from branches of the sphenopalatine artery. The venous circulation anastomosed in several directions. Dr. McCoy told of the arterial blood supply of the sphenoid sinus, of the ethmoid cells, etc., and stated that a study of the position and blood supply of these sinuses would give them an idea of the method and ease with which infection could penetrate the endocranium, as shown by schematic illustrations. It had been found on examination of specimens from normal nasal cavities that there was present a variety of germs, such as the pneumococcus and the micrococcus pyogenes, the bacillus of Friedlander, the bacillus proteus and the bacillus aurens. In acute and chronic catarrhal conditions of the nose there were found the micrococcus catarrhalis, the bacillus coryza, and the bacillus of Friedlander. It had been found impossible to examine the normal accessory sinuses without contamination of the swab, but on examination of the accessory sinuses of 36 cadavers, made within two and a half hours after death, all of these sinuses were found to be sterile. In another series of cases, on examination of 28 cadavers, within eight to twenty-four hours after death, thirteen were found quite sterile. In the others the pneumococcus and micrococcus pyogenes were found. In an examination of the secretion from 22 cases of acute and chronic inflammation of the nasal accessory sinuses, pneumococci were found in 36 per cent., streptococcus pyogenes in 40 per cent. and the micrococcus pyogenes in 45 per cent. In 43 cases of maxillary sinusitis the pneumococcus was found in 13, the streptococcus in 33, the micrococcus pyogenes in 34, the bacillus influenza in one, tubercle bacillus in one, and the micrococcus catarrhalis in two. It was evident, therefore, that a variety of organisms might be found in the healthy nasal cavities of most individuals, and in the nasal accessory sinuses of persons otherwise healthy, but who had chronic catarrh or muco-purulent inflammation of the mucous membranes. The chief organisms which demanded their attention were the pyogenic cocci, the pneumococcus, the micrococcus catarrhalis, the influenza bacillus, and the meningococcus. Suppurative inflammations of the accessory sinuses were the direct result of bacterial invasion which was usually purely local, but it had been demonstrated that in scarlet fever an infection might result through the blood or lymph channels. The spread of the suppuration from the accessory sinuses to the endocranium was dependent upon several factors, among which might be mentioned deficient drainage from the accessory sinus due to absolute or relative impermeability of its excretory duct, the virulence of the enclosed pus, or congenital defects in the bony walls of the accessory sinuses. The avennes by which the infection traveled to the endocranium were in general by direct extension as the result of carious or a cario-necrotic condition of the bony walls, or complete destruction and perforation of the same, or by way of the venous channels

which passed directly from the mucosa of the sinuses through the bony walls to the dura, or indirectly from the veins of the sinuses to the orbit, then by way of the ophthalmic veins to the cavernous sinus, and possibly by way of the lymph vessels. Before considering the individual sinuses, Dr McCoy took up the subject of the nasal etiology of cerebrospinal meningitis. He spoke of the epidemic, the pneumococcal and influenzal meningitis, as well as of the pyogenic and suppurative meningitis. In epidemic cerebrospinal meningitis, and in sporadic cases of this disease, due to the meningococcus, it was generally accepted that the infection reached the central nervous system by way of the lymphatics from the nasopharynx. In influenzal pneumococcal meningitis, it was probable that the infection was carried to the central nervous system from an infected condition of the nasopharynx. There was a possibility that in some cases the infection was carried by the lymphatics of the nasal mucosa through the cribriform plate. In the pyogenic cases, and some of the pneumococcal and influenzal cases, the infection found entrance to the meninges by way of direct extension through caries of the bony plate of the suppurating accessory sinus or by way of the blood supply in the suppurating accessory sinuses.

Types of Intracranial Infection from the Individual Accessory Sinuses.—The antrum was less likely to produce intracranial suppuration and when it did it was usually as a result of extension of the infection into the orbit, into the ophthalmic vein and thence into the cavernous sinus. Following suppuration in the frontal sinus there had been a number of well authenticated cases reported of intracranial involvement. Brain abscess was the most common intracranial complication of frontal sinus infection; the next most common was a purulent leptomeningitis, the next was extradural abscess, and the next was sinus thrombosis. Direct extension through carious perforation of the posterior wall was the most common avenue of infection, and the next common method of extension to the endocranium was by way of a thrombophlebitis, extending from the sinus mucosa through the bone and anastomosing with the dural veins.

Special Consideration of the Ethmoid Cells.—In a series of 25 cases of intracranial complication, by way of the ethmoid cells, there were found abscess of the brain in 11 cases. Suppurative meningitis was found in 12 cases. Uncomplicated ethmoid suppuration in these cases was very uncommon, and mostly combined with suppuration of the frontal and maxillary sinuses. The avenue of infection was mostly by direct extension. Eleven out of the 25 of the intracranial complications followed acute ethmoiditis, whereas the endocranial complications from the frontal were mostly from chronic suppuration. The intracranial complications following sphenoid suppuration were, in a large proportion of cases meningitis and thrombosis of the cavernous sinus.

Abscess of the frontal lobe he divided into latent and manifest stages. There were no symptoms which indicated the incipiency of pus foci in the brain. In the manifest stage the symptoms were at first general, anemia, loss of weight, loss of appetite and psychic depression, later followed by pronounced brain symptoms, such as headache, vomiting, dullness and drowsiness. Two cases of this condition were reported in detail. After considering the four stages of thrombosis of the superior longitudinal sinus (Killian) and cavernous sinus thrombosis, Dr. McCoy said that the treatment of these conditions accomplished but little, and he referred to the operative cases of Dwight and Hartley. In conclusion he said that he felt, in looking over the reports of the older cases, that incomplete surgery was probably the cause in many of these cases. They had progressed to a very large extent in their present radical measures and that the pendulum had swung to a point where too complete surgery might be responsible for some of these cases. He felt that they were just opening the door leading to the hitherto dark closet of intracranial suppurations, and that a short time perhaps would suffice to throw a flood of light in this recess, and would make it another bright spot added to the illustrious accomplishments of rhinological and otological surgery.

Dr. Ross H. Skillern of Philadelphia said that a comprehensive discussion of the admirable essay that they had just heard lent itself to such a broad scope that it would be presumptious for him to even attempt it. There was however one phase which to the general medical man must excite more or less interest and that was the possibility of successfully combating these intracranial complications after they had once occurred. Now in the very beginning it must be stated that cases rarely ran the same course being dependent upon many extingencies such as the general condition of the patient, the virulence of the infecting microorganisms, the duration of the affection, etc., etc., but despite these, in the eventuality of a cerebral complication it was always possible to at least formulate a definite line of treatment. With this statement in mind he asked them to consider the sinuses from their individual standpoints.

The Maxillary Sinus.—This was the only accessory nasal cavity that did not border directly upon the brain; consequently one heard little of cerebral affections resulting from diseases of this structure. Despite this fact cases had occasionally been reported and occurred in the following manner: The bony walls became affected and the disease spread by continuity up the ascending process of the superior maxillary until the frontal, ethmoid and finally the meninges were reached. As far as he was able to learn this form had invariably started in the root of a decaying tooth. Cerebral complications might also occur indirectly through the medium of the orbital structures, first causing a thrombophlebitis of the ophthalmic vein which spread to the cavernous sinus. In the first instance any therapeutic procedure was practically hopeless as it was impossible to resect so much bone with any degree of success. The condition had advanced too far for surgical interference but could easily have been prevented when it was limited to the walls of the sinus. The orbital condition offered more hope by an immediate operation.

The Frontal Sinus.—All varieties of intracranial complications had followed both the acute and chronic form of frontal sinusitis and until comparatively recently with fatal terminations. Mortality might be from the following: 1. Thrombophlebitis. 2. Pachymeningitis, 3. Serous meningitis. 4. Extradural abcess. 5. Brain abcess. Thrombophlebitis had the least percentages of cure in those operated upon and brain abscess the greatest after surgical intervention. One prodromal symptom was of the greatest diagnostic importance, that was, the sudden appearance of edema of the upper eye lid during the course of a chronic frontal sinusitis. According to von Eichen this denoted the beginning of cerebral invasion and demanded instant surgical intervention. Regarding the condition of the patient as to the advisability of an operation, if they recalled the well known case of Killian in which the patient was unconscious with Cheyne-Stokes breathing, absolute left sided paralysis, and all the symptoms of being in extremis, the operation showing an abscess in the frontal lobe containing 5 oz. of fetid pus, the patient recovering with normal faculties, it would be seen that even a late operation was not without hope. The ethmoid labyrinth played rather a peculiar rôle as far as intracranial complications were concerned. On account of the foramina in the cerebral plate, infection could occur either by primary direct extension through these channels along the sheaths of the olfactory nerves or indirectly as in the true sinuses. Despite this portal of double entry complications arising in this structure alone were rare judging from the paucity of reported cases. In the event, however, of its occurence particularly if the progress of infection be slow as from a pyocele, a complete exenteration of the ethmoid labyrinth either intra or extranasally would offer the only hope of a cure.

The Sphenoid Sinus.—One would be inclined to think that on account of the deep anatomical situation of this sinus, once a complication occurred, nothing further could be done. Such however, was far from being the truth as the reports of several apparently hopeless cases which were operated on with prompt recovery had proven. He had had the opportunity of seeing several with beginning meningeal symptoms completely recover after the sphenoid on the affected side was opened intranasally to its fullest extent. Taking a brief retrospect of the entire subject it was plain that the only hope of successful treatment lay in the early recognition of impending complications with the earliest possible appropriate surgical intervention.

Dr. Wolff Freudenthal, said that the subject of endocranial infection from sinus disease was perhaps the most important one in the whole domain of rhinology. He agreed with the speaker that an infection from the antrum was very rare, but when it did occur, it was invariably fatal. He had seen, however, quite a number of infections, perhaps half a dozen, that occurred after the extraction of teeth. Invariably the infection could be traced to a lack of asepsis on the part of the dentist. Here they could differentiate two kinds of infection, viz., the one spreading by way of the lymphatics directly to the cranial cavity, and the other causing a purulent sinusitis in the antrum and thence spreading upward. The region from which endocranial involvement most often occurred was the frontal sinus, and it was generally the vicinty of the frontal lobe that was affected. In order to prevent fatalities they had

to decide when to operate. That was the salient point which might occasionally prove to be a difficult task. He gave a few examples. The first case was published in a paper read before the International Medical Congress at Budapest, five years ago. The patient was a woman of twenty-five, with acute suppuration of the frontal sinus. There was retention of pus, headache, etc. The middle turbinate body was not removed because her family physician objected. Several weeks afterward she returned with edema of the eye and cheek, vomiting, high fever, etc. She was operated upon, and an abscess of the frontal sinus was found. She died four days later. This patient's life could have been saved by an early operation on the frontal sinus, or perhaps by the simple removal of the turbinal. On the other hand, they should think twice before recommending a radical operation, for a radical operation did not always mean a radical cure, and fatalities would occur when one least expected them. Last year he demonstrated before a local medical Society ten consecutive cases operated upon for empyema of the frontal sinus. All had healed in the most satisfactory way. The next patient, a strong healthy woman of twenty-seven, died of postoperative meningitis. It was true that an operation had been advised by him a year and a half before consent was given for the operation to be performed. But the question arose: would not the patient have survived if the operation had been performed at the time suggested, or could she have lived on for years to come with the defect of the cerebral wall of the frontal sinus found at the operation? There were possibilities in each direction. In regard to the propagation of the infection, they were often at a loss to explain it. Thus, Hansberg published a case in which the right frontal sinus was affected (pus). The patient died, and it was expected that an abscess would be found in the right frontal lobe. Instead, an old abscess was present in the *left* lobe. The history of a similar case was given to him by Professor Herzfeld of Berlin. A man of fifty-seven who had repeatedly received traumas at the inner angle of the right eye, was operated upon by Herzfeld for a long-standing fistula. The frontal sinuses were exposed and a defect of the inner wall of the *left* frontal sinus was detected, i. e., the side affected only secondarily. In closing, he wanted to repeat that he had operated on a large number of cases of frontal sinusitis with a remarkably low death rate. The operation was a most satisfactory one, and yet it was his firm conviction that radical operations on the frontal sinus should be undertaken only after very careful deliberation.

Dr. Cornelius G. Coakley reported two cases of extradural abscess. He had no cases of intradural abscess to report. Among his cases of serous meningitis but one recovered; this was a border line case between a serous meningitis and a true meningitis. He had seen two cases of brain abscess and both resulted fatally. He had seen three cases of sinus thrombosis; two were of the septic type and died, the other making a recovery. He had seen at least 50 cases of leptomeningtis and, in many cases, there were no evidences of suppuration in the ear. True cases of meningitis as determined by the clowdy fluid under pressure, with large number of cells, with the pneumococcus, streptococcus, or staphylococcus, in his experience never got well. These cases ran a course of about five days and terminated fatally. Some of these patients have a slow pulse, about 40, with a temperature of 102° or 103° F., headaches and these cases sometimes do get well. The slow pulse was due to the pressure, and often was associated with orbital abscesses. Before any of this operative work it was his custom to place the patient on seven and half grains of urotropin, four times a day. This seemed to lessen the chances of the infection traveling up into the brain and also lessened cerebral complications.

Dr. Harmon Smith said that he was greatly interested in the statistics given in the paper both as regards the frequency of meningeal disturbance incident to sinusitis, also in the paths of infection and in the variety of the microorganisms producing it. While this was of peculiar interest it afforded no solution to the problem by suggesting treatment or the means of prevention. He believed that the majority of meningeal disturbances followed the radical disturbance of a chronic sinusitis where the resistance of the tissues nearest the brain had been lowered by long contact with pus and that drainage was insufficient to bring away the pus collected between the congested tissues and the dura. Extensive operative procedures opened up new avenues of infection and disturbed too extensive an area for the resistance of the superimposed tissues to withstand. He believed that just sufficient operative procedure should be instituted to drain away the pus to prevent pressure symptoms and thereby permit the thin lamina of bone intermediate between the frontal, ethmoidal and sphenoidal sinuses and the brain to regain some of its resistance before a radical operation was performed. The bony structure would rehabilitate itself after pressure had been reduced just as a great many of the mastoid cells distant from the focus of infection regain their healthful condition, even when long subjected to contact with pus. Dr. Smith said that the dura frequently withstood contact with pus for a long while without meningeal disturbances, as had been demonstrated in numerous instances in mastoid cases where necrotic bone was removed exposing a comparatively large area of dura. If the neurologist or the rhinologist could determine the exact area of the meninges exposed to the purulent condition that area could be successfully relieved by operative procedure and no subsequent trouble would result any more than happened in the case of the dura exposed in mastoid conditions, but the difficulty had been to determine at what point the dura was in contact with pus, whether in the frontal, ethmoidal, or sphenoidal regions. Wherever a frontal sinus had been of sufficiently long standing to warrant extensive operative procedure the anterior ethmoidal cells were always involved and in the majority of instances the posterior ethmoidal and sphenoidal cells as well. Dr. Smith reported four fatalities, three of which followed radical external sinus operation, in all of which there had been necrosis of the ethmoidal cells into the orbit as well as of the floor of the frontal sinus and he believed in each of these instances the meningitis which followed was due to too radical operative procedure at the time and that if he had given only sufficient drainage to withdraw the pus away from the meninges, permitting that area to re-establish its health and had followed this at some subsequent time by a radical operation, his patients would have escaped fatal meningitis. In another instance there had been an abscess of the frontal lobe of the brain in a child as the result of injury, and a probe could be passed up between the frontal lobes into the abscess through the cribriform plate, which had been destroyed. The child lived for many weeks with this abscess present and ultimately died of pneumonia, although there had been free drainage from the abscess through the cribiform plate, which showed conclusively that the dura could withstand the presence of pus for a long period without producing fatal meningitis.

STATE BOARD EXAMINATION QUESTIONS.

Alabama State Board of Medical Examiners.

July 8, 9 10, *and* 11, 1913.

ANATOMY.

1. How are cervical, thoracic, and lumbar vertebræ distinguished? Give the characteristics of the seventh cervical vertebra.
2. To what class of joints does the elbow belong? What bones enter into its formation and name three of its ligaments.
3. Name the muscles of the anterior tibial region, and describe the tibialis anticus.
4. Describe a nerve fiber.
5. Give the origin and course of the musculospiral nerve.
6. Describe briefly the structure of arteries and veins.
7. Name the branches of the external carotid artery. Give the origin, course, and distribution of the lingual artery.
8. Give in a general way the flow of blood through the systemic veins.
9. Name the terminal lymphatic vessels, and locate and describe the receptaculum chyli.
10. Give the structure of the stomach.

PHYSIOLOGY.

1. Discuss at length the means and methods employed by the human organism in protecting itself against infectious diseases.
2. What phenomena follow injury to and section of the pneumogastric nerve?
3. Discuss the function of the mucosa of the respiratory tract.
4. Discuss the distribution and function of the cerebrospinal fluid.
5. Discuss aphasia.
6. Discuss hunger and thirst.
7. How is the automatic action of the heart muscle supposed to be maintained?
8. Discuss the absorption of ingested fats.
9. What gneral conditions influence blood-pressure and blood-velocity?
10. Discuss the origin and significance of urea.

CHEMISTRY.

1. Define "chemical change" and "physical change."
2. Name, describe, and give source of two elements used in their elementary forms in medicine.
3. Describe hydrogen—how does it occur and how may it be prepared?
4. Describe carbon dioxide—give formula and state what relation it bears to the respiratory changes.
5. What is phenol—give properties and source?
6. In what tissue is iron an important constituent, and how is it combined therein?
7. Define "proteid" and name three proteids found in the human body.
8. Describe the method for the quantitative determination of urea.
9. How may occult blood be detected in the feces?
10. What are ptomaines and how may they be introduced into the body?

ANSWERS.

ANATOMY.

1. The *cervical vertebræ* are distinguished by possessing a foramen in the transverse process. Further, they are smaller than those in the other regions; they have no facets for the ribs; the spinous processes are generally short and bifid; the spinal foramen is large and triangular; the superior articular process is directed upward and backward, and the inferior articular process is directed downward and forward.

The *thoracic vertebræ* have a heart-shaped body with a facet or demi-facet on each side for articulation with a rib; the laminæ are broad and deep; the spinous process is long and points downward; the transverse processes are long and articulate with the tubercle of a rib; the superior articular process is directed backward and slightly outward; the inferior articulate process is directed forward and slightly inward; the spinal foramen is smaller and circular.

The *dorsal vertebræ* have a large body, wider transversely, and with no facet or demi-facet; the laminæ are short and thick; the spinous process is horizontal; the transverse processes are "rudimentary"; the superior articular process is directed inward and slightly backward; the inferior articular process is directed outward and slightly forward; the spinal foramen is larger, and triangular.

The *seventh cervical vertebra* is characterized by possessing a very long and prominent spinous process which is thick, not bifurcated, and is nearly horizontal.

2. The *elbow-joint* is a ginglimus or hinge-joint. The *bones* which enter into its formation are the trochlea of the humerus, the greater sigmoid of the ulna, and the head of the radius. *Three of its ligaments* are: Anterior, posterior, and internal lateral.

3. *Muscles of the anterior tibial region* are: Tibialis anticus, Extensor proprius hallucis, Extensor longus digitorum, and the Peroneus tertius.

The *Tibialis Anticus* is situated on the outer side of the tibia. It arises from the outer tuberosity and upper two-thirds of the external surface of the shaft of the tibia, from the interosseous membrane and from the intermuscular septum; it is inserted into the inner and under surface of the internal cuneiform bone and the base of the metatarsal bone of the great toe. It is supplied by the anterior tibial nerve; it flexes the foot at the ankle-joint.

4. NERVE FIBERS.—1. *Medullated Fibers.*—"Medullated nerve fibers usually consist of three parts: (*a*) axis cylinder, (*b*) medullary sheath, (*c*) neurilemma. An *axis cylinder* is a cell process that carries an impulse away from the nerve cell. It is a slender cytoplasmic process and may be very long, as is the case with the motor fibers that come from nerve cells in the anterior horn of the spinal cord and extend, without interruption, to muscles in the distal parts of the limbs. The axis cylinder presents a longitudinal striation, a fibrillar structure, that is supposed to be continuous with the cytoplasmic striation of the cell body. The fibrils are imbedded in a fluid protoplasmic substance, the neuroplasm, and the whole surrounded by a delicate membrane, the exolemma. Implantation cone is an elevation that is sometimes present at the junction of the axis cylinder and cell body. The *medullary sheath* (white sheath of Schwann) is a covering to the axis cylinder. This sheath never extends to the nerve cell, but begins a little distance from it. Nodes of Ranvier are constrictions of this sheath at regular intervals. The smaller the fiber the greater the distance between these nodes. Long fibers are slender, with long distance between the nodes; short fibers are coarse, with short distance between nodes. The *neurilemma* is a thin structureless membrane that surrounds the medullary sheath. An oval nucleus is present in this sheath, midway between the nodes of Ranvier. At each node the neurilemma is constricted and touches the axis cylinder, which in turn may be slightly thickened at this point and may give off a collateral. Medullated nerve fibers with a neurillemma are found in the cranial and spinal nerves. Medullated fibers without a neurilemma are found in the brain and spinal cord. The neurilemma gives great strength to the fibers. Its absence in the brain and cord accounts for the pulpy soft nature of this tissue."

"*Non-medullated nerve fibers* with a neurilemma, but without a medullary sheath, mingle with the medullated fibers. The sympathetic system consists largely of non-medullated fibers. Terminal branched endings of an axis cylinder, called neuropodia, have neither medullary sheath nor neurilemma. The axis cylinder, just as it leaves its nerve cell, is likewise uncovered." (Hill's *Histology.*)

5. The *musculospiral nerve* is derived from the posterior cord of the brachial plexus, and originates from the sixth, seventh, and eighth cranial nerves. At first it is behind the axillary and brachial arteries; it winds around the humerus in the musculospiral groove with the superior profunda artery; it pierces the triceps muscle. At the elbow joint it divides into the radial and posterior interosseous nerves. It supplies the Triceps, Anconeus, Supinator longus, Brachialis anticus, and Extensor carpi radialis longior muscles.

6. An *artery* consists of three coats: The tunica interna, or internal coat; the tunica media, or middle coat, and the tunica adventitia, or external coat. The internal coat consists of a basement membrane, on which is a layer of endothelial cells. The middle coat consists of involuntary muscle fibers, between the layers of which are some elastic fibers. The external coat consists of connective tissue (white fibrous and yellow elastic). Between the two outer coats is an elastic membrane.

The *veins* also have three coats, but the external coat is thicker than the middle coat (the opposite condition prevails in the arteries); the veins often have valves.

7. *The branches of the external carotid artery* are: Superior thyroid, lingual, facial, occipital, posterior auricular, ascending pharyngeal, superficial temporal, and internal maxillary.

The *lingual artery* arises from the external carotid artery; it runs upward and inward to the great cornu of the hyoid bone, then downward and forward beneath the hyoglossus muscle; it then runs perpendicularly to the tongue, and turns forward on the under surface of the tongue, going almost to the tip of the tongue under the name of the ranine artery.

8. "The *systemic veins* return blood to the right auricle of the heart through the superior vena cava, the inferior vena cava, and the coronary sinus. The two first named receive blood from the veins of the body and limbs and from most of the solid viscera. The coronary sinus receives blood from the veins of the walls of the heart alone. The veins of the body wall and limbs form two groups—(1) the superficial veins; (2) the deep veins. The *superficial veins*, which commence in the capillaries of the skin and subcutaneous tissues, lie in the superficial fascia, and are very numerous. They frequently anastomose with one another, and they also communicate with the deep veins, in which, after piercing the deep fascia, they terminate. They may or may not accompany superficial arteries. The *deep veins* accompany arteries, and are known as venæ comites. The large arteries have only one accompanying vein, but with the medium-sized and small arteries there are usually two venæ comites, which freely anastomose with each other by short transverse branches of communication. *Visceral veins* usually accompany the arteries which supply viscera in the head, neck, thorax, and abdomen. As a rule there is only one vein with each visceral artery, and, with the exception of those which enter into the formation of the portal system they terminate in the deep systemic veins." (Cunningham's *Anatomy.*)

9. The *terminal lymphatic vessels* are the thoracic duct and the right lymphatic duct.

The *receptaculum chyli* is a triangular pouch-like structure which forms the commencement of the thoracic duct. It is situated on the front of the bodies of the first and second lumbar vertebræ, to the right of and a little behind the aorta, and by the side of the right crus of the diaphragm.

10. "The *wall of the stomach* consists of four coats, which, enumerated from without in, are: serous, muscular,

areolar, or submucous, and mucous membrane. The *serous coat* is a layer which is derived from the peritoneum. It is deficient only along the lines of the lesser and greater curvatures. The *muscular coat* consists of three layers of plain muscular fibers. Of these the bundles of the outer layer run longitudinally, those of the middle layer circularly, and those of the inner layer obliquely. The longitudinal and circular bundles become thicker and stronger toward the pylorus, at which they pass into the corresponding layers of the small intestine; at the pylorus itself the circular layer is greatly thickened to form the sphincter muscle. The oblique fibers are only present in the left or cardiac part of the stomach. The *areolar or submucous* coat is a layer of areolar tissue, which serves to unite the mucous membrane loosely to the muscular coat; in it ramify the larger branches of the blood vessels and lymphatics. The *mucous membrane* is a soft thick layer, generally somewhat corrugated in the empty condition of the organ. Its inner surface is covered by long columnar epithelium cells, all of which secrete mucus. They are prolonged into the ducts of the glands, but when these divide to form the tubules the cells become shorter (cubical). The thickness of the mucous membrane is due to the fact that it is largely made up of long tubular glands the mucous membrane is formed of retiform with glands, which open upon the inner surface. Between the some lymphoid tissue. Externally it is bounded by the muscularis mucosæ, which consists of an external longitudinal and an inner circular layer of plain muscular fibers." (Schäfer's *Essentials of Histology.*)

PHYSIOLOGY.

1. The acidity of the gastric juice, the urine, and the vaginal secretion; the alkalinity of the blood; the bactericidal action of the blood and lymph; the agglutinating action of the blood; and the general power of the body to produce antitoxins.

2. *Injury to or irritation of the pneumogastric nerve* may cause: Palpitation, vomiting, coughing, a sense of suffocation, hoarseness, aphonia, laryngeal paralysis. *Division of one pneumogastric nerve* may cause few or no symptoms; but division of both nerves is followed by death due to paralysis of the laryngeal muscles.

3. The *mucosa of the respiratory tract* serves: To warm the inspired air, to moisten the inspired air, to remove injurious substances from the inspired air.

4. The *cerebrospinal fluid* is present in the ventricles of the brain, in the central canal of the spinal cord, and in the subarachnoid space surrounding the brain and the spinal cord. Its *function* is to protect the brain from injury and the circle of Willis from compression; it forms a water cushion on which the middle and posterior parts of the brain may rest; it minimizes shocks.

5. "The speech areas, four in number and in kind, are in the left hemisphere in righthanded persons and in the right in lefthanded persons. There are two types of aphasia, which is the loss of the power of speech, known as motor and sensory aphasia. The motor speech center lies in the posterior part of the third frontal convolution (Broca's convolution), just in front of the center of the muscles of speech (hypoglossal and facial nerve centers). A lesion of the motor speech center causes motor aphasia, in which there is a loss of the word-forming power, although the tongue is movable and the patient may understand spoken and written language and knows what he wants to say. It is as if memory of the motor combinations essential to produce speech were lost.

"The power of writing is usually lost with motor speech. The probable location of its cortical center is in the posterior two-thirds of the first, and perhaps in the second, temporal convolution. A lesion here causes 'word deafness,' a sensory aphasia in which the memory of the sounds of words is lost so that they are not understood, though hearing may be normal.

"The visual speech center lies in the posterior part of the angular gyrus in the outskirts of the higher visual or the visuopsychic field. Word-blindness (alexia), or the loss of memory of printed or written language is caused by a lesion here, though sight itself may be normal.

"Thus the basis of language is a series of memory pictures (1) of the sound of words; (2) of their appearance; (3) of the effort necessary to enunciate them, and (4) to write their symbols. As these memory pictures are connected with each other and with others that make up the concept by subcortical association fibers passing between them, a lesion in any of these association tracts also leads to a defect of speech." (Woolsey, *Applied Surgical Anatomy.*)

6. *Hunger and Thirst.* "The seat of sensations of hunger is located in the epigastrium. The seat of sensations of thirst is located in the pharynx, and is quieted by intravenous injections of water. In every case it is admitted that hunger and thirst are but localized expressions of a general need of the blood for food and drink. The true seat of hunger and thirst is not known. In all cases it is acknowledged that thirst is more painful than hunger, and it is more urgent to satisfy thirst than hunger. A dog without food but supplied with water lives twice as long as a dog deprived of both food and water." (Ott's *Physiology.*)

7. *Automaticity of the Heart.*—"The question of the cause or causes of the automatic rhythmical contractions must be sought for whether the phenomenon turns out to be a property of the muscular tissue or of the nervous tissue of the heart. When we say that a given tissue is automatic we mean that the stimuli which excite it to activity arise within the tissue itself, and are not brought to it through extrinsic nerves. In the heart, therefore, we assume that a stimulus is continually being produced, and we speak of it as the *inner stimulus.* Experiment and speculation have been directed toward unraveling the nature of this inner stimulus. Most of the physiologists who have expressed an opinion upon the subject have sought an explanation in the composition of the blood or lymph bathing the heart tissue, or in the products of metabolism of the tissue itself. Regarding this latter view there is nothing of the nature of direct experimental evidence in its favor. No product of the metabolism of the heart tissue capable of exerting this stimulating effect has been isolated. In regard to the former view, that the inner stimulus is connected with a definite composition of the blood or lymph, there has been considerable experimental work which is of fundamental significance. While the older physiologists paid attention mainly to the organic substances in the blood, it has been shown in recent years that the inorganic salts are the elements whose influence upon the heart beat is most striking. These salts are in solution in the liquid of the tissue, and are therefore probably more or less completely dissociated. Attention has been directed mainly to the influence of the cations, of which three are especially important, namely, the sodium, the calcium, and the potassium." (Howell's *Physiology.*)

8. *Absorption of fat.* "Fat is not absorbed as fat, but as glycerin and fatty acid or soap. It is generally accepted that the fatty acid set free in the intestine is dissolved by the bile salts, and in this way, together with the glycerin, is absorbed by the columnar cells, but that during absorption a lipase which is contained in the columnar cells re-synthesizes, by reverse action, the glycerin and fatty acid. In this way minute fat particles are found near the bases of the columnar cells, and these may be demonstrated by staining with a 1 per cent. solution of osmic acid. The fat globules are further taken up from the columnar cells by some of the lymphocytes, which are capable of exhibiting ameboid movements, and which are found in the lymphoid tissue between the columnar cells and the central lacteal. The fat is then deposited in the central lacteal by these ameboid cells, and in this way it gets into the general lacteal stream, and thence into the thoracic duct. The bile salts, which have been absorbed by the columnar cells, in all probability get into the portal vein radical, and in this way are taken back to the liver to be excreted again in the bile. After a fatty meal minute globules of fat may be demonstrated in the blood plasma of an animal; but they disappear rapidly, possibly existing in a solution and invisible form adsorbed to the blood proteins before they are deposited in the fat depots of the body." (Lyle's *Physiology.*)

9. *Blood-pressure* is influenced by several factors, such as: The quantity of blood in the circulation, the force of the ventricular systole, the elasticity of the arterial walls, and the peripheral resistance.

HEART.	ARTERIOLES.	BLOOD-PRESSURE	BLOOD-FLOW.
Force constant . .	Resistance increased	+	—
Force constant . .	Resistance diminished	—	+
Force increased. .	Resistance constant	+	+
Force diminished	Resistance constant	—	—
Force increased. .	Resistance diminished	+ —	+ +
Force diminished	Resistance increased	— +	— —
Force increased. .	Resistance increased	+ +	+ —
Force diminished	Resistance diminished	— —	— +

The *velocity of the blood flow* is largely influenced by the same factors as the blood-pressure, particularly the force of the ventricular systole and the peripheral resist-

ance. The possibilities of the variations in these factors are shown in the preceding table from Waller, in which the plus sign denotes an increase, and the minus sign a decrease in effect.

10. *Urea* is the end-product of proteid metabolism, and is the most important of the nitrogenous excreta of the body. The quantity of urea excreted is an index of the amount of protein which has been broken down in the body. Most of the urea is formed in the liver, from (1) the amino acids which have been absorbed from the small intestine, and which are not needed by the body; and (2) from the ammonium carbonate which is derived from the tissues, and from the action of a uricolytic enzyme upon uric acid. These two sources give respectively what is known as *exogenous* urea and *endogenous* urea.

CHEMISTRY.

1. In a *physical change* the composition of the matter acted upon is not altered; in a *chemical change* the composition of the matter acted upon is altered.

2. *Two elements used in their elementary form in medicine:* (1) *Iodine* is a bluish gray solid occurring in scales; it is volatile, the vapor has a violet color and a peculiar odor. It may be prepared by burning kelp, extracting the ashes with water, removing the other salts and removing the iodine from the compounds in the mother liquor by chlorine. (2) *Iron*, when pure, is a silver white, soft solid, and crystallizes in cubes or octahedra. Reduced iron is prepared by heating ferric oxide in hydrogen:

$$Fe_2O_3 + 3H_2 = Fe_2 + 3H_2O.$$

3. *Hydrogen* is a colorless, odorless, tasteless gas; it is the lightest substance known, and is a good conductor of heat and electricity; it does not support combustion or respiration. It occurs free in volcanic gases and in the gases of the stomach and intestines; also in combination in water, ammoniacal compounds, and many organic substances. It can be prepared by the action of diluted sulphuric acid on zinc:

$$Zn + H_2SO_4 + x\ H_2O = x\ H_2O + ZnSO_4 + H_2.$$

4. Carbon dioxide is a colorless, suffocating gas, with a faintly acid taste. It will neither burn nor support combustion; it is soluble in water. Its formula is CO_2. There is 0.04 per cent. of it in atmospheric air; but in expired air this is increased to 4.4 per cent.

5. *Phenol.* C_6H_5OH, is commonly called carbolic acid. It is a crystalline solid, occurring in long, colorless needles. It has a peculiar odor, and a burning taste; it is soluble in water, alcohol, and ether. It occurs in coal and wood-tar. It is made by heating phenyl iodide with potassium hydroxide:

$$C_6H_5I + KHO = KI + C_6H_5OH.$$

6. Iron is an important constituent of the blood; it is found in the hemoglobin of the red corpuscles.

7. Proteids are nitrogenous organic substances of very complex composition and of unknown constitution. They all contain carbon, hydrogen, oxygen, and nitrogen; and some contain, in addition, sulphur, iron, phosphorus, or some other element.

Three proteids found in the body: Hemoglobin, keratin, and mucin.

8. *Quantitative determination of urea:* "The specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ. One volume of the urine is then mixed with exactly seven volumes of the liqvor sodæ chlorinatæ, and, after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted; every degree of loss in specific gravity indicates 0.7791 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature; and that of the mixture only when the evolution of gas has ceased entirely." (Witthaus' *Manual of Chemistry.*)

9. *Detection of occult blood in the feces:* "Soften a portion of the stool with water, shake with an equal volume of ether to remove fat, and discard the ether. Treat the remaining material with about one-third of its volume of glacial acetic acid and extract with ether. Then apply the guaiac test (mix equal parts of ozonized turpentine and fresh tincture of guaiac which has been diluted with alcohol to a light sherry-wine color. In a test tube or conical glass overlay the liquid to be tested with this mixture. A bright blue ring will appear at the zone of contact within a few minutes if hemoglobin be present)." (Todd's *Clinical Diagnosis.*)

10. *Ptomaines* are basic, nitrogenous compounds produced from protein material body by the bacteria which cause putrefaction. They are generally introduced into the body as food.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†
Alabama*	W. H. Sanders, Montgomery	Montgomery, Jan. 3
Arizona*	J. W. Thomas, Phoenix	Phoenix, Jan. 3
Arkansas	F. T. Murphy, Brinkley	Little Rock
California*	C. B. Pinkham, 929 Butler Building, San Francisco	Sacramento, Jan. 13
Colorado	David A. Strickler, Empire Building, Denver	Denver, Jan. 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven, March 10
Delaware	J. H. Wilson, Dover	Dover, Dec. 9
Dist of Columbia	Geo. C. Ober, Washington	Washington, Jan. 13
Florida*	I. D. Pennavilez, Jacksonville	Jacksonville, { Atlanta / August } June 3
Georgia	C. T. Nolan, Marietta	
Idaho*	T. F. Shinnick, Boise	Wallace, April 7
Illinois	A. Sawyer, Springfield	Chicago, Jan.
Indiana	W. T. Gott, Crawfordsville	Indianapolis, Jan. 13
Iowa	G. H. Sumner, Des Moines	Des Moines, Jan. 6
Kansas	H. A. Dyke, Lebanon	Topeka, Feb. 10
Kentucky	J. N. McCormack, Bowling Green	Louisville, Dec. 11
Louisiana	A. B. Brown, Cusach's Bldg., New Orleans	New Orleans, June 4
Maine	F. W. Saerle, Portland	Portland, March 10
Maryland	J. McP. Scott, Hagerstown	Baltimore, Dec. 9
Massachusetts*	W. P. Bowers, State House, Boston	Boston, March 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor, June 9
Minnesota	T. McDavitt, St. Paul	Minneapolis, Jan. 6
Mississippi	S. H. McLean, Jackson	Jackson, May 12
Missouri	J. A. B. Adcock, Jefferson City	Jan.
Montana*	Wm. C. Roddell, Helena	Helena, April 7
Nebraska	H. P. Fall, Beatrice	Lincoln, Feb. 11
Nevada	S. L. Lee, Carson City	Carson City, May 4
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord, Jan. 6
New Jersey	H. G. Norton, Trenton	Trenton, June 16
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe, Jan. 12
New York	H. H. Horner, Univ. of State of New York, Albany	New York, / Albany, / Syracuse, / Buffalo, } Jan. 27
N. Carolina	B. K. Hays, Oxford	Raleigh, June 9
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks, Jan. 6
Ohio	Geo. H. Matson, Columbus	Columbus, Dec. 9
Oklahoma	J. W. Duke, Guthrie	Muskogee, Jan. 13
Oregon	B. E. Miller, Portland	Portland, Jan. 1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Harrisburg / Pittsburgh, } Dec.
Rhode Island	G. T. Swarts, Providence	Providence, Jan. 6
S. Carolina	H. E. Boozer, Columbia	Columbia, June 1
S. Dakota	L. G. Hill, Watertown	Pierre,
Tennessee	A. B. DeLoach, Memphis	Memphis / Nashville / Knoxville, } May
Texas	W. L. Crosthwaite, Waco	Houston, June 23
Utah	R. W. Fisher, Salt Lake City	Salt Lake City, Jan. 8
Vermont	W. Scott Nay, Underhill	Montpelier, Jan. 13
Virginia	Herbert Old, Norfolk	Richmond, Dec. 16
Washington*	F. P. Witter, Spokane	Spokane, Jan. 6
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg, Nov. 10
Wisconsin	J. M. Beffel, Milwaukee	Madison, Jan. 13
Wyoming	J. B. Tyrrell, Laramie	Cheyenne,

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Septic Dermatitis.—W. M. Robson reports a case of this condition in a male, aged 4½ years, who began to have blisters on his body three years ago; they were never profuse. In July, 1912, a more profuse eruption began on the legs and gradually spread to the abdomen, arms, face, and neck, and lastly, to the back. The groins and axillæ have been more affected than the rest of the body. Other children of the same family were normal. Some of the bullæ were small and contained clear fluid, others were opaque. Some of the bullæ became septic and the temperature rose to 101° to 102° F. A culture taken from an apparently non-pustular blister gave a pure culture of *Staphylococcus aureus.* Treatment has been increasing doses of Fowler's solution, boracic baths, and injections of *Staphylococcus aureus.*—*Proceedings of the Royal Society of Medicine.*

Congenital Spastic Paraplegia, with Congenital Optic Atrophy.—P. S. Hichens reports the case of a girl aged 6 years who, according to the mother, though backward, was a normal child till she was 3 years old. She was then frightened by a Salvation Army band, and had two convulsions and developed paralysis of the right arm and leg, and paresis of the left leg. The child appears to be slightly microcephalic. She has congenital optic atrophy and spastic paraplegia of the right arm and leg, and, to a less extent, of the left leg. Despite the history the case is probably one of congenital spastic paraplegia.—*Proceedings of the Royal Society of Medicine.*

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Original Articles.

THE SEROLOGICAL TESTS IN CEREBRAL HEMIPLEGIA.*

By CHARLES L. DANA, M.D.,

NEW YORK.

For the last two years I have been having the patients with cerebral hemiplegia, who came into my service at Bellevue, submitted to serological tests for the purpose of determining whether there was a syphilitic or inflammatory element in the case.

The attempt was made to have four tests in all cases. A Wassermann test was made of the blood serum and of the cerebrospinal fluid; a globulin test was made of the spinal fluid, and a cell-count of this fluid. Either complete or partial tests were made in twenty-eight cases of acute cerebral hemiplegia, and a similar series of complete or partial tests were made in twenty-six cases of old hemiplegia—that is to say, of cases in which the patient had had the paralysis for six months or over.

In the cases of acute cerebral hemiplegia a practically complete series of tests was made in 11 cases, and an incomplete series in 16 more. In the 11 complete series the blood serum was positive in 6; the spinal fluid in 4; and there was cell excess in 6. In the whole series of 27 cases the blood-serum was positive in 11 out of 22 cases tested. In 8 cases out of 13 at least two of the 4 tests were positive. In 10 out of 14 cases in which cell counts were made the number of cells was in slight or great excess.

ACUTE CEREBRAL HEMORRHAGE

	Sex	Age	S.W.	C.S.F.W.	G.	Cells
1	M.	42	+	++	−	220
2	M.	46	+	++	+−	9
3	F.	44	++	−	+	?
4	M.	52	+	+	+	12
5	M.	56	−	−	+−	3
6	M.		+	−	+−	3
7	M.	52	−	−	−	2
8	F.	49	−	−	−	2
9	M.	48	−	−	−	22
10	M.	59	+	+	−	10
11	M.	66	−	−	?	23
12	M.	34	?	+	+	30
13	M.	72	+	?	?	?
14	M.	68	+	?	?	?
15	M.	50	++	+−	?	?
16	M.	45	+	?	?	?
17	M.	55	+	?	?	?
18	M.	60	?	−	−	?
19	M.	52	−	?	?	?
20	M.		−	−	?	?
21	M.	48	−	−	?	?
22	M.	65	−	−	?	?
23	M.	55	?	?	−	32
24	M.	55	−	?	?	?
25	F.	55	?	?	−	32
26	F.	48	?	?	?	180
27	M.	52	−	?	?	?

Serum Wassermann	+=11 −=11
Cerebro-spinal Fluid Wassermann	+=6 −=11
Cells	+=10 −=4

*Paper read at a meeting of the Practitioners' Society of New York, October 10, 1913.

The conclusion was that in the hospital cases of acute cerebral hemiplegia there was a luetic infection in about 50 per cent. The positive findings were nearly all in persons under 55 or 60. All the cases of hemorrhage were males except two. This percentage of lues in hemorrhage of the brain was surely much higher than in the non-hospital classes, and the figures were not extensive enough to draw final conclusions. Probably in some cases the infection was incidental and had nothing to do with the lesion. Still it was worth noting that one-half of 22 consecutive cases of acute cerebral hemorrhage responded to two or more of a series of tests for lues.

Chronic Hemiplegia.—A series of 4 tests was made in 11 cases of chronic hemiplegia of 3 months or more duration. The serum Wassermann was postive in 4 out of 9 tested; the cerebrospinal fluid was positive in 2 out of 11 tested. A positive reaction of one or other types was present in 7 out of 15 tested. The spinal fluid cell count was never high, but was above 6, in 7 out of 10 counts. Evidence of lues by two tests or more was found in 6 out of 15 cases. The reactions were much less marked than in acute hemiplegia, and this might, in part, be due to the fact that nearly all such cases received iodides and mercury after their seizures. It would not be unfair to conclude from a study of these 37 consecutive cases that in nearly half of hospital hemiplegia there was a luetic infection present.

CHRONIC HEMIPLEGIA

	Sex	Age	S.W.	C.S.F.W.	G.	Cells
1	M.	55	−	−	−	8
2	F.	61	−	−	−	4
3	F.	44	++	−	+	?
4	M.	49	−	−	−	10
5	F	60	+	−	−	6
6	M.	50	−	−	−	?
7	F.	56	−	−	−	4
8	M.	61	+	−	−	10
9	F.	58	+	−	−	10
10	M.	68	−	+	−	10
11	M.	36	?	+	−	10
12	M.	58	?	?	+	10
13	M.	28	−	?	?	?
14	F	34	−	−	?	?
15	M.	32		−	?	?

Serum Wassermann	+=4 −=9
Cerebro-spinal Fluid Wassermann	+=2 −=11
Cells	+=6 −=4

If such was the case it seemed to me that it would be of interest and importance to apply intensive antiluetic treatment in a more definite and routine way in cases of apoplexy which are brought into the hospital and which respond positively to the tests.

Cerebrospinal Lues.—The table below presented shows the results of 4 tests in 12 cases of what were diagnosticated as syphilis of the meninges or arteries of the brain. The greater intensity of the reaction

was so marked as to need no comment. Where there were no reactions the patients had been under vigorous treatment, or something was wrong with the diagnosis or the laboratory.

SYPHILIS OF BRAIN

	Sex	Age	Serum	C.S.F.	G.	Cells
1	M.	40	+	+ -	+	40
2	F.	59		+ -	?	?
3	M.				+	None
4	F.	26	+ +		-	None
5	M.	13	+ +	+ +	+	4
6	M.	39	+ +	+ +	+	25
7	M.	27	+ +	+ +	-	3
8	M.	40	-	-	-	38
9	M.	35	+	+	+ +	42
10	M.	62	-	+	-	25
11	M.	53	+	+	-	16
12	M.	49	?	-	-	16

Serum Wassermann	+ = 7 - = 4
Cerebrospinal Fluid Wassermann	+ = 8 - = 4
Cells	+ = 7 - = 4

At the same time that these examinations were made, tests were made in cases of tabes, and paresis. A complete serological formula was obtained in 16 cases of tabes and 8 cases of paresis. My findings in these cases did not differ from those that have been obtained by other observers. It is generally agreed everywhere that the most positive findings are in the cases of paresis. Next in frequency come the findings in cerebrospinal lues, while the most irregular formulæ are those connected with tabes. In the four items of the series the most important finding was the increase in the cells of the cerebrospinal fluid. It is practically impossible to lay down any definite formula with which cases suffering from different forms of lues that are brought into an active hospital service will agree. The formulæ differ, depending upon the age of the case, upon the past therapeutic experiences of the patient, and upon conditions of alcoholism and complicating infections. We cannot make a diagnosis between tabes, paresis, tabo-paresis and nervous syphilis with any certainty, upon the serological formulæ alone. It is my conviction that there is now no longer any definite line which separates cerebral lues from paresis, and not always spinal lues from tabes. That which has in the past been called "paresis" is sometimes now a curable type of lues. While cerebrospinal lues is supposed to be especially an exudative disease, and one which affects the blood vessels and meninges, causing physical symptoms more than mental, yet it is not rare for this form of lues to present nearly all the typical mental, as well as physical symptoms, of paresis, especially when the malady has a somewhat acute onset. I think it is demonstrated and generally accepted that (as I asserted ten years ago) early paresis can sometimes be cured.

53 West Fifty-third Street.

COLDS AND THEIR RELATION TO THE PHYSICS OF THE ATMOSPHERE.*

By C. M. RICHTER, M.D.,
SAN FRANCISCO.

I shall confine myself to discussing acute affections of the mucous membrane of the upper air-passages, when not due primarily to infections. They are generally given the name "colds," and especially whenever their immediate cause can be traced to a low temperature, principally a moist, cold temperature, or to exposure to draughts of such air. Such affections form a distinct clinical aggregation of symptoms, and they are more or less feared as leading to much more severe affections, as pneumonia, nephritis, etc. The proof that cold temperature is the cause and an acute inflammation the effect has never been given by the inductive method, but still this tradition of "colds" continues to infect every modern textbook on medicine.

It would seem natural that such a question should call for a most painstaking scrutiny of the different meteorological factors that might produce, or appear to produce, singly or in combination, an acute catarrhal inflammation of the upper air passages. But where is the research work that brings light on this subject?

I take from Reik[1] the following in reference to the *Anatomy and Physiology of the Mucous Membrane of the Upper Air Passages*:—"The turbinate bones are covered with a mucous membrane, but contain beneath a basement membrane, a mass of lymphoid and erectile tissue and collapsible venous channels capable of great distention (swell bodies). Beneath the epithelium are many mucous glands, which open upon the free surface. These turbinate bodies pour out a great quantity of serum, which serves to thin the mucous secretion and to humidify the inspired air. By greatly increasing the extent of mucous surface over which the air passes, and by their peculiar function of bringing a large supply of venous blood near the surface, they also serve to bring the temperature of the inspired air up to that of the body. The air is thus warmed and humidified for its reception by the lower respiratory tract."

Reik adds: "Although the nasal mucosa is under normal conditions constantly bathed in a slightly alkaline, watery secretion, there is no visible appearance of such secretion—and the individual is not conscious that it exists."

It is true that we have no special sense to put a proper estimate on the amount of moisture in the air inside or outside our body, except in so far as the temperature of such air is of assistance. Prof. W. M. Davis[2] puts it this way: "The humidity of the atmosphere exercises a strong control over our bodily sensation of the temperature of the air."

Prof. M. W. Harrington,[3] summer of 1894, called the temperature shown by the wet-bulb thermometer the "sensible" temperature —*i. e.*, the temperature felt at the surface of the skin. The sensation of warm and cold is an attribute of the mucous membrane of the mouth, throat, and the front part of the nose, of the floor of the nose and of the back part of the soft palate. It is exaggerated by a quick change of temperature. It is to be noted that when keeping the mouth open the air we breathe is *not* passing through the nose.[4] Besides the sensation of heat and cold, we are conscious of only two other sensations in the area just mentioned, that of tickling and that of pain. Killian[5] asserts that the effect of electricity, of change in temperature, of chemical excitation is felt as one of these two sensations. These sensations are very similar on outer skin and mucosa. One would expect the hair on either to communicate simultaneously the sense of touch and perhaps of tickling. The vibrissæ that grow in the nostrils, and which, "guarding the atrium of the nostrils, act as a coarse filter,"[6] are, of course, more or less hygroscopic. They

*Read before the San Francisco County Medical Society, May 13, 1913.

change their relative position inside the nose in conformity with relative humidity, get longer, when moisture increases. By their movements undoubtedly they often cause a tickling, provocative of sneezing. I may note here that Chinamen prefer to have these vibrissæ pulled out by their barbers, and I learn that Chinamen are relatively immune to colds.

Killian (*l. c.*) found that "four points in the front part of the nose and perhaps some in the back part are affected by tickling, but only by extensive and intensive tickling. Some noses are hyperesthetic and they respond to even light tickling by relatively severe hyperemia, increased secretion, swelling of the mucosa, coughing, sneezing, etc. Heat and dryness of the air affect a hyperesthetic mucosa differently from cold and moisture. As the anterior area of the nasal mucosa depends on the nervus ethmoidalis and the posterior on the nervus sphenopalatinus, the physiological and clinical behavior of the two areas is as different as the peculiar actions of these two nerves. Sneezing seems to be entirely due to the ethmoidal nerve's action. One of the neuroses of this nerve is called the vasomotor rhinitis."

The reflex action inside the mouth and throat in its relation to the ever-changing physical and chemical condition of the air we breathe is still rather obscure. We experience a certain sense of dryness at the posterior part of the tongue and at the soft palate and the posterior wall of the throat when very dry and relatively hot air has affected those parts for some time. This is the only symptom experienced. The amount of saliva is of great consequence.

The effect of aqueous vapor on the mucosa is direct and indirect. Our mucosa is a hygroscopic organic substance, principally by virtue of the surface cells and the hair, resembling in this way the epidermis. The amount of hygroscopic water the mucosa contains changes constantly in proportion to the relative humidity of the air next to it. Its ability to conduct heat, its volume, etc., prove this, and it does not differ greatly from any other organic substance, as wood, for instance, in this respect. Of course, every activity of the protoplasm in our mucosa creates heat and increases thereby its temperature. The temperature of our protoplasm has to be kept within definite limits to prevent damage to its activity and existence. The heat in the nasal mucosa has a constant outflow into the nasal cavity.

What induces us to speak of "colds" as if air temperature was the principal factor to be considered? Is not *air humidity* in a more direct relation to "colds"? Rubner's[7] conclusions in regard to the effect of dry and moist air on the human being are as follows: "At a lower air temperature the increase of moisture increases the sensation of cold. At a mean temperature of 14° to 15° C. (57° to 59°F.) dry air appears to give more comfort than moist air, especially between 24° and 30°C. (75° and 86°F.). In dry air, without wind, perspiration is not in evidence unless a temperature of 30°C. (86°F.) is reached, with about 22 per cent. relative humidity. Air of 80 per cent. relative humidity becomes extremely hot at 24°C. (75°F.), even when we are at rest, with perspiration not material, but more so with higher percentage of humidity. Adiposity will increase these effects. Excessive dryness of air is not concomitant with decrease of comfort, but excessive humidity is! The delivery of aqueous vapor depends greatly on relative humidity, but is likewise a function of the air temperature. It is lowest between 15° and 20°C. (59° and 68°F.), but will vary with rest or work, adiposity, nutrition, blood supply of the individual. This varying condition of the organism is paramount and more so than the existing temperature. The export of moisture at a mean temperature and humidity of the room air by the lungs of an adult per hour amounts to 17 gm. when resting, 19 gm. when deep breathing, 34 gm. when singing. The importance of the evaporation value by the lungs is given in this table (one hour for the adult):

Temperature	Dry Air			Moist Air		
	Rel. Hum. Per Cent.	Resp. Org.	Skin	Rel. Hum. Per Cent.	Resp. Org.	Skin
15°C. (59°F.)....	8	16.8 g.	9.5	89	9 g.	....
20°C. (68°F.)....	5	17	37.1	82	11.7	3.6
25°C. (77°F.)....	6	18.4	57.0	81	10.9	13.

Suppose we breathe on a cool winter day air of 0°C. (32°F.); it will contain at perfect saturation 4.89 gm. water to a cubic meter. Its temperature will be raised to normal body temperature quickly by our nasal mucosa. As air should contain 39.4 gm. water to 1 cm.³ at perfect saturation, the relative humidity of air heated from 0° to 35°C. (95°F.) sinks to 12.4 per cent.

Hann[8] gives other examples of extreme dryness, which do not affect our comfort materially. However, the reverse is our sensation when, for instance, at a summer temperature of 20°C. (68°F.) we experience a relative humidity of 28.5 per cent. In this instance we suffer rather intensely from the dryness. The keynote to a proper understanding lies in the regulatory function of our mucosa. The export of heat by hyperemia is the first process, the export of aqueous vapor by the blood represents the second process in insuring equilibrium of temperature and moisture. Whenever by excessive humidity a transport of moisture into such air is impossible, the transport of heat seems to be the first remedy. Of course, there is no normal relative humidity for our mucosa; it is always relative to a certain temperature, to absence of wind, to nutrition, to rest or work.

It is well to remember that dry air will always be preferable at high or low temperature to excessively moist air. That temperature, independently of the factor of moisture, cannot be called the principal "colds" producing agency, we may easily learn from the very even temperature of San Francisco, where colds are not less prevalent than anywhere else. The mean minimum temperature of January, the coldest month, is 7°C. (44.7°F.); of September, the warmest, it is 12.2°C. (54°F.); the mean maximum of January is 12.5°C. (54.6°F.); of September, 19.8°C. (67.2°F.). The difference during the year amounts to 5.2°C. for the mean minimum and 7.3°C. for the mean maximum.

The human body loses heat by radiation and conduction and in direct proportion to the amount of moisture in the air, provided the air temperature be not high. At such temperatures a rise of 25 per cent. relative humidity will give us a sensation of 2°C. (3.6°F.) loss of heat. The reverse takes place at 26° to 30°C. (79° to 86°F.) It seems that we are not materially affected even by an extreme export of moisture from our lungs, as long as the air is rather dry. It is a different matter when the incoming air contains such a surplus of aqueous vapor,

that evaporation by the lungs becomes impossible (Hann *l. c.*). For no matter what the temperature is and no matter what the amount of moisture is which the air we inhale brings into the upper passages, the exhaled air invariably returns saturated for a temperature between 30° and 37°C. (86° and 98.6°F.). To make this possible, the physical work inside our mucosa has as its aid the vasomotor nervous system as a reflex apparatus. The automatic work of this system, by dilating or contracting the vessels under its control, regulates the outflow of heat, of serum, of mucus into the nasal cavities. It supplies heat and moisture to the incoming air, to furnish the necessary amount for its journey to the lung vesicles. Every five seconds about 500 c.c. of incoming air pass the scrutiny of the watchful vasomotors situated in our nasal mucosa, and a few seconds later—during all our life—a similar amount of air returning from the lungs demands a fresh equalizing work of the mucosa in response to the changed conditions it brings to its surface. The air we inhale has to be heated to the amount of about 5/9 or the normal body temperature inside the cavum pharyngonasale (Landois, *l. c.*), and it has to be saturated there with aqueous vapor. By inhaling through the nose and exhaling through the mouth, by means of a glass tube containing a thermometer, the folowing temperatures were registered:

Air Temperature	Temperature of Exhaled Air
−6.3°C. (20.7°F.)	+29.8°C. (85.6°F.)
+17°−19°C. (62.6−66°F.)	+36.2°−37°C. (97.1−98.6°F.)
+44°C. (111.2°F.)	+38.5°C. (101.3°F.)

One would expect similar fluctuations in regard to the degree of saturation of the exhaled air, and it is clear that a deficiency of aqueous vapor in the inhaled air will call for considerable discharge of moisture by the nose and lungs. It is estimated that the lungs return about 450 gm. water in twenty-four hours—about an equivalent of the amount taken from the mucosa by the inhaled air. R. de C. Ward[9] found in Boston during a certain November a mean temperature of 2.2°C. (35.9°F.) outdoors, with 71 per cent. relative humidity, and had in his study a mean temperature of 20.6°C. (69.1°F.) and 30 per cent. relative humidity. The latter Dr. Barnes could increase by evaporation of water to 53 per cent. This percentage made 18°C. (64.4°F.) comfortable, whilst the air had to be raised to 22°C. (71.6°F.) without the evaporation to make it equally comfortable. The absolute humidity fails to explain these conditions. As Hann (*l. c.*) emphasizes, it is the relative humidity which, in addition to the temperature, creates and measures our demand for moisture and the need of evaporation.

"At San Francisco relative humidity throughout the year is high, but during the summer months, owing to low temperatures, the absolute weight of water vapor per unit of volume is much less than at coast stations of the Atlantic."[10]

Mean	Chicago		San Francisco	
	January	July	January	July
Rel. hum., per cent.	81	67	79	83
Vapor pres.	.099	.548	.282	.384
Temperature	23.7°F.	72.3°F.	49.8°F.	57.3°F.
	4.6°C.	22.4°C.	9.7°C.	14.1°C.

This explains the chilly feeling we experience in San Francisco during July, when a low temperature with a low relative humidity would have the opposite effect. Conditions in and on our mucosa are probably in a state of relative equilibrium, when the air temperature is between 18.3° and 20°C. (65° and 68°F.) and the relative humidity is as low as 30-40 per cent. This statement should include that dry air gives us greater comfort than moist air, provided there is absence of wind.

What is the effect of a draught, of a strong wind, on our mucosa? The air movement caused by each breath is comparable with the air movement by wind.

The moment that a movement of the air by wind enters as a factor we feel a cooling, as the wind will necessarily remove more heat from the surface by constantly changing the air above it. In consequence, as a first reaction, the smaller blood vessels of the surface contract, thereby preventing the additional escape of heat. In case of an increase of temperature above the average the reverse takes place the blood-vessels dilate and allow an escape of heat. The evaporation will be somewhat proportionate to these conditions. It proves[11] that the duration and intensity of the wind and the relative humidity are most important heat factors and that the thermometer fails to record it. Rubner (*l. c.*) found that wind velocity in itself, or a sharp draught of air, becomes harmful, not because of its quicker air motion, but because of the change it produces in regard to evaporation from our mucosa. On our hemisphere and in our latitude all winds from the southeast, south, southwest or west are generally warm, moist, and reduce air pressure; all winds from the northwest, north, northeast, and east are generally cold, dry, and increase air pressure. It is clear, then, that it is of the utmost importance for the mucosa work which set of winds is prevailing.

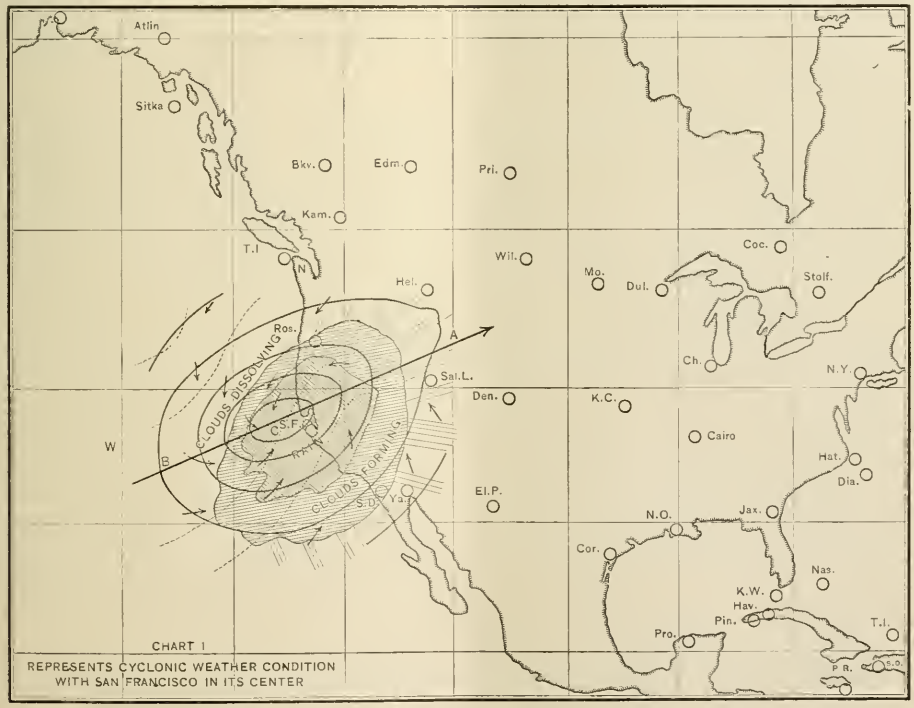
Acute Coryza.—Osler,[12] describing acute coryza, says: "At first the mucous membrane of the nose is swollen, 'stuffed up,' and the patient has to breathe through the mouth. A thin, clear, irritating secretion flows. The mucous membrane of the tear-ducts is swollen—the pharynx looks red and swollen, etc. Usually within thirty-six hours the swelling of the mucosa subsides and within four or five days the symptoms disappear." He adds: "Many attacks are so mild that the patients are able to be about and attend to their work."

This acute coryza represents a condition, which is brought about as a logical consequence whenever an excess of moisture, coming to the gate of our lungs, overtasks the vasomotor apparatus of the nasal mucosa in its effort to guard the lungs against this excess. The outer skin of our body has about 2,000,000 sweat glands, which act as regulators of humidity and temperature on its surface of about 16,000 cm.^{2} The mucous glands of the nose (there are about 100-150 per one cm.^{2}) have to act in a similar manner inside the cavum nasale. Its cubic contents amount to 15.7 cm.^{3} on the right and 18.5 cm.^{3} on the left side.[13] The secretory actions of these glands, together with the hygroscopic condition of the entire nasal mucosa furnish the reservoir of moisture, which is ever ready to adjust the temperature and moisture conditions of the air we breathe. Generally the moisture inside the nose appears to be insensible, similar to the perspiratio insensibilis of the epidermis—but any swinging of the hygrometer needle toward an unusual increase of moisture, will modify the amount of moisture on the mucosa correspondingly, it will increase the swelling of the swell bodies, and an overflow of the reservoir may result. In this event often a great quantity of serum is poured out, generally following

repeated sneezing, which seems to be especially helpful in opening these safety valves. By this discharge of moisture the swelling of the swell bodies is more or less slowly relieved and in the meantime the weather condition, that furnished the excess of moisture, is disappearing. It is inconceivable that with extreme dryness could be associated an increase of moisture in a hygroscopic substance. Wood, for instance, would get more and more dry, and so does the mucosa, except for a comparatively insignificant flow of moisture to relieve the vacuum caused by dryness. We have analogy to this apparently physiological action of the nasal mucosa to meet excessive incoming humidity in the action of the outer skin, whenever the air temperature goes beyond certain limits. For instance (Rubner—*l. c.*) the same degree of air humidity would cause a more liberal evaporation at a higher than at a lower temperature. At a temperature of 15-20°C. (59-68°F.) evaporation is comparatively minimal. Whenever air temperature goes higher, then, with increasing air humidity, evaporation—this truly seems paradoxical—is likewise increased. Profuse perspiration—similar to the running of the nose—covers the entire outer skin, thereby creating better conditions for evaporation. The limitation of this inverse action of moisture is not to be defined by certain figures, but must depend largely on certain physico-chemical conditions of the organism in question. Undoubtedly we find an acute coryza having a predilection for a child's mucosa ("the newly born animal, the human included, is not very subject to reflexes"[14]), or for a hyperesthetic one, rather than for a hardened nose. The conditions of civilization and certain habits predispose many noses to this affection. Among men and among women the effect of smoking tobacco should be considered, that of alcoholic drinks, of spice in food and drink, of perfumes, of city smoke, of dust; in general of more or less adulterated air, which any person is subjected to. Recently we have learned to consider certain idiopathic catarrhs, reminding of anaphylaxis. We have to consider the effect of ozone in the air and of different air pressure. Many of these factors favor functional disorders of the nasal vasomotor system and help to explain the great prevalence of an acute coryza, the great tendency to affections of that kind developing under certain weather conditions.

Assuming, then, that especially a southerly wind would give a foundation for the clinical syndrome of acute rhinitis, that it would call for a reflex action by the mucosa in question, represented by acute inflammation, it becomes necessary to consider the weather condition which is favored by the southerly wind.

Two wind systems represent in a general way the two weather conditions which dominate the weather in our latitude on our hemisphere. Every single day, when we look at the weather map, we find our city either inside a "low" or inside a "high". Seldom we will be found to be on a border-line between these two types. The continuous procession of such areas of low and high air pressure generally has an easterly direction. Inside the cyclonic system, or "low," we find unsettled, very windy, rainy, relatively warm weather; inside the anticyclonic system, or "high," there is generally less wind velocity, dryness of air, sunshine by day, cool nights in summer, intense frost in winter. Dense fogs sometimes are prevailing during the calm of an anticyclone. Suppose the tail end of a "high" is passing away from



us, we experience in advance of the approaching "low" generally an increase of absolute humidity. It indicates the first action of a southerly wind on our atmosphere. Presently the southerly wind, first from the southeast, then from the south and southwest, develops more velocity, temperature rises, cloudiness increases, rain is precipitated, and the air pressure decreases. This condition dominates our weather for a period of two to five or more days. It passes on with a wind velocity of about thirty miles an hour, whilst the now coming "high" moves with a lesser velocity. It is generally a southerly wind inside of "low" that causes a severe draught and which feels cold on account of its high relative humidity. It represents the specific weather which causes an increased hyperemia, increased resistance, increased leucocytosis[9] inside the nasal mucosa. An acute coryza develops principally at the beginning of or during the passage of a "low" and seems to be, therefore, primarily due to the effect of an excess of moisture in the air. Sneezing is often the first reflex action started by nature to do away with this excess and to relieve the abnormal condition. An anticyclonic condition with its extremely dry air may likewise cause sneezing, but for the very opposite reason of bringing moisture to the mucosa, that is losing its hygroscopic water. It occurs more rarely and seldom develops the acute coryza. No doubt the acute coryza, whenever the requisite flora is present inside the nasal cavity, may develop and generally does develop into an infectious condition, a catarrhal inflammation, due to the specific organism that finds a suitable field for growth inside the hotbed created by the abnormal physical condition of the nasal mucosa. As Abraham Jacobi[14] says: "As long as the mucous membranes are in their normal condition the germs cannot enter the tissues and the circulation. A catarrh removes this protection; the epithelia are swept away by the fluid. That is the chance for the living enemies."

I have refrained from considering in this paper the influence of atmospheric electricity and likewise that of air pressure on the mucosa in question, though it must be apparent that its physicochemical work depends to a considerable degree on these two factors. However, we have to wait for further research in regard to their influence.

I wish to close this paper with another quotation from Abraham Jacobi (*l. c.*) referring to the treatment of acute coryza, as it gives apparently another proof for the theory advanced by me. He writes: "Excessive nasal secretion—1000 c.c. a day—may be best stopped by absolute abstinence from drinking, together with enforced diaphoresis. Cocaine brushed or sprayed has been more often recommended than proved wholesome. Adrenalin spray acts a little better."

Conclusions.—1. Acute coryza, commonly called a "cold," depends for its development primarily on an excess of moisture in the air we inhale.

2. It develops, therefore, principally during the cyclonic weather condition called a "low," especially when a period of very dry weather has preceded a "low" and when, in consequence, the change from previous dry air to the incoming very moist air is most rapid.

3. The excessive and more or less continuous nasal secretion at the beginning of an acute coryza relieves the respiratory apparatus from the otherwise damaging effect of an overcharge of moisture.

4. A child's nasal mucosa and the hyperesthetic one are especially prone to suffer.

5. The "running of the nose" constitutes in part a physiological vasomotor action analogous to the profuse and more or less continuous perspiration of the outer skin, which sets in whenever air temperature and relative humidity transgresses certain limits and which forces thereby better conditions for evaporation.

6. Latent microbism becomes active on the mucosa only after these air conditions have favored its development for some time. Microbism is very rarely the primary cause of an acute coryza.

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VENEREAL DISEASES AND PRACTICAL EUGENICS IN SMALL COMMUNITIES.

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There seems to be a very general impression, even among city physicians, that venereal diseases are confined largely to urban communities. In the absence of exact statistics it is impossible to determine to what extent this impression is justified in the case of the minor venereal infections, but the recorded cases of general paresis all over the country seem to indicate that syphilis is by no means confined to the large cities.

Thus we find that in the State hospitals for the insane in Iowa (a State singularly lacking in large urban communities) the proportion of cases of paresis to all other forms of insanity is about one to fifteen, while in the New York State hospitals the proportion is about one to eight. At first glance this would seem to indicate that the number of cases of syphilis in congested New York must be about twice as great as in rural Iowa. But when we consider the high mental tension under which the average New Yorker lives as contrasted with the relatively placid mental state of the average Iowan, and remember that this tension conduces indirectly, at least, to the production of paresis, it seems evident that the number of cases of syphilis per capita in these two States is not so widely different.

These statistics about paresis also give us indirectly a clue to the prevalence of the minor venereal diseases. For wherever we find syphilis we find also a proportionate number of cases of the other

venereal infections. So that there seems little doubt that Iowa, and nearly every community, rural as well as urban, has its quota of all classes of these diseases.

Undoubtedly the dangers from gonorrheal and syphilitic infections are the two greatest deterrents to illicit sexual intercourse in every community. But unfortunately the serious nature of gonorrhea is not appreciated by most laymen. With syphilis, however, the case is different. The horrible ravages of this disease—the fact that it is (or has been until recently) considered incurable; that it "eats off" noses, causes hair to fall out, makes offensive ulcers, and produces many other loathsome conditions—is pretty well understood by the majority of men. So that this disease has been the strongest single factor in keeping young men in the straight and difficult highway of chastity. Yet even its appalling dangers fail to keep many of them in that path.

Nor is the state of affairs of recent development. Apparently it has been about the same for centuries. And unfortunately it seems likely to continue, as our modern civilization prevents young men from marrying until several years after the compelling sexual desire is fully developed. Indeed, it is only reasonable to expect that this particular kind of immorality will increase rather than diminish, since the average age for marriage seems to be increasing, while the age at which the sexual instinct develops remains unchanged.

Moreover, the discovery of salvarsan, instead of acting as a deterrent to sexual immorality, seems likely to have the opposite effect by robbing syphilis of its greatest menace—incurability. So that salvarsan must be considered as a eugenic, rather than as a moral weapon, since its curative effect has been promulgated so thoroughly by the popular press that it is known to practically every intelligent layman in the country.

Naturally enough this new weapon has given fresh impetus to the activities of the various organizations interested in eugenics. These organizations may be considered as two great armies, the older one composed of medical men and scientists, the newer enlisted from the ranks of progressive ministers and laymen. Both armies are fighting in the same cause; but, as might be expected, their methods of attack are quite different. For the purpose of comparing these methods we may consider the recent action of certain divisions of this clerical army, and that of the surgeons in the United States Navy.

The most radical step in practical eugenics taken by the clerical army is that of demanding certificates of good health from both contracting parties before its members will perform the marriage ceremony. In this way the clergymen hope to prevent persons suffering from venereal and other transmissible diseases from infecting their consorts or their offspring. At the same time they propose to conduct campaigns of education in which they will teach sex hygiene, and portray the frightful dangers attending deviations from chastity. Thus they add to the course of instruction the menace of enforced celibacy to those who disregard their admonitions.

This is essentially a clerical method of attack, by promising reward and threatening punishment, although the promise seems somewhat overshadowed by the emphasis given the threat. But let us consider some of the practical difficulties that present themselves. As we have pointed out, most young men are sufficiently orientated into the dangers attending immorality without additional instruction from their pastors. So that the educational part of the campaign—at least the part concerned with the warnings against dangers—is likely to prove disappointing in practical results.

The important innovation is that of demanding medical certificates from those wishing to marry. But the practical application of this innovation is beset with serious obstacles. A pertinent question at once obtrudes itself: What will be the ultimate action of a young man who is refused a certificate of health because of an existing syphilitic infection? Will he seek a physician to be cured (if possible), or seek a dishonest physician, or a less scrupulous minister, or will he remain a legal celebate, while continuing to scatter his infected germ-plasm broadcast, thus doing far greater injury to future generations than by confining it to a single focus? These are questions that present practical problems for which there are as yet no practical and satisfactory answers. But until some satisfactory answers are found the mere denial of marriage will not carry far in practical eugenics.

The Navy's method of attacking the venereal disease problem presents a striking contrast to the one just outlined. It is essentially a medical rather than a clerical method. But it has two commendable features: It is simple, and it seems to be effective. The method is as follows:

Each sailor when he returns from shore leave is obliged to report to the "prophylactic room" if he has exposed himself to possible venereal disease infection. Here a hospital apprentice administers prophylactic treatment, which varies slightly in details on the different ships, but is essentially the same on all.

The treatment, as outlined by a naval officer, is as follows: "The penis is washed with soap and water, and then with bichloride 1-1000. A two per cent. protargol injection is given and held in for a short time. Then a 33 1-3 per cent. calomel ointment is rubbed around the glans and left under the foreskin. The man's name is recorded with the date.

"When a man reports with chancroid or gonorrhea he is required to state when and where he contracted the disease, and the venereal book is consulted to see if he received prophylaxis. If he did not, he is reported for punishment."

Thus the navy is fighting a prevailing evil by means of applied scientific knowledge, rather than with moral precepts. Yet such precepts are not wanting, for the navy has chaplains as well as surgeons, and the enlisted men are fully aware of the moral aspect of unchastity as well as its dangers. But since they, like many other robust young men in other walks of life, often disregard these moral precepts, their officers are now meeting the issue by supplementing moral teachings with what proves to be more effective, if less esthetic, measures. As a result, the navy, which has hitherto been considered a hot-bed of specific diseases, is becoming a model community as compared with many small towns. And it is probable that more U. S. sailors could show acceptable certificates to the clerical matrimonial censors of some communities than could a corresponding number of men picked at random from among the censors' own flocks.

Observing the good effects of his prophylactic treatment, a veteran surgeon of our navy who has

three boys of his own just reaching the "danger zone" age, was led recently to reflect to this effect: "Every day, as a matter of routine, I protect young men against the most dreadful diseases. Yet I have no particular interest in these men. Meanwhile I allow my own three boys to go their ways unprotected. I *hope* they will not 'take chances', but I should be blind to the teachings of my experience if I ignored the probability that they *will*. Therefore, it is not acting the part of a good father, or a good physician, to withhold from them the benefit of my knowledge—not to offer them the protection that I would give any stranger who sought my advice."

This point of view, we admit, is not that of the idealist. But ideal conditions do not exist. And the part of wisdom in any field of activity is to combat actual conditions, even while striving for the ideal. The navy is setting a good example in this struggle which could be followed, in its essentials, in other communities. For in some ways the community-life of the navy is similar to that of small towns, particularly in the relations existing between the enlisted men and their chaplains and physicians. The village pastor and the village doctor, like the naval chaplains and surgeons, are the mentors of their communities. Their relations with the young men of the town are much closer than those of the city ministers or physicians. Their advice is more freely sought, and because of their intimate acquaintance with their townsmen, this advice is more likely to be heeded.

But the great handicap to the clerical eugenist is his ignorance of the actual moral conditions in his community in most instances. Every one puts his best foot forward in the minister's presence; the doctor sees the other foot in all its deformity. Yet this deformity represents the actual condition which makes necessary our efforts in eugenics.

Before plunging too deeply into the eugenic movement, therefore, the members of the clerical army would do well to acquaint themselves with the facts about the moral status of their communities by consulting their medical confrères, particularly those most familiar with the venereal-disease situation. For in many towns there are certain physicians whose personalities do not invite the confidence of the erring, and who have scarcely more opportunities for keeping in touch with the community's immorality than do the ministers; while other physicians are constantly consulted. These latter could, without breach of professional confidences, indicating by numbers and not by names, impart valuable information—information that would amaze the clerical workers in many instances. And the physicians should supplement these revelations with information regarding certain phases of physiology and pathology that are not generally understood, or frequently overlooked, by clerical enthusiasts.

They should point out that, while the same code of morals for men and women may be ideal, such a standard is artificial and opposed to the physiological development of the two sexes. Thus in most normal men the impelling sexual instinct develops naturally without the stimulus of indulgence, while in most normal women it does not develop to anything approaching a compelling degree until after indulgence—a fact frequently ignored by the advocates of a uniform standard. Nature has made the path of chastity far more difficult for the average man than for the average woman.

Moreover, the eugenist must not close his eyes to the fact that there are dangers attending enforced celibacy, as well as those arising from unchastity. In certain neuropathic individuals attempts at complete repression of the sexual desire sometimes leads to grave pathological conditions even more incurable than most venereal diseases.

It should be further pointed out that there are some cases of syphilitic infection that are not detectable by the Wassermann, or any other test; and latent gonorrhea will sometimes escape the most conscientious scientific scrutiny. So that, at best, the doctor's health-certificate to a matrimonial censor can only state an opinion, and is not infallible.

It would seem logical, therefore, since the clerical eugenists have invoked the aid of medical science in passing upon the question of eligibility to marriage, for them to seek its aid in making such eligibility possible. It is quite as much a part of religion to offer forgiveness as it is to promise reward or to threaten punishment. If this forgiveness were supplemented with advice to use a prophylactic, administered by a physician, or under his instructions, it might aid practical eugenics in its present stage of development quite as much as moral advice, the purport of which is as familiar to the offender as to the adviser, in most instances.

In practical application the navy's method of enforced reports and prophylactic treatment cannot be pursued in outside communities; but with certain modifications it could be carried out, and with one important advantage—that it would be used very shortly after exposure in most instances. For the weak point in the application of prophylaxis in the navy is the fact that it is frequently delayed until many hours after exposure.

Of course no one supposes that any young man will rush to the doctor's office every time he falls from grace. But many young men would be glad to use a simple prophylactic if one were available. And, surely, at this time when prophylaxis is the watchword of progressive medicine, it is the height of prudish folly to withhold from them any effective prophylactic.

VIENNA, THE POSTGRADUATE MEDICAL AND SURGICAL MECCA.

INCLUDING PRACTICAL POINTS GLEANED FROM VIENNESE CLINICS AND FROM THE COURSES GIVEN BY THE UNIVERSITY OF VIENNA.

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This paper is presented in response to a request from a number of my confrères with the idea of giving a brief outline of the postgraduate work to be had in Vienna and of the practical methods in diagnosis, technique, and treatment for which the Viennese school of medicine is justly famous. There is no place in the world where the postgraduate professional man will find a more appetizing medical and surgical "quick-lunch," so to speak, than in the Austrian capital.

The reason for this unique condition is twofold: First, there are the very large general and special hospitals with their inexhaustible clinical material under the control of the professors of the University of Vienna, whose courses along general and special lines are so arranged as to meet the demand for concentrated postgraduate work in a way which is as yet unparalleled by any other large medical center. Second, the American Medical Association of Vienna has control, as far as the postgraduate

work is concerned, of each and every course, so that when the newcomer arrives he finds the work so systematized that he is able to select the line of work he wants without having to be familiar beforehand with conditions which would otherwise be embarrassing to a stranger. The number of men in each course is necessarily limited, and the association decides how many men are to be in each course, so that the work will not be hampered by overcrowding and in order that the individual will get the greatest amount of good out of the particular line of work.

The American Medical Association of Vienna was organized November 28, 1903, and has so systematized and improved its organization from year to year that it is now firmly established as an important educational corporation working in perfect harmony with the faculty of the University of Vienna. The officers of the association are elected by ballot every six months and consist of a president, vice-president, secretary, treasurer, executive committee of five members, membership committee, and what is known as the orientation committee. This latter committee is composed of men in the different departments of medicine and surgery whose duty it is to organize the various courses and give information to all new arrivals. The association rooms are located at No. 28 Schlösselgasse, and here will be found an excellent reference library of modern medical works in German and English and also numerous medical journals, a reading and writing room having on file English and Continental dailies, a ladies' room and a room in which the register is kept and where all courses are posted.

The association has a permanent assistant secretary who has charge of the rooms and transacts all routine business. The fee for active life membership is five dollars, and in addition one dollar a month during the time the member is in Vienna. The association is governed along the lines of an ordinary club, and issues yearly a "Blue-book" which contains the constitution and by-laws, together with a full description of all the courses to be given for the ensuing year and a mass of general information. There are weekly meetings of the association proper, besides meetings of different medical and surgical branches, at which time papers are read and discussed.

When a physician arrives in Vienna he should enroll himself at once on the register of the association for the reason that priority in registration plays a prominent part in determining his eligibility to enter the courses at an early date. The different courses usually run from four to six weeks, and several days or a week before the new course begins it is posted so that those who wish to enter the course can sign their names. The number in each course being limited, precedence to enter a course is determined entirely by priority in registration. In addition to the regular or so-called "book-courses" there are to be had special individual courses in almost every line of work. The fees for the different courses vary according to the course taken, but are fixed for any particular course, and are very reasonable. The special individual courses are, of course, much more expensive than the regular courses and usually run from three to five dollars an hour. While a number of courses are given in English as well as in German, it is an undoubted fact that one will get a great deal more out of the work by having a good reading and a fairly good speaking knowledge of German. If one contemplates visiting Vienna for purposes of study he would do well to devote six months or a year to the study of the German language. In this way he will not be restricted to the courses which are given in English. The Vienna clinic is not a place where he who runs may read, but rather a place where he who lingers learns, and the man who is prepared for a reception of German medicine in the German language is the one who will profit mostly by his stay. It must not be understood that it is only necessary for a man to present himself at the association rooms to immediately get the line of work he desires. He must keep in close touch with the orientation man for his particular line of work and keep himself informed on all new and prospective courses. By not realizing this feature of the system some men allow several weeks or months to go by without gaining admission to a course.

Living expenses in Vienna may be classed as fairly reasonable, although this depends largely on the individual and what he is willing to forego in the way of American comforts and luxuries. Fairly good accommodations for a man or his family may be had in any of the numerous pensions at moderate rates, but the first-class hotels and restaurants or cafés are, if anything, a little more expensive than the first-class hostelries in America.

A description of each course would far transcend the limits of this article, and no effort will be made in this direction except to present some of the interesting details of the work I took personally with annotations here and there while visiting the various clinics. The courses I attended were as follows: Gross pathology, general and special urology, skin and syphilis, operative genitourinary, cystoscopy, and urethroscopy.

Gross Pathology.—The course in this work is to my mind the most valuable single course given in the university, and is presided over by Professor Stoerk, a man of rare genius in his line. Last year there were 2,503 autopsies performed in the Allegemeine Krankenhaus alone, which is an average of about eight autopsies a day. These are performed in the early morning and each body has attached to the right great toe a metal number tag which corresponds to the number of anamnesis, and this latter is reviewed before performing the autopsy. The manner of performing an autopsy is thorough to the last degree and no pathological point is overlooked. The incision begins just above the thyroid cartilage and extends in a straight line to the pubes. After the sternum and attached cartilages have been removed the upper part of the incision is deepened and the tongue, esophagus, and trachea are dissected downward, bringing out all the organs of the neck and chest together. Each organ in the abdominal cavity is removed and the alimentary tract laid open from end to end. If there is a history or suspicion of cancer a very careful search is made for metastases, the anamnesis being the general guide in performing all the autopsies. After this dissection the organs are assembled in large pans, with attached anamnesis, and placed in cold storage until the afternoon, when each pathological detail, with a careful review of the history of the case, is gone over before the class. Microscopical sections are made beforehand when necessary to bring out a point in diagnosis.

The class in this course is limited to ten members and this is not so large but that each man can see every detail that is brought out. The class meets every day for one month (except Saturdays), and

during that time the gross pathology of practically all human diseases is seen and discussed. A great many interesting specimens are sent to Professor Stoerk from various surgical clinics, and in addition to this the Pathological Institute has an enormous museum of well mounted exhibits which is referred to from time to time.

To mention in detail the large amount of pathology reviewed would be equivalent to reciting the pages of a complete text-book. Tuberculous and syphilitic changes in every organ and tissue are repeatedly seen, as well as every form of cancerous tissue and tumor growth. Professor Stoerk has recently cleared up the pathology of hypernephroma and demonstrated to the class the fallacy of regarding it as derived from adrenal tissue, making it absolutely clear as regards its purely renal origin. It was in demonstrating this to the class that the reason for regarding Hochenegg's sign as pathognomonic of hypernephroma of the left kidney, and sometimes the right, was clearly seen. This sign consists of a left-sided varicocele (sometimes also rightsided) which persists when the patient is lying down. The reason for this is that the pegs of hypernephromic tissue protrude into the renal veins, and sometimes all the way up the vena cava to the right auricle, thus blocking these veins and causing the blood to be permanently dammed back in the spermatic veins. We were shown numerous specimens of enlarged prostates which proved beyond a doubt that except in very rare instances the so-called middle lobe was the only part that became enlarged. Professor Doctor Zuckerkandl and Professor Stoerk recently published this fact and stated that what has been regarded as the capsult of the enlarged prostate was in reality the atrophied lateral lobes.

What makes the course so valuable to the surgeon is that he becomes familiar with a large number of pathological conditions in all parts of the body which knowledge, of course, is most valuable to him when he encounters these same conditions in the living body, and is thus able to identify what he is dealing with. To the internist the course would appeal with equal force in that he reviews many times the gross pathology of all the usual, and many of the unusual, causes of death. This is a course that it would be well to take several times and thus become more accurately familiar with what one has been over.

Urology.—This course, which runs daily for a month, is limited to ten members and is given at the Polyklinik Hospital by Docent Viktor Blum, chief in von Frisch's clinic, who is well known at home and abroad for his marked ability and scholarly attainments and a man who, before many years, will undoubtedly lead in his line of work. He is ably assisted in the large amount of work performed in this clinic by Doctors Prigl, Clingar, Zinner, Schwartz, and Bisdom. The "team-work" and efficiency of this clinic in its harmonious working was the best I saw in Vienna and speaks well for Dr. Blum's executive ability.

In this course a plentiful supply of clinical material admits of the presentation of practically every feature of urology. The surgical diagnosis of bladder, kidney, and urethral conditions is especially dwelt upon and a large assortment of other genito-urinary work is taken up systematically before the class. Functional kidney tests and minor operative work are conducted from time to time and the class is also present for interesting major operations. For the first two weeks of every month Dr. Blum gives, for two hours in the evening, a special genito-urinary operative course in which every urological operation is performed by each man taking the course. For the last two weeks of every month, and for two hours in the evening, Dr. Clingar conducts a very instructive special course in urethroscopy.

The treatment of uncomplicated urethritis (gonorrhea) consists of irrigating with either a one to four thousand solution of permanganate of potassium or a one to four thousand solution of gelatose of silver. The anterior urethra is first washed out with the solution, the bladder is then filled and the solution is voided. In chronic gonorrhea, besides the urethroscopic treatment to be discussed later on, the urethra is dilated three times a week by the passage of "Benique" sounds accompanied by massage along the sound to press out the contents of the glands. This usually sets up a mild exacerbation which is then treated by irrigations three times a week, the sounds not being used as long as the exacerbation continues. If after the first dilatation there is no exacerbation in two days the urethra is examined with the urethroscope and the mouths of the glands are touched with the actual cautery or the areas of so-called "soft infiltration" are touched with tincture of iodine or 5 per cent. nitrate of silver. When the posterior urethra is involved an instillation of 2 to 4 c.c. of a ¼ to ½ per cent. silver nitrate solution is made with a Guyon catheter or systematic urethroscopic treatment is instituted. A gonococcic vacine is also used in this clinic for various stubborn complications. Three injections are given in all, starting with 1 or 2 c.c. and increasing the dose by 1 c.c. on each third day.

Not only in this clinic but in several other Viennese clinics the quick routine tests for albumin are made with either one or the other of two stock solutions. The first and more delicate test is made by adding a few drops of a 20 per cent. solution of sulphosalicylic acid. The second solution is used in conjunction with a few drops of acetic acid and consists of several drops of a 10 per cent. solution of ferrocyanide of potassium. In either case a cloud forms in much the same way as by the heat test. The chemical test for pus in the urine is to add a small quantity of potassium hydroxide and a coagulum will form if pus is present. As regards the presence of albumin in the urine the Viennese clinic has directed attention to the condition to which they have given the name of lordotic albuminuria. This condition, which the older writers sometimes referred to as postural albuminuria, is characterized by the appearance of albumin in the urine in large or small quantity as the result of the patient assuming an exaggerated upright posture, such as in kneeling. It is especially common in young girls and is not infrequently met with in older people of both sexes. There are several theories as to the possible cause but none is satisfactory. Professor Stoerk tells me that as far as gross or microscopical changes are concerned there is absolutely nothing in these kidneys to give a clue to the albuminuria.

The routine examination of patients presenting themselves is as follows: the patient is made to urinate in two glasses (Thompson) and if the second glass shows cloudy urine attention is directed to the bladder. The prostate is next examined. This examination is conducted with the patient lying

on his back (French method) as it is claimed that not only prostatic enlargement but general conditions at the base of the bladder can be ascertained better by this method than by any other when combined with deep pressure over the bladder with the other hand. The next step is to examine the testicles and cord, followed by a microscopical examination of the discharge.

My notes on the differential diagnosis as regards prostatic enlargement, stone in the bladder, and vesical tumors are as follows: pain after urination indicates usually inflammatory prostatic trouble and sometimes stone in the bladder. With the finger in the rectum the extent and character of the prostatic enlargement can be made out. If of an inflammatory character it is felt as slightly enlarged and of boggy consistence. Upon massage the characteristic shreds and pus can be expressed through the urethra. A pedunculated, congested middle lobe can give the same symptoms as stone. As regards hematuria as a symptom there are three forms: (1) Initial hematuria is characteristic of a pedunculated tumor in the orifice of the urethra. (2) Total hematuria, when the urine is uniformly stained with blood, may be due to ulcer of the bladder, succulent mucous membrane, or hemorhage from the kidney. (3) Terminal hematuria is characteristic of nothing in particular but may be due to stone in the bladder or hyperemic membrane. Intitial and terminal hematuria is characteristic of trouble in the prostatic urethra, the first blood being washed out by the first flow of urine and the last blood being due to the squeezing of the prostate. Blood clots (in the absence of trauma) nearly always indicate tumor in the bladder or trouble in the kidney. One of the first symptoms of tuberculosis of the kidney is usually a hematuria due to an ulceration of the papillæ. Hypernephroma is also responsible for an intermittent type of hematuria. Interrupted bleeding is characteristic of stone and the urine in this condition nearly always contains some blood cells. Blood from the bladder may be caused by papillomata (benign), the only sign of which is blood in the urine; malignant tumors, which are always accompanied by pain and may closely simulate stone in the bladder; tuberculosis of the bladder (which is practically always secondary to kidney infection); succulent condition of the mucous membrane, as in stone of the bladder, and in a condition which has recently been noted and which is a form of cystitis hæmorrhagica. The pain in the case of stone in the bladder is terminal and at the head of the penis. Frequent micturition during the day, with occasional terminal hematuria, and quiet at night, indicate stone in the bladder. When the patient is lying down the stone is resting on the posterior bladder wall and does not cause irritation. On the other hand frequent micturition during the night points to prostatic enlargement. The "searcher" may be used to detect the presence of stone in the bladder but the cystoscope will clear up the diagnosis at once, revealing all loose and encapsulated stones, the condition of the internal orifice, enlarged or pedunculated prostate (middle lobe), and also the coexistence of any other bladder condition.

The form of cystitis hæmorrhagica alluded to above has been thoroughly worked up only very recently. It is characterized by small stellate or patchy hemorrhages in the bladder mucous membrane and sometimes by the appearance of small ulcers. There are usually symptoms of mild bladder irritation with the sudden appearance of a mud-colored hematuric urine, accompanied by fever, sore throat, and malaise. In Vienna it seems especially prone to follow influenza, and occurs mostly in the spring of the year. Dr. Blum thinks that the stomach is always affected and that in all probability the etiology has the same general constitutional background as when peptic ulcers are formed in the stomach. This assumption is borne out by the quick response which is made when the medication is directed towards making the urine less acid. He gives dram doses of bicarbonate of sodium thrice daily with urotropin and the entire condition disappears in three or four days. No local treatment is undertaken. This condition is interesting from a diagnostic standpoint in that unless one is familiar with the etiological pathology he may be led into taking a much more serious view of the case.

As regards prostatic enlargement it is divided into three stages. First stage: when there is no residual urine although the subjective symptoms and examination indicate an enlarged middle lobe. The symptoms are an increased desire to urinate, especially at night with possibly a little terminal hematuria. In this stage the middle lobe enlargement is due to a hyperemia of the gland which is the cause of the nocturnal pollutions and erections. Such a prostate is treated by massage and the "cold-sound." The latter is a hollow metal sound, about 18 French, which is divided along its lumen by a horizontal partition and thus admits of a return flow. A rubber tube connects the sound with a reservoir of ice-water and the latter flowing through the upper compartment around the end of the partition and back through the lower compartment. The same idea is sometimes carried out by applying cold water to the prostate through the rectum by means of a short bulbous metal tube which is partitioned and allows for a return flow. The second stage commences when ther is residual urine, the middle lobe of the prostate bulging up into the bladder. This condition is an aggravated first stage and in general is an indication for prostatectomy. In this stage the condition of the gland has passed beyond the stage of hyperemia and there is now hyperplasia. The third stage becomes apparent when the symptoms of retention appear. There is a large amount of residual urine, chronic cystitis, more or less aggravated, and, in the graver cases, "urolsepsis" is present. This latter term has been coined by the urologist to indicate general infection from the bladder upward and has a clinical picture of its own, consisting of marked emaciation, low grade fever, foul tongue, anorexia, debility, and other symptoms indicating an ascending infection. Here the indication is a permanent catheter. Care should be exercised in withdrawing the urine of old men—if there is a large quantity only a comparatively small amount should be withdrawn three times a day. On the first day about 300 c.c. is withdrawn three times. The next day about 400 c.c. at a time and so on until there is no danger of general collapse or from the danger of sudden withdrawal of urinary pressure on the atheromatous arteries of the bladder. Sometimes after complete withdrawal of the urine it is best to inject into the bladder about 200 c.c. of boric acid solution to take the place of the urine withdrawn. Depending on the condition of the bladder the urine may be only withdrawn once a day or twice a week. Prostatectomy is absolutely contraindicated in this stage as it is invariably followed by anuria and renal stasis.

There is a condition of prostatic atrophy which causes a permanent retention of the urine due to the fact that when the prostate atrophies the prostatic urethra is at first pulled into the vertical position and then backwards so that a valve forms at the internal orifice. The condition is relieved by removing the spur (suprapubic cystotomy) that makes the valve. It consists practically of removing the internal sphincter as there is little or no prostatic tissue left. No prostatectomy should be performed without careful functional tests being made beforehand. The indications for prostatectomy are as follows: in general, the second stage is the only stage when prostatectomy is indicated. The more or less specific indications are: (1) When the passage of the catheter causes bleeding or trouble in passing. (2) When the metal catheter has to be used. A patient is never allowed to pass a metal catheter on himself. (3) Social—when the patient has not the intelligence to use a catheter.

Urethroscopy.—This course takes cognizance of all chronic conditions in the anterior and posterior urethra, the latter embracing the prostatic urethra which contains the verum montanum, Cowper's glands and the prostatic follicles. There are two methods of examination: the so-called "dry" method in which simple nickel-plated tubes of different sizes are used, beveled at one end and flanged at the other; and the so-called "wet" or irrigating method which contemplates the use of a magnifying optical system closing the outer end of a tube with a prostatic curve through which water is allowed to flow by means of a small opening in the tube. In this latter method there is a small opening algonside the optical system for the introduction of a slender wire probe or cautery and it is by this means that operations are performed in the posterior urethra and around the margins of the internal orifice. The "dry" method is almost exclusively used for work in the anterior urethra while the "wet" method is rarely used except for posterior work. The illumination in the "dry" method is by means of reflected light at the outer end of the tube whereas in the "wet" method there is a small protected incandescent bulb at the distal opening in the tube. The picture seen in a dry urethroscope is a round field showing more of the upper wall of the urethra than the lower wall on account of the beveling of the tube. Where the walls of the urethra collapse there is a small dimple or depression which is called the central figure. The normal urethra shows a small central depression as the central figure, and leading out from it, like the spokes of a wheel, are small radiating lines (blood-vessels) on a pale background. Whenever the radiating lines cannot be seen the urethra is pathological and also the central figure may be eccentric or distorted into a slit. The glands of the urethra are Morgagni's and Littré's and it is only under pathological conditions that the openings of these glands can be seen. The glands of Morgagni are situated in the upper wall (roof) of the urethra and in inflammatory conditions the orifices are seen as more or less rounded or oval openings the margins of which become swollen and darker red than the surrounding membrane. The glands of Littré are much smaller and are scattered all over the urethra. In inflammatory conditions they are to be seen as fine red points, usually in clusters, the openings being obliterated by the swelling of the mucous membrane. Cowper's glands are two small glands situated just anterior to the prostate.

In chronic urethritis the pathological condition is either what is called soft infiltration or hard infiltration. In both of these pathological varieties the glands are more or less involved although during an acute exacerbation the membrane appears swollen and dark red in color and no glands are seen. Soft infiltration is a condition where there is a very slight increase of connective tissue of the urethra and a slightly swollen and hyperemic condition of the mucous membrane. Here the red lines are obliterated, the membrane is a deep red color and the central figure is eccentric or somewhat distorted. Hard infiltration is a condition in which there is a pronounced increase of connective tissue causing the mucous membrane to become pale, the red lines obliterated and the central figure distorted. This condition is the beginning of stricture, the latter being the extreme of hard infiltration. In soft infiltration, the urethroscopic tube is passed and then slowly withdrawn in a rotary manner and, as already indicated, the areas affected are touched with tincture of iodine or 5 per cent. nitrate of silver on an applicator. If any openings of Morgagni's glands appear they are touched with the point of the actual cautery and the glands of Littré are treated with iodine or silver nitrate. This is repeated about twice a week, the irrigations being prescribed and the sounds passed as previously noted. The appearance of the urine will be an indication as to the success of the treatment. In hard infiltration, besides local treatment to the glands, the urethra is slowly dilated by the passage of daily sounds accompanied by massage along the sound. The condition known as urethritis follicularis sometimes occurs in which there is hard infiltration, slight discharge, and the mouths of the glands are closed up so that small retention cysts or follicles occur. This condition is very chronic and should be treated by passing large sounds and massaging the urethra. The glands are cauterized as indicated and the areas of soft infiltration touched with iodine. When a soft chancre occurs in the urethra the endoscope is introduced (after cocainizing) and the ulcer touched with 50 per cent. nitrate of silver every other day. In the treatment of actual stricture a graduated series of sounds is used and when the desirable size is reached it is passed every day for a month. Then every other day for one month. Then twice a week for one month and once a week for each succeeding month up to usually the twelfth month. A special dilator is not used in this clinic as it is claimed to very often produce a break in the mucous membrane and cause ordinary infiltration. The indications and technique of internal urethrotomy will be discussed under operations.

In posterior urethritis the most usual site of inflammation is the groove between the verumontanum and the internal sphincter. Normally this area is of a flesh-like color with small blood-vessels running in a longitudinal direction. Edema bullosum (like the bladder condition) is not an uncommon form of chronic inflammation in this area (fossa prostaticus). In this and other forms of chronic inflammation of the mucous membrane the treatment is touching with half strength tincture of iodine or 5 per cent. nitrate of silver about once a week. After the inflammatory areas have been located in the posterior urethra by the irrigating method the urethroscope is held firmly in the position over the spot to be treated, the optical system withdrawn allowing the water to escape, the part to be treated is dried by pledgets of cotton passed down the tube on an

applicator and then touched with the half strength iodine or 5 per cent. nitrate of silver.

Very recently the pathology of the verumontanum has been engaging the attention of urologists and whereas the study of the disease of this structure (which is called colliculitis) is only in its infancy, enough has been learned to warrant the recognition of a definite classification of the pathology and certain encouraging lines of treatment. According to the pathological condition present the classification is as follows: (1) Hyperemia (usually without enlargement). (2) Hypertrophy (usually without hyperemia). (3) Papillomata (polyps). (4) Cysts. Any of these conditions may give rise to the symptom complex known as neurasthenia urethritis. The general symptoms of this form of neurasthenia are: pain in the perineum, over the pubes, down the front of the thighs, in the loins, and back of the head. Anorexia, insomnia, and mental depression complete the neurasthenic picture. The special symptoms are impotence, premature ejaculations, pollutions (with tendency to masturbate), and frequent micturition without distinct polyuria. The latter condition has been given the name of pollakiuria. The treatment of this condition depends of course on the findings with the urethroscope, although all local treatment of whatever pathological condition is present is accompanied by massage of the prostate and the daily passage of the "cold-sound." When simple hyperemia is present half strength tincture of iodine or 5 per cent. nitrate of silver is applied once a week. Hypertrophy of the structure calls for touching with the actual cautery once a week. Papillomata and cysts are also touched once a week with the actual cautery until they disappear. Small ulcers are treated in like manner. Should there be any adjacent areas of hard or soft infiltration appropriate treatment should be instituted. Both the "dry" (simple) or the "wet" (irrigating) urethroscope can be used in treating the verumontanum but only the irrigating instrument can be used in treating that part of the urethra posterior to the verumontanum and in the neighborhood of the internal sphincter. The irrigating instrument is the only one to use to form a correct idea of the pathology of the posterior urethra in that the constant flow of water balloons out the part under observation, the illumination is far better, and the optical system slightly magnifies the condition present. The instrument is to be rotated or turned so as to successively view the upper and lateral parts as well as the lower part or floor of the posterior urethra. It is not wise to use as strong solutions in the posterior as in the anterior urethra since strong solutions sometimes cause a violent inflammatory reaction. There is a condition of the internal sphincter which is especially common in women and consists of a more or less inflammatory proliferation of the mucous membrane, sometimes almost resembling polyps. This condition is due to the entention of an inflammation of the posterior urethra and usually gives rise to a distressing frequency of micturition. Cauterization gives good results but the condition is liable to recur. Actual polyps or cysts are to be treated in the same manner.

Genitourinary operations: Prostatectomy by the suprapubic route is universally followed in Vienna. In preparation for this the bladder is washed out and then filled with about 300 c.c. of a 3 per cent. boric acid solution and the catheter is clamped. The incision differs in different clinics. Professor Zuckerkandl uses the horizontal incision always and, if necessary, will partially divide the rectus sheath and muscle. This incision is certainly to be preferred when the tumor to be removed is large or when a good exposure of the interior of the bladder is indicated as in extirpation of large polyps, removal of a carcinoma or repair of a ruptured bladder. The incision in the median line is made in the usual way through the linea alba just above the symphysis and the posterior fascia is carefully incised, avoiding the peritoneum and opening up the prevesical space The upper and anterior surface of the bladder is now looked for, cleared and brought up into the wound with a vulsellum. Three double traction sutures are now introduced into the muscular wall, one on each side of the intended incision and one just above the proposed incision in the bladder. The assistant holds two of these traction sutures and the operator one, making a triangular area under traction and brought up into the wound. At this juncture the clamp is removed from the catheter and the bladder emptied so as not to contaminate the prevesical space with even the least amount of diluted urine when the bladder is opened. The knife is now plunged into the bladder and the opening widened longitudinally. The bladder is now explored and the condition of the prostate ascertained. The two lateral traction sutures may be temporarily attached to the skin to hold the bladder up in the wound. With a good view of the parts and guided by the finger, a pair of scissors incises the mucous membrane crosswise for about an inch on the most prominent part of the middle lobe. The index finger is now introduced into this opening and the prostate shelled out. Hemorrhage is controlled by temporary packing but on occasions, when the bleeding is very severe, I have seen a large pack of iodoform gauze left in the prostatic space, the end being brought out through the wound. In von Frisch's clinic the drainage is a very important feature of the operation and since the adoption of this special drainage there has been no death at the Polyklinik Hospital from this operation. It is accomplished as follows: a piece of rubber tubing about twenty-five inches in length is used and, about ten inches from one end, three fenestra are made one inch apart. The catheter, which is always in the bladder, is pushed further in and the end is secured to the long end of the rubber tube by passing the catheter into the lumen of the tube and then wrapping with silk. The catheter is now withdrawn through the urethra pulling the rubber tubing after it until one of the fenestra lies just inside of the bladder, one over the prostatic space and one in the posterior urethra. The remaining part of the tubing is brought up into the external opening and the bladder closed and anchored to the abdominal wall. Catgut is used and the ends of the first stitch are left long so that they may be passed through the rectus on each side and then tied again, bringing the bladder snugly up to the abdominal wall. The remainder of the bladder wound is now closed (except for the tube) by Lembert sutures into the muscular wall. The bladder is washed out twice a day through the long tube in the bladder and urethra, the fluid and clots escaping through the urethral portion. After five days the dressings are removed and the tube pulled up until the first opening is seen. At this point it is cut off and the tube is then withdrawn by pulling on the urethral end until it occupies its original position. This is left in place as a permanent catheter as long as necessary and the bladder wound allowed to heal.

In the operation of nephrotomy for the removal of stone the kidney is exposed and delivered through

the usual oblique incision. A shallow incision is now made about two inches in length and one centimeter behind the most prominent convexity of the outer border of the kidney. Into this incision a hemostat is introduced and pushed into the pelvis. The hemostat is now opened and slowly withdrawn through the kidney cortex, thus enlarging the opening into the pelvis to such an extent as to admit the index finger for purposes of exploration. In this manner the size and number of the stones is ascertained. The stones are now withdrawn and a small drainage tube introduced into the pelvis of the kidney. The wound in the kidney is now closed with deep matress sutures, one of these sutures passing through the drainage tube to hold it in place. The muscles and skin are brought together in the usual manner, except for the opening for the drainage tube. The latter is left until the catgut suture is absorbed and the tube comes away of itself. Drainage is absolutely necessary as considerable blood always collects in the pelvis after this operation. For the removal of stone lodged in the pelvis the incision in the pelvis is made as high up as possible and slightly behind the concave inferior border. It is closed by a layer of catgut Lembert sutures and no drainage is used. This is the operation of choice if the stone is low down in the pelvis and can be easily secured. Stone in the ureter is exposed on the line of continuation of the oblique incision for exposing the kidney. When located the ureter is incised longitudinally and the stone withdrawn, Lembert catgut sutures closing the wound. In this situation a cigarette drain is used.

In the operation for nephropexy two large single silk sutures are passed deeply through the kidney substance about one inch apart. The two ends on each side are now tied, the knot just reaching the kidney but not compressing it. One end of the inner suture is now threaded through a large needle and the latter passed around the twelfth rib and then tied to the other end of the inner suture. In the same manner one end of the outer suture is threaded and passed through all the muscles of the back and then tied to the other outer suture. The kidney is now secured above to the twelfth rib and posteriorly to the muscles.

The indications for internal urethrotomy are as follows: (1) Whenever gradual dilatation cannot be performed without bleeding. (2) Strictures (resilient) which resist dilatation beyond a certain point (3) Social, when patient cannot come for gradual dilation. In performing this operation a special filiform bougie is passed and is then screwed to a small metal sound having a groove in it through which can be inserted blunt pointed triangular knives of different sizes. The grooved sound is passed down the urethra, being guided through the stricture by the attached bougie. A number 20 knife is usually selected, and when the stricture is reached, it is made to pass through the top wall first and is withdrawn through the same incision. The instrument is now turned a little to the right and made to cut through the lateral wall. It is then turned so as to cut through the left lateral wall and is then withdrawn in the vertical position. The metal instrument is now withdrawn and unscrewed. A long metal guide is screwed on to the bougie and a large stiff catheter is passed over the guide into the bladder. This catheter remains as permanent drainage and dilatation for four days and then gradual dilatation is commenced. When the stricture is situated in the deep urethra an external incision is made and all the scar tissue is removed. The cut ends of the urethra are brought together over a catheter with fine silk sutures and the catheter allowed to remain as permanent bladder drainage until the integrity of the wound in the urethra is assured. Stones in the bladder are moved by crushing when possible and small polyps are snared with the aid of the operating cystoscope. When large polyps are present Zuckerkandl gets a large exposure of the interior of the bladder with the horizontal incision and extirpates the entire mass with attached mucous membrane. Packing with iodoform gauze and suprapubic drainage complete the operation. Carcinoma of the bladder, when operable, is removed by extirpation of the entire affected bladder wall and as much of the surrounding wall as can be spared. The wound in the blader is then brought together in the usual way.

Cystoscopy: The use of the cystoscope is taught in Dr. Blum's course, but there are those who make a specialty of giving private individual instruction along this line, and it is a decided advantage to secure their services in order to see a larger number of cases individually. Dr. Robert Bachrach, who has been Zuckerkandl's assistant for a number of years, gives an excellent course at the Rothschild Hospital. Dr. Hugo Schüller, chief of the orological department of the Franz Joseph Hospital, gives another such course. I found both of these courses very satisfactory indeed, and both of these gentlemen are peculiarly fitted for their line of work, having at their command a rich supply of clinical material. The cystoscopes in general use are the ones with which we are all familiar. The indirect Nitze scope is the one most used in general work and there are quite a number of direct scopes on the market which have their advocates. Lieter & Co., of Vienna, have recently perfected an interchangeable direct, indirect irrigating, catheterizing, and operating scope, all in one, which is proving very satisfactory. They have also just completed a very ingenious posterior urethroscope which will undoubtedly greatly improve the technique in this locality. As regards the diseases for which the cystoscope finds its special use the incidence of tuberculosis of the genitourinary tract is certainly more common in Austro-Hungary than in America. The tubercle is seen in the bladder as a small yellowish spot surrounded by a very narrow zone of red. It first makes its appearance as a distinctly one-sided affection, which in itself is of diagnostic value. It is, of course, secondary to kidney infection of that side and is accompanied by a hyperemic swollen condition of the ureter opening on the side of the affected kidney. To confirm the diagnosis, bacilli must be obtained from the urine sediment. Should the condition appear suspicious and yet no bacilli are recovered from the urine then guinea-pig inoculation is made, and after four to six weeks the characteristic changes are sought for. These consist of the appearance of small swollen lymph nodes in the greater omentum with enlargement of the spleen and possibly the occurrence of tubercles in the latter. If after the examination of two guinea-pigs the findings are negative then the diagnosis is not confirmed. Before removing the affected kidney, functional tests are made and the ureter of the apparently sound kidney is catheterized and tested for bacilli so as to make certain of the integrity of that kidney. From 70 to 80 per cent. of the tuberculous bladders clear up after removal of the infected kidney. For the chronic cystitis of a tuber-

culous bladder the following routine treatment has proved satisfactory: Iodoform, 1 to 2 grams; guaiacol, 1.5 to 3 grams; sweet almond oil, 30 grams. Four or 5 c.c. are injected into the empty bladder every second day. Four or 5 c.c. of a French preparation, oleum gomeral, injected into the empty bladder every other day have given very good results and this method has also been used with very beneficial effect on all other inclosed tuberculous lesions, such as in joints. Silver nitrate is absolutely contraindicated in a tuberculous bladder.

Colon infection of the kidney pelvis is diagnosed by catheterizing both ureters and examining the discharge for colon bacillus. When present the pelvis is irrigated with a 1-2000 silver nitrate solution once a week and in a chronic infection excellent results have been obtained with an autovaccine. In irrigating the pelvis it must be remembered that the normal capacity is only 4 or 5 c.c. The pelvis of the kidney may be filled through a catheter with a 5 per cent. collargol solution and in this way a radiographic picture obtained. In using this there is danger of infiltrating the kidney substance and collapses have been seen. The size of the pelvis may be estimated by injecting fluid slowly into the pelvis until the patient complains of pain. Any larger amount than 5 c.c. will indicate the extent of hydronephrosis. In this way, depending on the location of the pain, a floating kidney may be diagnosed and located.

Carcinoma of the bladder is rather frequently met with, especially among the Hebrews. An ulcerating indurated nodule, rapidly infiltrating, was the type most common and differing from the tuberculous ulcer by the raised character of the diseased area. In this connection the so-called "carcinoma reaction," which Dr. Schüller employed several times in his clinic is very interesting. It is especially applicable to bladder cases in which, on account of pain and hematuria, the cystoscope cannot at once be used.

It consists in treating carcinoma cells with the blood of the suspected patient. Normal human blood will dissolve 50 per cent. of the cells, whereas in a patient who has carcinoma the blood will dissolve but a comparatively small percentage (10 per cent. to 20 per cent.). Dr. Schüller frequently employs small capsules of radium in these bladder cancers with encouraging results. It is held over the ulcer by a specially arranged cystoscope for as long periods as the patient can stand.

As a miscellaneous note enuresis, when it does not respond to internal medication and faridization of the internal sphincter through the rectum is treated by epidural injection of salt solution. The needle is entered in the space between the coccyx and sacrum and when the bone is reached it is directed upward.

Dermatology: In this department the names of Finger, Zumbusch and Ehrmann are world known, while Pick, Kerl and Lier are the leaders among the younger skin men. The skin clinics of Vienna are famous, and justly so, since in no other medical center is there to be found such a vast variety and wealth of material. In would seem that skin diseases, as a whole, and a number of varieties in particular, are much more prevalent in Vienna than any place with which I am familiar. Tuberculous skin affections are frequently seen, and a week's attendance at one or other of the large skin clinics will run the entire gamut of dermatological pathology. The large museum of artificial specimens of Prof. Finger contains exhibits, each of which is indeed a work of art. Once the diagnosis is made the treatments in no wise differ from those found in our own modern skin books. The use of the so-called "glass pressure" method for the quick differentiation of obscure efflorescences from luetic manifestations is largely in vogue. This method is only applicable in the early stages of an eruption and depends for its demonstration upon the fact that all syphilitic skin disturbances are infiltrations, and do not disappear completely when a strip of glass (an ordinary glass slide) is pressed down on the affected part; whereas the other sudden eruptions are only hyperemic in character and disappear totally under glass pressure.

The therapy of syphilis is outlined under three heads: I. Prophylaxis: (a) Active immunization (theoretical) experimenting on monkeys with weakened virus. (b) Passive immunity along the same lines. (c) Virus destruction (calomel ointment, etc.). II. Abortive: Up to the fifth week (salvarsan and mercury). III. Curative: (a) Salvarsan, (b) Mercury, (c) Iodides. Under the head of prophylaxis, (a) active immunization and (b) passive immunization have been taken up along the lines demonstrated by Metchnikoff, but without other than theoretical value. Certain members of the monkey family have been inoculated with syphilis, but there are varying degrees of susceptibility among them. The nearer the approach to man the easier it is to effect an inoculation, as in the case of the chimpanzee. A good many of the lower animals have also been inoculated, such as the rabbit, dog, horse, etc., but only in some peculiar way, as injecting into the eyeball, and in most cases they were only affected locally, although the spirochetes multiplied and produced circumscribed local lesions. It was hoped that by the passage through the lower animals a serum would be developed which would be so modified as to be available for immunizing the human family; but this has not been found to be the case and many experiments have shown that no immunity can be hoped for in this direction. The spirochete, too, taken from the lesions in animals through many generations have been found to be just as potent as regards human infection as before. The prophylactic principle of (c) virus destruction gives much more hopeful results. Calomel ointment (33 per cent.) is regarded as having only a relative value and cannot be relied upon with any degree of certainty. Immediately after intercourse of a suspicious character any abrasions are cauterized with the actual cautery or carbolic acid, and if no abrasions are present, then the calomel ointment is used. As regards the abortive treatment the spirochete should always be demonstrated in every case before this line of treatment is undertaken. The very encouraging results as shown by the Viennese clinical reports may be classified under three general heads as follows: (1) Up to the fifth week, when the spirochete is positive, Wassermann negative and no palpable glandular enlargement, the abortive treatment is successful in 40 per cent. of cases. (2) Up to the fifth week, when the spirochete is positive, Wassermann negative, and only one-sided enlarged inguinal glands, the treatment is successful in 15 per cent. of cases. (3) Up to the sixth or seventh week, when the spirochete is positive, Wassermann negative, and bilateral inguinal involvement, no success has been recorded. At the outset of the abortive treatment the hard chancre is excised and the spot is then touched every day with tincture of iodine. In case the chancre is situated so that it cannot be ex-

cised, it is thoroughly cauterized with carbolic acid. Silver nitrate should not be used as it only cauterizes superficially. After treating the chancre in this manner the first intravenous salvarsan injection is given. Eight days later six weekly injections of salicylate of mercury is started, followed by a second salvarsan injection. A Wassermann is then taken and if negative the chronic intermittent mercury treatment is begun. If Wassermann is positive then a third or fourth salvarsan injection is made and followed by the mercury treatment. By this treatment it can be assured that no rash or glandular involvement will occur and that the Wassermann will remain negative for at least four years; this is as far back as the records with salvarsan go. As regards the curative treatment the Viennese clinician prefers, along with salvarsan, the intramusculr injections of insoluble salts of mercury (salicylate) or the inunctions. Other forms of mercurial medication are practically never used. Sometimes the thymolate of mercury and sometimes calomel is used when patients show an idiosyncrasy for the salicylate. The soluble sats (succinimide and bichloride) are only used when a quick effect is desired to be substituted later by the insoluble salts. The iodides are not regarded as a specific, but they have a quicker effect on tertiary lesions. They are given symptomatically, but do not take the place of mercury. The following prescription may be taken as the standard for intramuscular injections: Mercury salicylates, 3 grams; sterile liquid paraffin, 30 grams. M. Sig. 1 c.c. is injected weekly into the gluteal muscle. Six c.c. are spoken of as a "main cure" and are equal to thirty daily inunctions of about a dram each of blue ointment.

The routine for antisyphilitic treatment is as follows: The first year after infection three "main cures" are given four months apart. Eight days after each "cure" twenty grams of sodium iodide are given in divided doses in water. The second year two "main cures" six months apart are given. The third year two "main cures" are given six months apart, so that in three years there are seven "main cures" given. If during this time there are indications for salvarsan it is to be used. This is called the chronic intermittent mercury treatment. Salvarsan is not given in the beginning as routine treatment in most of the clinics, as it causes the sudden death of a large number of spirochetes and a toxic condition results. The following sums up the Viennese idea of salvarsan medication:

Indications: Abortive, to save life or rapid destruction of tissue, when mercury is refractive, mercurial idiosyncrasy, gumma. Contraindications: Arteriosclerosis, every organic heart affection, nephritis, fever, optic nerve affection, acoustic nerve affection, not given after fifty years of age.

A patient is allowed to marry as follows: Four years after infection, two years without symptoms, seven "main cures." Positive Wassermann does not necessarily forbid marriage. Unless a man has syphilitic lesions which are capable of communicating infection he will not be the father of a syphilitic child, unless the mother has previously been infected. Mucous patches are touched every other day with nitrate of silver stick, or a 50 per cent. solution of bichloride in alcohol. Sores on the skin are treated with "blue plaster," which is also used in congenital syphilis, being placed on the back of a new born child. When psoriasis patches occur on the palms and soles, a 1½ per cent. solution of bichloride in collodion is used and when the entire body is covered a bichloride bath (¼ per cent) is given. The routine treatment of soft chancres is to touch them every other day with concentrated carbolic acid, to powder them with iodoform three times a day and to cover them with iodoform gauze.

General Surgery: As regards general surgery the Viennese technique is in the main the same as ours. The site of operation is rubbed over with benzine, followed by tincture of iodine. The hands and arms, after scrubbing are rinsed off in 70 per cent. alcohol followed by sterile water. Over the rubber gloves the operator and assistant frequently wear ordinary cotton gloves, which are changed several times during an operation. The advantage derived from these cotton gloves would seem to be the prevention of the blood drying and sticking on the rubber gloves and they also admit of the easier handling of intestines and other abdominal organs. Silk is used a great deal more as ligature material than in our clinics. As regards anesthetics, ether and the ACE mixture are universally used. The nitrous-oxide gas-oxygen anesthetic is very seldom used. Local anesthesia is highly developed in a few of the clinics.

A great deal more might be written of the work to be had in every department of medicine and surgery in the University of Vienna, but it would take a considerable time to work up first hand observations and notes of all these clinics. Suffice it to say, that one can spend a very profitable two or three months in Vienna in any professional specialty. One can loaf in Vienna with the same amount of ease as in any other agreeable metropolitan city. In order to get anything out of the work, one must be willing to devote his whole time and energy to the undertaking. A certain few who come to Vienna, ostensibly for purposes of study, never seem to get much further in the work than to pose as a great specialist from their often obscure habitat in America and practically all they get out of their trip is the artificial glamour of having studied in Vienna.

GUMMA OF PROSTATE AND BLADDER.

SIX INTRAVENOUS AND ONE INTRAMUSCULAR INJECTIONS OF SALVARSAN AND TWENTY-SIX INTRAVENOUS INJECTIONS OF NEOSALVARSAN TO PATIENT SIXTY-SIX YEARS OLD.

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This case is of unusual interest to me from several viewpoints, viz., the age of the patient, the disappearance of edema, the disappearance of albumin in the urine, the disappearance of all bladder and prostatic symptoms, and the continued improvement with the steady use of the drug. Medical periodicals have been flooded with papers on salvarsan and neosalvarsan, and it is useless to go into details on the technique of preparation and the administration of either drug. In that regard, all I will say is that I never dissect up the vein, all my injections are done by direct puncture, and in the case here cited, I have often punctured the patient's forearm several times in the attempt to get a vein, he having a very fat forearm and unusually small, obscure veins, but there isn't a scar anywhere to show he has ever had a puncture made.

The following diagnoses had been made on this case: Bright's disease, carcinoma of rectum involv-

ing prostate, senile hypertrophy of prostate, and vesical calculus. When I examined the patient and got his full history, I diagnosed the condition as gumma of the prostate. The following is the history of the case:

F. P.—October 22, 1911. Age 66 years; Scotland; single; steamship captain (retired). Family history: Father died, age 90, senility; mother dead, pneumonia; four sisters, good health; no brothers. Past history: Has never had any illness except syphilis, which he contracted in China, in 1869, while an apprentice aboard ship, since which time he has religiously taken treatment at intervals. He took mercury and potassium iodide three months each year. Donovan's solution, for three years steadily. Present illness: He has suffered more or less from indigestion for the past twenty years. One year ago feet began to swell, and pitted on pressure, his eyes were puffed, and dizziness was a frequent complaint. His headaches were unbearable at times. In 1910 he presented himself to a physician here, who examined him and when such large quantities of albumin were found in urine, all other symptoms were disregarded for a time. A large prostate, bloody urine containing pus, and a constant desire to get up and urinate were the conditions which most worried the patient. Treatment for chronic Bright's disease was at once begun by the attending physician. The patient left the city in April, 1910, and continued the treatment for one year. In April, 1911, he returned and reported to his physician that his condition was practically unchanged; his symptoms were about the same, and he had gotten so he had to use a catheter at night to draw off his urine. He insisted that the attending physician should administer salvarsan because of his syphilitic infection when a boy, believing that all his trouble was due to syphilis. Several surgeons were consulted, all of whom advised prostatectomy, but on account of the large amount of albumin present in the urine, they feared anesthesia. Finally his attending physician complied with his request and administered salvarsan intravenously April 25, 1911, although the urine at that time was loaded with albumin. In a few days the patient left the city. April 30: Patient improved, urinary symptoms improved, as to frequency, urine still loaded with albumin.

On October 22, 1911, the patient presented himself to me for treatment and upon finding such large amount of albumin present in urine I refused to administer salvarsan until his former physician assured me such was the case when the first dose was administered. When he presented himself to me for treatment, examination revealed a large prostate, apparently as large as a hen's egg, indurated and very sensitive on pressure on right lobe; his urine was dark and contained blood, mucus and pus. A small Nitze examining cystoscope was passed into the bladder with the idea of attempting an examination, but this produced such profuse hemorrhage, the examination was discontinued. The Wassermann reaction was faintly positive. An intravenous injection of salvarsan was given October 26, with marked reaction, and in a few days the patient left the city. March 26, 1912, the patient returned for another injection of salvarsan, claiming marked improvement in the symptoms since October. Examination of the prostate by the rectum revealed a mass apparently as large as when examined in October. Uranalysis showed albumin, but in less amount than in October, and no blood or pus; his general condition was somewhat improved. March 26: Another intravenous injection of salvarsan was administered with no reaction. March 27: Urine showed no blood, no pus, but albumin was still present in the same amount. April 2: Wassermann negative. April 12: Urine clearer, but containing mucus and shreds; no blood, no pus; albumin present but not in as large quantity. Urinary symptoms improved; gets up only once at night to pass urine. Digestive symptoms improving. Weight, 169. Intravenous injection of salvarsan, slight reaction. April 14: Patient says he feels better, urinary symptoms about the same, albumin the same. Patient left city. April 23: Patient returned; claims he feels markedly improved, insists on another intravenous injection of salvarsan. Uranalysis: Color, amber; reaction, faintly acid; albumin, present, about as on April 12; sugar, negative. The patient states he gained three pounds since April 12. An intravenous injection of salvarsan administered April 24; slight reaction. Patient left the city April 25. May 3: Patient returned for another intravenous injection of salvarsan. Looking better, appetite improving, sleeping better. Uranalysis shows about the same condition of urine as on April 23. Because of patient's claim of improvement, another intravenous was administered May 4. May 5: Patient left city. May 24: Patient returned, demanding another intravenous injection of salvarsan. Physical condition about the same as when last seen, May 5. Urine about the same but because of his claim of such marvelous improvement in feeling, I was inclined to give him another intravenous of salvarsan.

A consultation was held with Dr. R. H. Von Ezdorf, surgeon in command at the United States Marine Hospital, who was at that time my chief and co-worker with salvarsan. After deliberating we decided we had accomplished all possible from salvarsan intravenously, and we decided to give the patient a dose of salvarsan intramuscularly. This we did, using a neutral solution, diluted to 50 c.c. with physiological sodium chloride solution, 25 c.c. being injected deep into the gluteus on either side. The patient left the city. I did not see him again until June 20, when he returned, and used every unkind word in his vocabularly to me, because of the intense pain produced by the intramuscular injection. He insisted upon another intravenous administration of 606, but this I refused to give him, and instead administered hypodermically into gluteus a solution of mercuric iodide and potassium iodide in sterile cotton seed oil (*Journal of Military Surgeons*, 1910). Twenty drops of this solution were injected in the gluteus twice weekly. I left the city and was absent four months, during which time my assistant, Dr. Padgett, treated the case as outlined by me. In October, 1912, I returned and found the patient religiously following the treatment. During my absence I had seen several physicians of New York, and Dr. Uhle of Philadelphia administer neosalvarsan, and the question of kidney lesion seemed to play no part, so I began to investigate and found that neosalvarsan could be given in cases in which salvarsan was contraindicated. This particular case came to my mind at once, and as soon as I returned I began giving him neosalvarsan. On October 10 the first dose of neosalvarsan was given him intravenously in a dose of 0.9 gram; there was no reaction. October 12: Another intravenous injection of neosalvarsan given, no reaction, patient feeling marked improvement, albuminura markedly decreased in urine. October 18: Another intravenous injection of neosalvarsan was given with no reaction. October 20: Urine shows marked decrease in albumin. Patient gained five pounds since October 10. Urinary symptoms entirely absent. Patient claims he sleeps all night and does not have to get up to urinate. Prostate feels smaller, is not sensitive, and the former trouble at the neck of the bladder and in the rectum is entirely gone. October 23: Another intravenous injection was given, with no reaction. Urine shows less albumin. October 24: Patient claims marked benefit; says he feels better than in fifteen years. October 28: Patient returns for another intravenous. October 29: Patient left city. November 3: Patient returned, requesting another intravenous injection of neosalvarsan. Uranalysis showed a trace of albumin. Patient claims he sleeps from 8 P. M. to 6 A. M., without having to rise. Prostate shows marked decrease in size, appetite good, digestion good. November 4: Another intravenous injection of neosalvarsan was given. November 6: Patient left city. November 30: Patient returned, claiming a wonderful change for the better; says he feels as well as ever in his life. Has gained twelve pounds since taking the first dose of neosalvarsan. Insists on taking double dose. This was refused; but another intravenous injection of neosalvarsan was administered. Patient left city December 1. December 10: Patient returned feeling perfectly well, urine shows trace of albumin. He is enthusiastic over neosalvarsan, and wants to remain in the city one week, and take an intravenous injection every day. This request was refused, but another intravenous injection was administered December 10. December 11: The patient left the city. December 14: He returned and another intravenous injection of neosalvarsan was given. Urine shows just the faintest trace of albumin. The prostate is the same as when previously examined. No discomfort from urinary symptoms. Patient sleeps well all night without rising. Neosalvarsan administered December 19 intravenously. January 12: Patient returned for another dose. Urine shows a mere trace of albumin. Prostate shows a decrease in size. Appetite good, gained four pounds, sleeps all night, claims eyesight is improving with each dose. January 12: Another 0.9 gram dose was administered intravenously. January 13: Patient left the city again. January 17: He returned. His urine shows no albumin, and he sleeps well, his appetite is good, he urinates normally only three times daily, and not after going to sleep. January 17: Another 0.9 gram dose was given intravenously. The patient was not seen again until February 26. Feeling perfectly well, he says. March 10: Another in-

travenous injection was administered. Next seen June 25, when the Wassermann reaction was negative. July 6: Feeling fine, examination of prostate shows a gland about one-third larger than normal. No urinary disorder. Urine shows no trace of albumin; the urine is clear, amber color, and normal in quantity. Specific gravity 10.10. Acid reaction. The patient states he feels young again, and to use his expression: "I will live to be a hundred and still be young if you will keep shooting that into me." July 6: Another 0.9 gram dose was administered intravenously. July 7: Another 0.9 gram dose was administered intravenously. July 10: Patient declares he feels better than since he was sixteen years old. Prostate same as at last examination. Urine shows no albumin. Appetite good. July 13: Neosalvarsan 0.9 gram administered intravenously. July 16: Neosalvarsan 0.9 gram administered intravenously. July 16: Urine: color, amber; odor, urinous; reaction, acid; albumin, negative; sugar, negative. The patient sleeps from eight o'clock at night until six the next morning; his appetite is good, he feels as well as ever, and looks better than in fifteen years; his weight is 188. The prostate is not sensitive to pressure, and only one-third the size when first examined. July 30: Intravenous 0.9 gram neosalvarsan. Left city night of July 30. Returned August 10. Another 0.9 gram neosalvarsan intravenously. Left city night August 10. August 15 another 0.9 neosalvarsan was given intravenously. August 16 left city. August 30: Urine, clear amber, no trace albumin, no sugar; few hyaline casts. Specific gravity, 1016. Reaction acid. Weight of patient, 190 pounds; feeling like a young man; claims he has erections of penis, first time in six years; eyesight improved. Left city August 30; October 5 returned; another 0.9 gram neosalvarsan intravenously. Left city night of October 5. October 10, 0.9 gram neosalvarsan intravenously. Left city night of October 10. October 19, 0.9 gram neosalvarsan intravenously. October 20, patient feels better and insists on another dose. October 22, 0.9 gram neosalvarsan intravenously.

From every source I expect to receive the most severe criticism for the continuous use of an arsenical preparation, because so much has been written on the dangers of salvarsan and neosalvarsan that to-day there are those who are so skeptical they even refuse to administer the drugs. I have read numerous reports of deaths from the use of salvarsan and neosalvarsan, and I am of the opinion that the blame should not be charged to the drugs, but to the faulty technique in their administration or their use in cases in which they were contraindicated. This opinion is based upon my experience with six hundred (600) administrations of salvarsan, and eight hundred (800) administrations of neosalvarsan, with not a single death nor even any ill after-effects.

Knowing as I do, the wonderful benefits derived from the use of these drugs by the case here reported, who for a period of more than two years, has shown steady improvement and not one symptom of chronic arsenic poisoning, I am forced to the belief that I should have been derelict in my duty had I denied this old man the comfort, joy, and pleasure he now experiences in life as the result of the repeated use of these drugs. It must be remembered that for a period of fifteen years previous to the use of these drugs his life was a torture, from loss of sleep, indigestion, pain in bladder, etc., and now he sleeps like a child all night, digestion good, has no pain. This alone is justification enough.

The disappearance of albumin in this case, and the disappearance of edema, leads me to think that in addition to the involvement of the prostate there was considerable damage going on in the kidney due to syphilis. In the June number of the *American Journal of Urology* there is found the following abstract, "Damask (*Wiener med. Wchnschr.*, No. 39, 1912) reports the case of a man of 34, in whom evidences of a chronic parenchymatous nephritis set in 11 years after the acquisition of specific disease. As the Wassermann reaction gave a positive result both in the blood serum and in the globulin fraction of the urine, mixed treatment was instituted with very good results. The casts disappeared completely from the urine, the albumin, and red blood cells almost entirely, and the subjective condition of the patient was markedly improved."

Conclusions.—(1) Neosalvarsan should be given in larger doses and should be given at shorter intervals covering a period of at least one year in all cases of tertiary syphilis. (2) In cases of gummata neosalvarsan, alternated with mercury hypodermically, should be given for a period of not less than one year; the neosalvarsan should be given where it is possible to do so not later than seven days apart. (3) The negative Wassermann reaction should not prevent the continuation of treatment in cases in which benefit is noted by its continuation. (4) In cases of gummata, often the Wassermann reaction may be faintly positive or negative, when the lesion is of a serious nature and demands prolonged and consistent treatment.

PARTIAL FACIAL PARALYSIS DUE TO TRAUMATISM.

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It is patent that the facial nerve can be injured in any part of its course, either by disease or trauma. The cases to be described are conditions in which there is paralysis of the smaller branches of the facial nerve which ramify over the various parts of the face, as they branch out from the pes anserinus for final distribution to the superficial musculature of the face. No doubt similar cases have been observed, but as far as I have been able to ascertain, they have not been described; so from considerations of interest as well as for practical purposes, they are now placed on record. It is doubtful if these forms of palsy are at all common, for of one variety there was but one case, and of the other form there were four cases. As these five cases were taken from very active services, and are part of a very comprehensive collection of lesions of the seventh nerve, it can readily be seen that they belong to the rarer class of affections of that nerve.

Case I.—A female patient of Dr. D. Linetsky, aged 29 years, had tripped and fallen down a flight of stairs and struck against the projection of one of the steps near the bottom. She was able to rise without assistance and go home. At no time was there any loss of consciousness, and there was no bleeding from the mouth, nose, or ears. There was a contusion over the bridge of the nose, with discoloration that spread from here to both sides of the face extending as far over as the malar eminences, and upwards to the lower eyelids. The alarming feature to be seen was an apparent paralysis of a portion of the lower part of the left side of the face. At no time was there any nausea or vomiting, or any visual disturbance, or any trouble with the trunk or extremities. The patient was alarmed, and apprehensive, fearing that she was seriously injured. Examination showed that the paralysis was limited to the face; this, on further analysis, revealed that the palsy was limited to the left ala of the nose, and part of the left side of the upper lip. This demonstrated itself as follows: the outlines of the left ala of the nose were less distinct than those of its fellow, its depressions being shallower than on the opposite side; it also hung at a slightly lower level than the other ala. The upper lip was slightly deviated to the right, so that the infranasal folds pointed from above, downwards, and to the right. On attempting to expose her teeth by everting the lips, it was demonstrated that the upper row of teeth on the left side remained covered by the drooping of the upper lip of that

side with the exception of the central incisor, which was exposed by the upward pull of the lip of the other side. The lower row of teeth was equally exposed on both sides. The musculature of the forehead and eyes showed the same amount of functional ability on both sides, and the lower lip was drawn down and to either side with the same facility. The tongue and uvula remained in the median line both actively and passively.

The question which presented itself in the study of this case was—were we dealing with a central or a peripheral condition, as the whole management of the case depended on whether it was one or the other. Since there were none of the constitutional symptoms above noted, and no disturbance of the extrinsic or intrinsic muscles of the eyes, as well as no aural or vestibular symptoms, it was evident that the cranium and its contents had escaped injury. As only a portion of the facial musculature showed loss of function, one could rule out dehiscence of the facial nerve before its subdivision into its smaller branches. Evidently, the individual twig that supplied the muscles of the ala of the nose, and of the upper lip was damaged. The lip muscles involved were the levator labii superioris et alæque nasi, and the levator labii superioris. I am inclined to place the levator anguli oris among those that were palsied, as the nasolabial ridge was perceptibly flatter than that of the other side. That the angle of the mouth was properly placed, is due to the zygomatic muscles which perform this function. The nasal muscles involved were the intrinsic muscles of the left ala of the nose. In searching for the site of injury of the nerve, I was able to feel that the inferior border of the zygomatic arch was indented below the malar eminence, at which point it was also tender to touch and pressure. There was no other point of bone injury. Apparently, the patient had struck the malar arch as well as the nose in her descent down the stairs, and on this side had crushed the branch of the facial in this situation between the hard stairs, and the bone against which it lay, with resulting palsy of the muscles which it supplied. Considering the nature of the accident and the fact that the patient showed a partial facial palsy which would lead one to think of a possible cerebral origin of such a condition, it was natural enough to fear that the ecchymosis about the eyes was an anomolous form of, or equivalent to, a subjunctival ecchymosis, which would point to a basilar fracture. And it was only by the strict delimitation of the muscles involved, showing them to be a nerve grouping of muscles, and not a cortical action group, and by the identification of the location of trauma, that enabled the differentiation of the nerve palsy to be made with assurance.

As this was a case of accidental trauma, it was important to diagnosticate the condition from a prognostic viewpoint for medicolegal purposes. Necessarily, the case assumed a much milder aspect when considered as a local condition. This being the first case of the kind that had come to my notice, and being able to find only one case described that was somewhat similar to it, it is interesting to note that the examining physician of the liability company asserted that these particular cases were not at all uncommon, and also that they were easily cured. It is common knowledge that neuritis secondary to trauma in time becomes an interstitial neuritis, which will always interfere with the regeneration of a certain number of axons. This in a limb with its large muscles is hardly noticed, and quite negligible, but on the face, where the muscles are very small, any weakness from whatever cause will show itself through a facial asymmetry.

The case spoken of above as similar to this, reported by L. Minor* of Moscow, was in a severely injured man, who among other injuries, had a compound fracture of the right zygomatic process, with paralysis of the frontalis, orbicularis palpebrarum, and the zygomatici besides the muscles involved in my case, a much more extensive neural injury which was escaped by the injury occurring a fraction of an inch in front of the location in Minor's case. Dr. Linetsky reported two months later that the case was in a condition of complete palsy, and that the muscles had not yet regained their faradic irritability.

One of the reasons why I did not lay much stress on the electrical reactions was the fear that I entertained at the time that the woman would develop a neurosis, which would be helped in its development by too much apparent attention, the patient being of a neurotic type, and appearing anemic and generally below par physically, besides being in a receptive state of mind from a psychiatric standpoint on account of her claiming damages for alleged negligence. Hence the case, though not serious in the final analysis, was likely to be troublesome and in all probability would never be completely cured.

Of the other variety of cases to be described in this communication there are four. They are all taken from my Beth Israel Hospital Dispensary service. They all showed a paralysis of the muscles of the lower lip, which are supplied by the supramaxillary or mandibular nerve, a branch of the cervicofacial division of the facial nerve. They all followed the opening of a submaxillary abscess. There had been no palsy or defect before the surgical procedure. In passing it might as well be noted that none of the cases had been operated upon in the institution from which these cases are collated.

The affection showed itself by a slight drooping of the median portion of the lower lip on the injured side. The angle of the mouth on the side of the palsy does not droop but is usually drawn up to a higher level than the sound side by the unopposed pull of the zygomatici whose antagonists are paralyzed. Any action of the oral musculature gives asymmetry to the mouth on account of the loss of action of the muscles of one side of the lower lip with the mental muscles of the same side. The lip on the palsied side cannot be everted, in consequence of which the lower row of teeth on that side cannot all be voluntarily exposed, except the central incisor which is brought to view by the downward pull of the opposite lip. There is no interference with the management of food in the mouth, as also there is no dribbling of saliva, as the rest of the buccal musculature seems to be well able to overcome the defect of the muscles in abeyance for this purpose. The cases show a reaction of degeneration with the galvanic current, and do not react to faradism.

The course of the trouble is chronic, with no tendency to regeneration in spite of most painstaking measures at the command of the neurologist. It seems that the nerve is cut when the abcess is opened, and the ends become lost in the connective tissue formed in the healing of the abscess, and are thus kept from uniting. The nerves involved being very small, I feel that it would be very difficult to dissect them out, and possibly more damage might be done in such a small operative field. That being the case, the ends cannot be searched for and sutured, or freed from their connective tissue entanglements so that they might grow towards each other and unite, or regenerate, as would have to be the case after so long a severance. The surgeons with whom I have discussed the cases are dubious of any one being able to find the situation of the hiatus in the nerve twig in such a complicated pathological environment.

*Minor, L.: Über Unfallslähmungen des N. Facialis. *Mon. für Unfallheilkunde und Invalidenwesen.* Vol. XII, 1905, page 267. The case is No. 2 on page 269.

The instructive feature of the four cases of mandibular nerve palsy is that they occurred after surgical measures were instituted for the relief of submaxillary abscess, which is situated in front of the angle of the jaw, and that the affection seems to have been due to some part of the surgical procedure. To me it seems that the cases are comparatively few considering the frequency of submaxillary abscess, and also the proximity of the nerve under consideration to the superficial lymphatics in front of the angle of the jaw, and beneath it. When one considers how the anatomical relations must be distorted by the swelling of the abscess, it speaks well for the care that is undoubtedly exercised in opening these cases. But in showing these cases to my colleagues, I have repeatedly shown how easy it is to pull the scar from the lower border of the jaw upward on to the face. So I would recommend that when such an abscess is to be opened, the surgeon should retract the skin of the face from over the lower jaw upwards, so as to pull the skin from the abscess upwards over the lower part of the face. With the skin still being held in this position, the abscess is to be opened. As the nerve is situated very superficially, it is readily seen that the mandibular nerve will thus be out of harm's way and escape the knife or curette. Besides, this will give a less conspicuous scar, as it will be well tucked up under the margin of the jaw.

Though, as already mentioned, this palsy is not of serious import, still it shows a defect on the most prominent part of the body—the face. This is particularly unfortunate in girls. The cases that came under observation were all girls. No doubt, cases occur in boys, but a small defect which causes no worry if it occurs in a boy, seems a serious matter in the case of a girl, who the parents believe depends so much on her looks and appearance. There is also the possibility that a defect of this nature may interfere with the means of earning a livelihood. For example, in my series of refrigeratory facial palsy, there was a musician who was a wind instrument player. Though he was apparently cured of his facial condition, he was unable to play the high notes for a very long time on account of the slight weakness of the lower lip muscles which allowed the wind to escape through the corners of the mouth. Also, I have no doubt that the condition might be a cause for action if the patient falls into the hands of a certain class of lawyers.

In the discussion of these cases one cannot but reflect that though the discussion of the great problems of medicine may be most interesting, still the greatest worries of the practitioner are the small details which present themselves in the management of every individual patient. Most physicians are pestered and worried by what are seemingly the most inconsequential of things, but being uncommon, are quite confounding. Thus the last four cases are regarded as bad results of very mild conditions, and I have no doubt but that the gentlemen who treated them had considerable annoyance from them on account of the persistence of the deformity. The first case had many possibilities of error, which were happily avoided, though the patient looked to be in a very serious state with her disfigurement. To me, personally, all of the cases were very instructive for they gave the opportunity of pointing a guiding finger for the benefit of the practitioner and surgeon.

1326 Madison Avenue.

TUBERCULOSIS, AND THE VON PIRQUET TEST IN CHILDREN.

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Early in 1907 von Pirquet published his now famous method of diagnosing the presence of tuberculous infections. This has since been so abundantly proven to be specific for that disease, that that phase of it might well be dismissed with bare mention.*

This being an established fact the question is only of the scientific interpretation of results, which for clearness of presentation may be subdivided under three headings: (1) Those in which the test is negative because of the total absence of tuberculosis infection. (2) Those in which the test is negative even in the presence of tuberculosis. (3) Those in which it is positive, which may further be subdivided into (*a*) when the same is of clinical importance and (*b*) when it is not.

Now to take up these subdivisions a little in detail:

1. Those in which the test is negative because of the total absence of tuberculosis infection. These speak for themselves. It remains only to point out under what class of cases one is apt to come across these fortunate ones. Briefly stated it may be said without any fear of contradiction that all children except medical curiosities are born free from tuberculosis, at which time they are therefore negative to the von Pirquet test. From their birthday and on the number of those reacting positively rises, so that by the time they reach puberty, the vast majority of them (in cities anyway) have received enough tuberculosis infection to react positively to the test. And by the time adult life is reached practically everybody reacts positively.

It will thus be seen that the younger the child the less likely is it to be tuberculous and equally less likely is the von Pirquet test to be positive.

2. Those in which the test is negative even in the presence of tuberculosis. First in line are those who are too ill with tuberculosis to react; such as the various forms of acute miliary tuberculosis, meningeal or general, very acute cases of pulmonary tuberculosis, cachectic children with extensive tuberculosis of the bones and joints, such as Pott's disease with psoas abcess, or severe forms of tuberculous hip and knee disease. Included are also those with moderate tuberculous infections, who would otherwise react but who are suffering from various intercurrent acute infections, such as lobar pneumonia, typhoid fever, rheumatic, malarial, and like fevers, also epidemic cerebrospinal meningitis, etc.; the various acute intestinal diseases, common to children, that are accompanied by fever; certain extensive skin diseases, and particularly the exanthematous fevers, during the occurence of all of which the von Pirquet test may be negative in the tuberculous, until full convalescence of the intercurrent disease has been established, and provided the underlying tuberculous infection has not flared up in the meantime. Lastly, the von Pirquet test will be negative in all those tuberculous children who are undergoing or have recently completed successful treatment with tuberculin, in the course of which there has necessarily been established an active immunity to tuberculin.

* Shalet, L.: A Simple Method of Applying the Von Pirquet test. *Journal A. M. A.*, July 5, 1913, pp 27.

3. Those in whom the test does react positively may be subdivided into (*a*) when the same is of clinical importance, and (*b*) when it is not. One who has ever had the least tuberculosis in him, has been for all time sensitized to tuberculin, so that he will ever after react positively to the von Pirquet test. This practically applies to all adults. In children the test is of utmost clinical importance in those who do not react to it, which proves that the case so far harbors no tuberculous infection. When the test is positive it merely means that the case has joined the great majority, as one might style all who react positively to this test. While a positive reaction is always present in those with active tuberculosis requiring treatment, it is found just as often in those who have only enough tuberculosis to react positively with this most sensitive of biological tests but not enough to be of any clinical importance.

Again I would call attention to the vast amount of incontestable data, proving the certainty with which tuberculosis may be excluded in those children who do not react to the von Pirquet test. A persistent negative von Pirquet in a child (excepting those in class No. 2) just as surely excludes the diagnosis of tuberculosis as a positive sputum confirms it; all else being equal one is just as specific as the other.

Summary.—The writer has come across not a few cases in children who have been definitely diagnosed tuberculous on the presence of a few physical signs in the lungs accompanied by some temporary fever so common in children. On the strength of which diagnosis these children have been sent away to some of the public sanatoria (to the exclusion of the really tuberculous who need them the most and for whom alone these should be reserved) where they remained for a variable length of time, usually about six months. On their return the von Pirquet test done as a routine measure is found to be negative, thus proving that so far they had as yet no tuberculosis infection in them, and that whatever the pulmonary physical signs were when they were first diagnosed these could not have been tuberculous in nature, else the test when applied later would have been positive. Some of the children so diagnosed who have not been sent away to sanatoria for lack of room or for other reasons and who have therefore been compelled to remain in the city sometimes for as much as two years or more, and who have since had the von Pirquet test applied have also been found negative, thus proving the total absence of tuberculous infection. It is interesting to note that the clinical history of these little patients during these two years and more belies the diagnosis of tuberculosis, as they showed a normal progress in weight increase, absence of fever and of the other common symptoms of tuberculosis in children.

Conclusions.—In view of the above statements of fact and of the great importance of properly diagnosing tuberculosis in children, and the scientific advisability of removing the same as much as possible from the domain of personal opinion to that of biological fact it is herewith suggested that a rule be laid down that no ambulant case of possible tuberculosis occurring in children under sixteen years of age, be diagnosed as such unless the same reacts positively to the von Pirquet test.

16 East Eighty-seventh Street.

A CASE OF PNEUMOCOCCUS SEPTICEMIA.

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This case is reported on account of the similarity in its symptomatology in the first stage to other diseases and on account of the much-ignored necessity of taking blood cultures early in diseases characterized by "fever." The history is as follows:

Florence H., Canadian, four years old, was in St. Francis Hospital from February 7 to April 4, 1912. Family history: Father and mother are living and well, the patient being their only child. Previous history: She had whooping cough at one and measles at two years of age. Otherwise she was never sick. Status præsens: February 7, 1912, she was taken with severe cramps in the right hypogastric region. The temperature was 103° F., the pulse 112, and the respiration about 40. The family physician advised an operation for appendicitis. The leucocyte count made in the hospital, February 8, 1912, was 16,200. There were no malaria parasites present. The urine was muddy, acid, of a specific gravity of 1020, contained no albumin, no sugar, no microorganisms, many urates, and a few mucous threads. The patient appeared to be very sick. A laparotomy was performed. The appendix was found to be normal and was not removed. A blood-culture taken by the house surgeon the day of the operation and examined by me the next day was negative. February 9, 1912.—The chest seemed normal as to shape and size. The supraclavicular fossæ were rather prominent. The expansion was good. The heart appeared normal as to size and impulse. No murmurs

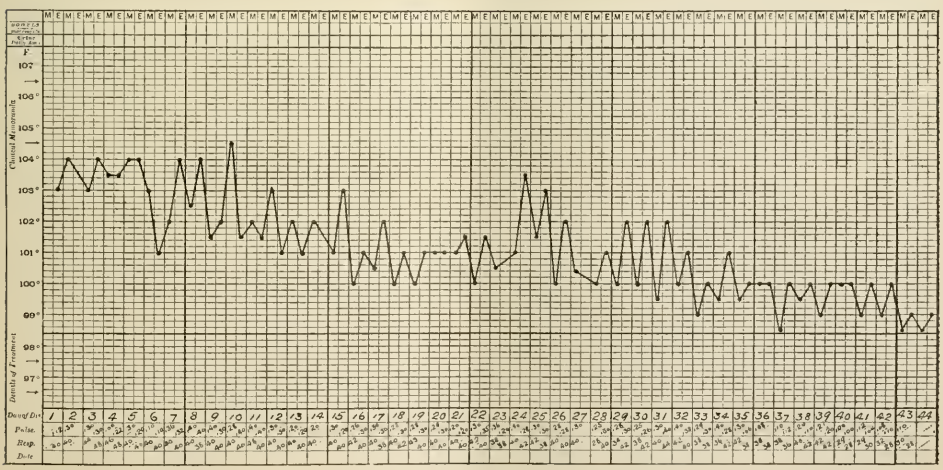


Chart in a case of pneumococcus septicemia

were present. The pulse was rapid and weak. There were a few moist rales anteriorly and posteriorly over both lungs, which were attributed to the ether used during the operation. On percussion a small area of slight dullness was found in the region of the lower lobe of the left lung, just above the spleen. At this place a paracentesis of the thorax for empyema was performed with a negative result. The abdomen was too tender for an examination. The limbs were normal as to shape, size, and reflexes. The feces were yellowish, hard, and of an offensive odor. Typhoid fever was now suspected and the patient was transferred to the medical division. The Widal reaction for *B. typhosus* was negative. Physical examination by the medical staff: The patient is nervous and very irritable. Eyes and ears are normal, mouth and lips dry and pale. The tongue is markedly coated and the breath offensive. The teeth are in a poor condition, the mucous membrane of mouth and throat is markedly inflamed. The tonsils are enlarged and inflamed, but there is no false membrane present. The patient complains of pain on swallowing. Diphtheria was suspected, but a throat-culture was negative for *B. diphtheriæ*. February 10, 1912.—The moist râles heard at the last examination have now disappeared. A faint, dull area about the size of a dollar is made out at the base of the left lung posteriorly over an area where the aspirating needle was inserted. No râles are heard at all over both lungs. The child is still very sick, the temperature high, the pulse rapid and weak. A diagnosis has not yet been made. February 13, 1912.—A blood-culture was made by the author, 5 c.c. of blood drawn from the median basilic vein being squirted into 100 c.c. of Bolduan's medium (1 per cent. glucose, 1 per cent. calcium carbonate, meat infusion broth). February 14, 1912.—Next day a micrococcus in a pure and luxuriant growth was found in the culture. It was lance shaped, single, in pairs, and in short chains; it stained Gram positive and had a capsule (Hiss' capsule stain). In later tests it was dissolved by rabbit's bile (1 c.c. of a 24-hour growth of the micrococcus in bouillon plus 1 drop of rabbit's bile gave a clear solution) and suspensions of it from 24-hour glucose-agar cultures in normal saline solution were agglutinated by the serum of pneumonia patients and by the serum of a rabbit immunized against the pneumococcus. The reaction took place in dilutions of the serum of 1:80, 100, and 320. From the morphology of the organism alone a diagnosis of pneumococcus septicemia was ventured and the later tests described abve confirmed it. A physical examination by the author revealed lobar pneumonia at the left side in the state of resolution. February 25, 1912.—Improving. Temperature and pulse better. Left lower lobe still shows a few crepitant râles. The patient eventually recovered.

What was the reason that the first blood culture was negative?

The condition in man is probably the same as in laboratory animals and may be explained as follows: The pneumococci which had invaded the body of the child were much reduced in number by the protective action of the body tissues and were absent in the peripheral circulation when the first blood culture was taken. After the initial decrease in their number the pneumococci multiplied and appeared again in the peripheral circulation.* The proper thing would have been to make a second blood culture at an earlier date, say about two days later.

The case teaches: (1) The necessity of making daily examinations of the lungs in a child complaining of pain in the abdomen. (2) The necessity of studying the ratio of respiration and pulse. (3) That lobar pneumonia is to be regarded as a generalized infection, a septicemia, with a localized process of acute inflammation in the lung. (4) That early and, if necessary, several blood cultures be made in diseases characterized by fever when their diagnosis is difficult and without blood cultures impossible.

1070 Tiffany Street.

*See Rueck, G. A.: "A Study of the Bacteriemia in Pneumococcus Infection of the Rabbit."—Medical Record, October 11, 1913.

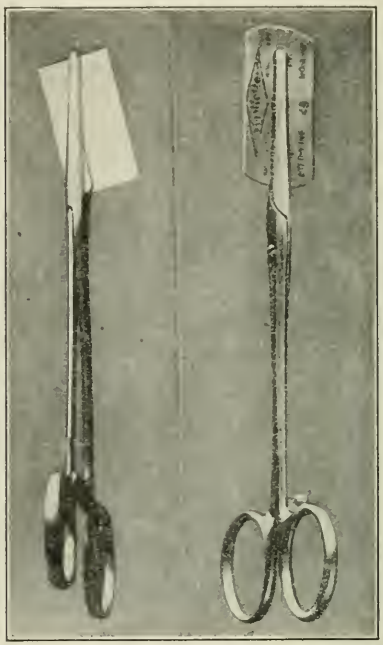
A HEMOSTAT AS A SAFETY BLADE HOLDER.

By A. MERRILL MILLER, M.D.,

DANVILLE, ILL.

Since the introduction, two or three years ago, of the safety razor blade into surgical use many appliances have been produced to serve as holders. These are open to the primary objection of cost, besides most of them have three or more parts.

Recently I was confronted with the necessity of a holder and found it missing. No scalpels were included with instruments since the safety blade had taken their place. The solution of the immediate problem was the use of an ordinary Kocher



6-inch mouse-toothed artery forceps. The 6-inch forceps seems best adapted because of a slight degree of spring action in the blades. The teeth occlude in the distal opening of a Gillette blade. Others—Gem, Jr., Ever Ready, United States, etc.—may be held with equal facility.

A straight or angle edge (see cut) may be secured by the handle adjustment. The forceps is easily held as a scalpel, the ring giving support for the little finger.

The following points may be presented in its favor: (1) Simplicity, (2) no additional expense, (3) the double use of a common instrument, (4) two cutting edges when a Gillette is used, (5) any safety blade serves as a cutting instrument.

508 The Temple.

The Salomon-Saxl Reaction in Cancer.—Luigi Marenduzzo investigated the diagnostic value of this reaction which consists in the excess of neutral sulphates in the urine of cancer patients. He found that this reaction is present in many cases of cancer, but that it is not specific, and is found even in healthy individuals.—*La Riforma Medica.*

A NEW KIDNEY CUSHION.

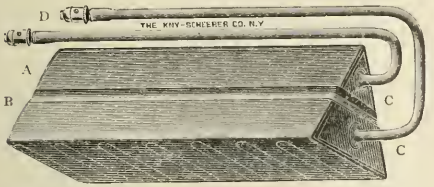
A TWO COMPARTMENT AIR CUSHION DESIGNED PARTICULARLY FOR USE IN KIDNEY, UPPER ABDOMINAL, AND NECK OPERATIONS.

By WESLEY GROVE VINCENT, M.D.,

NEW YORK.

INSTRUCTOR IN SURGERY, N. Y. POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

The Edebohls cylindrical kidney cushion always had two great faults: (1) a tendency to slip out sidewise, and (2) the fact that it could not be used fully inflated except with patients of approximately normal abdominal contour, hence the pressure on the abdomen was diffuse instead of being directed at the definite point desired. The patient was always insecurely balanced over this type of kidney cushion, and often it had to be readjusted one or more times during the progress of an operation. This, besides being time consuming and unpleasant for the operator, was a distinct menace to the sterility of the operative field. To obviate the tendency to lateral slipping someone devised a triangular cushion. This worked admirably when the cushion could be nearly or quite fully inflated, otherwise the objections made above to the cylindrical applied to the triangular cushion. As assistant to Dr. Edebohls and in his own kidney operations the writer experienced these inconveniences times innumerable and finally conceived the idea of utilizing the tri-



Vincent's Kidney Cushion. A, upper compartment; B, lower compartment; C. C, rubber tubes for inflation of each compartment separately; D, bicycle-type valves

angular shape but dividing the cushion horizontally into two compartments, an upper and a lower, each independent of the other as regards inflation. Also it seemed best to make the inflation tubes about 30 inches long and equipped with a bicycle-type valve so that whenever desired the degree of inflation could be increased or decreased in either or both compartments by a nurse at a safe distance from the operative field.

Theoretically the making of such a cushion was simple but practically much difficulty was experienced in forcing the upper horizontal dividing sheet to remain level when one compartment only was distended and there was also difficulty in preventing the bottom from rounding when the lower compartment was strongly inflated. The writer's thanks are due to the Kny-Scheerer Company for working out the necessary details of construction; proper stiffening materials in the bottom piece and a complicated series of ties leading from the horizontal dividing sheet upward and downward finally giving a cushion equally stable whether the upper, lower, or both compartments are inflated. The base of the cushion is 20 x 8½ inches and when both compartments are fully inflated the cushion measures 7½ inches vertically (base to apex of triangle). The horizontal division into two chambers is at a point somewhat above the center of this vertical line.

We thus get (1) a very high, sharp-angled cushion for use in kidney work when the patient is in the lateral position (for Kelly or Mayo incisions); (2) with nearly or quite complete inflation of the lower compartment we have a sufficiently high cushion with narrow, nearly flat top suitable for nephropexies or other kidney operations with patient in prone position. In these cases if the upper compartment also be *slightly* inflated the corners pout up at each side and the patient is held absolutely securely. If the peritoneum be opened intentionally or otherwise, its closure is difficult while the patient rests upon a cushion. With this cushion the air can be let out by a nurse at a safe distance from the field and a bicycle pump may be used to reinflate after peritoneal closure, the patient and sterile operative field not having to be disturbed. (3) Occasionally the small upper compartment may give all the elevation necessary, while combinations of the two sections will give any desired degree of elevation up to 7½ inches. The writer has found his cushion a great improvement over sand bags in upper abdominal cases (particularly in gall bladder surgery) and in neck cases (thyroid, tonsils, cervical adenitis, etc.); while in general work, with the patient in dorsal position and under general anesthesia, if the large compartment be partially inflated and placed under the lumbar curve of the spine patients do not suffer from the annoying post-operative pain in the back due to stretching of ligaments and other tissues incident to prolonged dorsal decubitus on a hard, level table.

The writer's cushion was perfected in 1908 and has been in use continuously by him and many others since then. It has stood the test of time and its advantages over sand bags and all other types of air inflated cushions have been completely demonstrated.

The cushion has been more than satisfactory to all who have used it during the past five years and the writer feels that the time is ripe to present it to the profession at large.

498 West End Avenue.

The Sleeping Sickness in Uganda.—Since the disastrous results of the use of atoxyl in this affection, the question of substitute procedures, old or new, becomes of much interest. Schilling gives the results of his recent study on this subject. At Entrebbe there had been no deaths for 18 months. The inhabitants, intelligent people, have carried out all the prophylactic measures submitted to them. In other localities, however, much sleeping sickness still prevails despite the haste with which the populace is being removed from infected regions. All houses, boats, etc., in the latter are at once burned. Deforestation is practised to a certain degree, although large trees are not molested. The river banks are sown with citronella grass, yet this is proving an obstruction to agriculture and is besides of questionable value. The papyrus plant which grows in damp, marshy soil is doubtless superior. The glossinæ are not found where it grows. All "carriers" of sleeping sickness residues are sterilized when they are known by the ordinary medical treatment, but this is a resource of minor extent. A lady named Robertson has done excellent research work on the native apes and has found trypanosomes in the circulating blood. Much work remains to be done in this field. What trypanosomes are parasites and what flies are hosts, is still undecided. Attempts are naturally being made in the direction of a specific serotherapy of the disease in man, but as yet without success.—*Deutsche medizinische Wochenschrift.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, December 6, 1913.

EUGENIC LEGISLATION.

As illustrating what he considers the dangerous tendencies of laws authorizing the sterilization of the unfit, Charles A. Boston, of the New York Bar, has parodied the existing laws in the form of an imaginary statute as follows: *"Whereas,* inordinate individual wealth is damaging to society, and undesirable civic tendencies are transmissible by heredity, it is hereby enacted that each association for the improvement of the poor shall call in two philosophic anarchists and one socialist, who shall determine whether any person who shall have acquired inordinate wealth is, by reason of overdevelopment of his acquisitive greed, a menace to the peace and welfare of the community, and if they so determine, they may cause to be performed upon him an operation for sterilization to prevent procreation, provided, in no event shall anarchists and socialists receive more than $3 for their consultation fee." It is not surprising that much of the so-called eugenic legislation has called forth such drastic criticism as that implied in the foregoing legal burlesque. It has often been said that legislation is a cheap panacea for evils. But like most cure-alls, the laws designed for the remedy of social disease are often such unscientific mixtures of different brands of reform that no specifically good results can be expected from them.

Eleven States have so far enacted some sort of "sterilization of the unfit" legislation. In many of these the provisions of the law have far outrun the results of scientific investigation. It is in fact still an open question whether confirmed criminals and feeble-minded persons are especially apt to propagate their own kind unless they mate with persons, who, like themselves, carry a neuropathic strain. With few exceptions, the impediments to marriage, imposed by the new legislation, appear to disregard the unsettled state of eugenic science, and assume that the theories advanced by this or that particular school have correctly solved the principles underlying the inheritance of good or bad germ plasm.

But it is not only in the effort to prevent the propagation of neuropathic strains that the various eugenic laws have run riot. Amateur legislation strives to deal with venereal disease in a wholly impractical manner. Michigan, Utah, Washington, North Dakota, Indiana, Pennsylvania, and Wisconsin have all legislated with the design to prevent the spread of venereal disease through marriage. In Michigan and Utah the marriage of a person who has an uncured case of syphilis or gonorrhea is illegal and punishable as a felony. But there is no provision for a physician's certificate that the candidate for marriage is free from venereal taint. In Washington the applicants for a marriage license must make an affidavit that they are free from disease. In this case the whole question appears to be left to the honor of the contracting parties. In many States the means provided for obtaining a physician's certificate are either so ridiculously easy or so obviously impracticable, as to give the statute the semblance of burlesque. Thus, in North Dakota, the law provides that the applicant for license shall have the affidavit of a duly licensed physician showing that the *male* contracting party is not afflicted with any contagious venereal disease. It further provides that for this examination and affidavit the physician must not charge over $2. Consequently if the physician's examination results in negative findings he may collect $2 for the affidavit to that effect, but if he finds venereal disease the matter of charge is entirely unprovided for. In Wisconsin, the framers of the law appear to have taken counsel with genito-urinary specialists, for here the physician giving the certificate must certify that the applicant is free from syphilis and gonorrhea and must also state under oath that he has arrived at this conclusion after having used the recognized clinical and laboratory methods of diagnosis. But this wise provision seems to be largely offset by another clause in the same law which states that the fee for the required examination shall not exceed $3. So the Wisconsin physician has three possible courses open to him: (1) He may do a Wassermann for syphilis and a complement-fixation test for gonorrhea for a sum which will scarcely pay him for the actual cost of the materials used. (2) He may issue the certificate and perjure himself as to the methods used in making the diagnosis. (3) He may refuse to have anything to do with the case at all. In the last event the State Laboratory will see that the test is properly conducted. But here is the weak point. Instead of making the State responsible in all cases and thus removing the personal element altogether, the matter is left entirely to the honesty and ability of the local practitioner to deal with as he sees fit.

These examples of social reform legislation, hastily enacted and totally inadequate for their avowed purpose, might be greatly multiplied, but they are sufficient to show that legislation which so intimately affects both personal liberty and the protection of society at large should not be undertaken without careful investigation of the evils which are intended to be remedied. In this connection the conservative policy of Massachusetts is worthy of emulation. At the recent session of her legislature it was "Resolved that the State Board of Health and the State Board of Insanity are hereby empowered and directed jointly to investigate and to report to the general court, on or before the second

Saturday in January next, what further impediments to marriage, if any, should be recognized by law in the Commonwealth. If they make any recommendations they shall include in their report drafts of bills suitable for carrying them into effect."

THE SIGNIFICANCE OF CHYLIFORM EFFUSION.

Relatively very little attention has been paid to the pathology of the thoracic duct and of its tributaries. One reason for this is that the thoracic duct, owing to its out-of-the-way location, is rarely examined at autopsy. Moreover, symptoms pointing to disease of the chylous lymphatics and of the main lymphatic trunks of the body are exceedingly rare. Suppuration in the thoracic duct was described several years ago, apparently for the first time, by De Forest of New York. The most common manifestation of disturbance in the chylous lymphatic system is chylous ascites of which sixty-eight cases have been collected by Batty Shaw. This condition is one that may be produced by any of a large number of causes, which usually brings about an obstruction or occlusion of the receptaculum chyli or of the thoracic duct at any part of its course in the abdomen or thorax. The obstruction may be of inflammatory or neoplastic nature. The two most important causes are tuberculosis and cancer. These are illustrated in the two cases reported by H. A. Lediard in the *British Journal of Children's Diseases,* October, 1913.

One of these cases was that of an 18-year-old boy who came under treatment for what was apparently tuberculous peritonitis. The abdomen was greatly distended, and diarrhea was a prominent symptom. Six pints of a chylous fluid were removed on tapping the abdomen. Death occurred three weeks later. A careful autopsy was performed. Evidences of tuberculosis were found in many parts of the body. The receptaculum chyli was obliterated in a mass of glands and fibrous tissue, and the different lymphatics were markedly distended. These were the main features in the pathology of the case, in which transudation provided the mechanism by which the chyliform ascites was produced. One peculiarity was that the shape of the abdomen seemed to show that the fluid was collected more in the upper half, and it is suggested that this peculiarity may be of diagnostic service in a similar case.

The second example of chyliform ascites was presented in a girl aged 18 years, suffering from Hodgkin's disease. She had undergone two operations for the removal of masses of glands on the left side of the neck and in the left axilla. There were symptoms pointing to peritonitis and to the presence of fluid in the abdomen. Tapping demonstrated a chylous ascites. Although no autopsy was obtained in this case, it is suggested that pressure by an enlarged gland on the thoracic duct at its termination caused a transudation of chyle within the abdomen. Of the 68 cases of chyliform ascites collected by Batty Shaw, 18 were due to compression of the thoracic duct.

The question of the relative frequency of tuberculosis or of malignant disease in the production of chylous effusions is answered by Lediard in a discussion of the above interesting cases. Rotman collected 20 cases, of which only two were attributed to tuberculosis. Of 9 cases of milky effusions in the thorax only 1 was associated with tuberculosis. It is pointed out that the relative frequency of cancer and tuberculosis as causes of chylous effusions is as three is to one. Chemical and microscopical examination of the milky fluid may furnish some clue as to its origin. If pure chyle, it probably comes from a leak. But such an occurrence is exceedingly rare. A transuded fluid shows chyle mixed with lymph. The presence in the fluid of different kinds of cells, as blood corpuscles, lymphoid cells full of fat granules, or epithelial cells with fat granules may indicate the presence of cancer within the abdomen. Rupture of the receptaculum chyli rarely occurs. The treatment of chyliform ascites is a surgical problem, but one which at present offers little of promise.

PHAGOCYTOSIS IN ACUTE INFECTIOUS DISEASES.

A subject which at first sight seems to be closely allied to that of the determination of the opsonic index, but which is a distinct and separate phenomenon, is the degree of phagocytic power of the leucocytes in the acute infectious diseases. The variations in phagocytosis were studied particularly with reference to their practical prognostic indications by H. Schaefer-Hieber who reports a number of important and interesting results in the *Deutsches Archiv für klinische Medizin,* October 2, 1913. In determining the degree of phagocytosis he employed with certain modifications the method recommended by Achard and Foix. Suspensions of the fungus *Oidium albicans* were used in testing the leucocytes of a given specimen of blood. Normal leucocytes, a diluting medium consisting of ascitic fluid, capillary pipettes, a centrifuge, an incubator, the Grünwald or Leishmann stain, and the oil-immersion objective are all necessary accessories in the determination of the phagocytic index. Without describing the details of the method employed it will suffice to allude to the results obtained by the author in the investigation of this subject in a series of twelve cases of various acute infectious diseases.

At the beginning and at the height of an acute infectious disease the phagocytic power of the leucocytes is more or less below the normal. According to the progress of the disease the phagocytic process may either rise or fall. One may recognize in the phagocytic curve three different phases: the phase of phagocytic weakening, the phase of phagocytic crisis, and the phase of the return to normal. The first of these corresponds to the height of the disease process. The character of the curve gives an idea of the extent of the protective forces of the body. In cases that run a favorable course in spite of the high fever the phagocytic curve shows a greater height than the curve in fatal cases.

One important point is emphasized by the author, namely, that there is no relation between the leucocytic count and the power of phagocytosis. At the beginning of the disease the phagocytic curve sinks whether there is a leucopenia or a leucocytosis. The conclusion is drawn that it is not so much the number of leucocytes as their phagocytic capacity which exercises a potent influence in combating an infection.

The "critical" phase of the phagocytic curve is distinct only in cases that run a favorable course. The curve rises at first slowly, then rapidly, in many instances markedly so, crossing the fever curve. The phagocytic critical rise often precedes the critical fall in the temperature, or may coincide with it. The abrupt rise in the phagocytic curve usually announces an approaching critical fall in the temperature. The former phenomenon is one therefore of prognostic value, indicating a favorable outcome. The development of complications is accompanied by a fall in the phagocytic curve. In three of the author's fatal cases, respectively of pneumonia, tuberculous meningitis, and sepsis, the phagocytic rise did not occur; the curve showed rather a tendency to fall below the base line. Hence in all cases in which this tendency of the curve is present an unfavorable prognosis may be taken for granted. During convalescence the phagocytic curve returns gradually to the norm, but it is occasionally interrupted by slight elevations.

Splenectomy for Pernicious Anemia.

The claim that splenectomy has cured cases of true pernicious anemia will naturally be regarded as quite ill-founded and based on an error of diagnosis. Only when the anemia is due directly to a diseased spleen, as in Banti's disease, would it appear rational to remove the latter, and the clinical results entirely bear out the theory. Nevertheless it appears that about last June Unger removed a spleen from a patient who presented an increased hemolysis *in vitro*. Mosse also removed a diseased spleen from a woman whom he believed to have pernicious anemia. Hardly any one would agree at first with his diagnosis on account of the robust appearance of the patient after her operation. Before the latter her red cell count was but 1,100,000; now it is more than 4,000,000. At the October meeting of the Berlin Medical Society (*Berliner klin. Wochenschrift,* November 3) Huber read a paper on the influence of splenectomy on pernicious anemia which will appear soon in full in the same journal. He also presented the patient. In discussion it was shown that an Italian, Antonelli, had anticipated the Berlin surgeons by a splenectomy for pernicious anemia done at Baccelli's clinic. Huber denied that there is any contraindication to the operation in the presence of the pernicious blood state. Leucemia is the sole contraindication.

Mendel as Student.

So little is known of this man, who, judged by what he produced, was great, and whose greatness was thrust upon him many years after his death, that any data whatever, especially those which pertain to his formative years, should possess great interest for all who pursue the exact sciences. As the Historical Section of the Society of German Physicians and Naturalists, which met last September (*Münchener medizinische Wochenschrift,* October 28), Iltis, who considered Mendel's student years, dwelt upon two leading factors, viz., his extreme poverty and his inability to pass examinations (not uncommon among the really great). Lack of food seems to have forced him to enter the Brünn theological foundation as novice. That his true bent was toward science is inferred from his subsequent career. In the seminary he formed friendships with a number of bright young men. His theological studies completed, being little suited for parochial duties, he sought to qualify as an instructor in the local gymnasium. When, however, he came to pass his examinations he failed in every branch. He was lucky at the same time in meeting a prelate of his old seminary, who caused him to attend the University of Vienna. He was registered for 4 semesters (1851-3) as a lecture attendant extraordinary. In 1854 he returned to Brünn and joined the faculty of the new State Middle Class School. He worked here two years, returned to Vienna for examination and failed. He seems to have at once returned to his old seminary where in the gardener's hut he began his now famous experiments.

News of the Week.

Department of Health Reorganized.—Because of its growth and the extension of its work, a reorganization of the Department of Health of the City of New York has been found necessary, and Commissioner Lederle announced recently that this had been accomplished by raising to the rank of bureaus several branches of the work which had formerly been classed as divisions, apportioning the work definitely among these bureaus, and making the chief executive of each answerable directly to the Commissioner of Health. The activities of the department will henceforth be carried on through the following: the Bureau of General Administration, under Eugene W. Scheffer; the Sanitary Bureau, under the Sanitary Superintendent; the Bureau of Infectious Diseases, under Dr. John S. Billings; the Bureau of Child Hygiene, under Dr. S. Josephine Baker; the Bureau of Hospitals, under Dr. Robert J. Wilson, Superintendent of Hospitals; the Bureau of Laboratories, under Dr. William H. Park; the Bureau of Food Inspection, under Dr. Marion B. McMillan, and the Bureau of Records, under Dr. William Guilfoy, Registrar of Records. The Bureau of Administration, which was originally created in January, 1912, and has been under the supervision of the secretary of the Board, will in the future include two divisions: the Division of Supplies and the Division of Audits and Accounts. The Bureau of Infectious Diseases will include the divisions of contagious diseases, tuberculosis, venereal diseases, veterinary diseases, institution inspection, typhoid fever, and nurses, and the diagnosis laboratory. The Bureau of Child Hygiene will comprise the divisions of midwife and foundling inspection, institutions and day nurseries, school medical inspection, employment certificates, infants' milk stations, and children's clinics. Control of the milk, meat, fish, vegetable, and drug supply will be by the Bureau of Food Inspection.

City Health Commissioner.—It is rumored that Mayor-elect Mitchel of New York has selected Dr. Harvey W. Wiley to succeed Commissioner Lederle on the expiration of his term. No official comment on the rumor has been made, but it is said that if such an offer were made to Dr. Wiley it would find him in at least a receptive mood. Dr. Lederle was appointed commissioner of health by Mayor Gaynor in 1910, and had previously served in the same capacity from 1902 to 1904.

Sir Arbuthnot Lane at the Polyclinic.—On Friday of last week an all-day surgical clinic was held at the New York Polyclinic Medical School and Hospital. Sir Arbuthnot Lane operated upon a child, ten days old, for cleft palate. He also operated upon several patients who had chronic intestinal stasis, doing a colectomy. Mr. Herbert J. Paterson of London and Dr. William Seaman Brainbridge also operated for similar conditions. The short circuiting for chronic intestinal stasis had proven to be of great value as attested by many who were present. Sir Arbuthnot Lane also demonstrated his method of bone plating upon a man who had a fracture of the thigh. His results in these cases had been carefully watched by *x*-ray pictures, and were found to be excellent. The dressings used were contained in a small box; they had been sterilized in London and only opened at this time. The box contained everything necessary for the operation. The clinic lasted from 9 A.M. to 5 P.M., and was most interesting and instructive.

Gift to Diet Kitchen.—The New York Diet Kitchen Association has recently received a gift of $63,000 from Mr. and Mrs. Edward Tuck of this city, as a donation to the endowment fund. The income will be used in maintaining the Tuck Diet Kitchen at 35 West 139th street, one of the eight stations supported by the association.

Bequests to Charity.—By the will of the late Emily Scheetz of Philadelphia, the sum of $5,000 is bequeathed to the West Philadelphia Hospital for Women.

The Home for Incurables, New York, receives a bequest of $50,000 under the will of the late Mrs. Kate Warner of this city.

Ask Hospital Investigation.—Three physicians on the medical staff of the North Hudson County Hospital, Weehawken, N. J., have requested the Board of Governors of the Hospital to authorize an investigation of charges which have been made against the management of the institution, offering to pay the cost of such an investigation. There has for some time been friction between the superintendent of the hospital and the members of the attending staff.

Anesthesia Number of the Annals of Surgery.—The December issue of the *Annals of Surgery* is a special Anesthesia number and is almost double the size of an ordinary issue. It contains some of the most important papers on this subject ever presented, and has a long list of eminent contributors.

Labor Legislation.—The seventh annual meeting of the American Association for Labor Legislation will be held in Washington on December 30 and 31. The programme, which includes a joint session with the American Political Science Association, will bring out the plans of the Federal Industrial Relations Commission, recently appointed. Of interest to medical men will be the discussion on: "Is Compulsory Sickness Insurance Practicable in America?"

Examination for Admission to the Public Health Service.—An examination of candidates for admission to the grade of assistant surgeon in the Public Health Service will be held in various places on the morning of January 12, 1914. Candidates must be between twenty-three and thirty-two years of age, graduates of a reputable medical college, and of good professional and moral character. The examinations are: 1, physical; 2, oral; 3, written, and 4, clinical, and usually cover a period of ten days. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. Assistant surgeons receive a salary of $2,000 a year, and after four years' service are entitled to examination for promotion to the grade of passed assistant surgeon. For invitation to appear before the board of examiners, application should be made to the "Surgeon-General, Public Health Service, Washington, D. C."

Civil Service Examination.—The United States Civil Service Commission announces an open competitive examination for men only, for the purpose of filling a vacancy in the position of anatomist at a salary of $1,600 a year, in the Army Medical Museum, Office of the Surgeon-General. It is desired that the person appointed to this position shall be young, in good health, and a graduate in medicine, and shall have a thorough knowledge of pathological histology, pathology, and bacteriology, be capable of making photomicrographs, understand microscopes, surgical instruments, and appliances, and be able to prepare, card, and keep in order museum specimens. Persons who meet the requirements and desire to take the examination should apply at once to the United States Civil Service Commission, Washington, D. C., for application form 1312.

A Complimentary Dinner to Sir Arbuthnot Lane was given by Dr. William Seaman Bainbridge on Friday of last week in the Louis XV room of the St. Regis Hotel. The guests numbered about 120. Addresses were made by Drs. Bainbridge, John A. Wyeth, and William Hanna Thomson, Sir Arbuthnot Lane, Mr. Herbert J. Paterson of London, and Mr. Augustus Thomas. After the dinner, at the conclusion of these addresses, Sir Arbuthnot Lane gave a most interesting exposition of his theory of intestinal autointoxication as a cause of many serious ills, including rheumatoid arthritis, cardiovascular disease, cancer, and tuberculosis, dwelling on the mechanical factors in the production of intestinal stasis, and demonstrating their action in a series of lantern slides. At the close of the lectures an informal discussion took place, among the speakers being Dr. William Louis Rodman of Philadelphia, Dr. Stevens of Ohio, Dr. Ernest Laplace of Philadelphia, Surgeon Williams of the U. S. N., Dr. J. W. Draper, Dr. Jerome Morley Lynch, Dr. Foster Kennedy, Dr. George Reese Satterlee, Dr. Robert H. M. Dawbarn, Dr. Lewis Gregory Cole, Dr. Adoniram Judson Quimby, Dr. Willy Meyer, Dr. Reynold Webb Wilcox, Dr. Lots of Australia, and others.

Bay Ridge Hospital.—The Board of Directors of the Bay Ridge Hospital, Dispensary, and Training School for Nurses has acquired title to the large parcel of land situated at Ninety-second street and Seventh avenue, Brooklyn, on which they intend to build a modern hospital with accommodations for one hundred patients, at an estimated cost of $150,000. The movement for the establishment of a hospital in the extreme southern section of Brooklyn

was started fifteen years ago, and since 1905 active clinical work, including a tuberculosis clinic has been carried on at the old Kent Mansion at Sixtieth street and Second avenue.

Petition to Install Nursing Sisters.—A petition containing over 150,000 names of residents of Paris has been presented to the Municipal Council praying that the nuns be restored to their former places as nurses in the Parisian hospitals. Complaint is made that many patients prefer the sisters to lay nurses and the petition asks that those who ask to be attended by the sisters may have their wish.

Low Death Rate.—For the first forty-seven weeks of 1913, that is, up to November 22, the death rate in New York City was 13.71 per thousand of population, making this so far the healthiest year on record. For the same period of 1912 the rate was 14.07 per thousand. The autumn season of the present year has been particularly free from sickness as judged by the number of cases of infectious diseases reported. During the seven weeks ending November 22, there were reported 2,602 cases of tuberculosis, a decrease of 7 per cent. as compared with same period of last year; and the number of cases of diphtheria was 14 per cent., and of scarlet fever 17 per cent. less in the same comparison. The number of cases of measles, on the other hand, was increased about 5 per cent.

Wholesale Meat Poisoning.—Over one hundred persons in Puente Ovejuna, near Cordova, in Spain, have been seriously poisoned by eating contaminated meat. Thirteen of these have died and many others are seriously ill.

Diphtheria in Chicago.—The prevalence of cases of diphtheria in Chicago has caused some alarm, 412 cases having been reported from November 6 to November 20. The disease thus far has been of a comparatively mild type and the efforts being made to check its spread will probably prevent it from reaching the proportions of an epidemic.

Nurses Graduate.—The twenty-fifth anniversary and the graduating exercises of the German Hospital Training School for Nurses were celebrated on November 27 at the hospital. Twenty-three women received diplomas on the completion of the three years' course. Dr. Abraham Jacobi addressed the graduates, the oath was administered by Dr. Gustav Seeligman, a member of the Medical Board, and the diplomas were distributed by the President of the Hospital.

St. John's Guild.—At the annual meeting of St. John's Guild, New York, held on November 18, the following report of the work was made: The New Seaside Hospital, established by the Guild at New Dorp, Staten Island, which opened on June 9, 1913, cared for 2,134 sick mothers and their babies during the summer, of whom 2,088 were discharged as cured or improved in September. Two hundred patients were admitted for the winter service, of whom 108 have already been discharged. The floating hospital on its sea trips last summer carried 15,252 women, 28,254 children of six years or under, and 14,381 babies. During July there were 3,600 applicants in excess of the accommodations.

Obituary Notes.—Dr. Charles Mayrant Rees of Charleston, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1887, and professor of surgery in the same, and a member of the American Medical Association, the South Carolina Medical Association, the Charleston County Medical Society, the American Association of Obstetricians and Gynecologists, and the Southern Surgical and Gynecological Association, died at his home on November 15, aged 52 years.

Dr. A. J. Hatzfield of Pueblo, Col., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1881, died at his home after a long illness, on November 14, aged 67 years.

Dr. James A. Koehler of Shelby, Ohio, a graduate of the Ohio Medical University, Columbus, in 1898, and a member of the Ohio State and Richland County Medical Societies, died at his home, from pernicious anemia, on November 13, aged 40 years.

Dr. William Shippen of Petersburg, Va., a graduate of the Medical College of Virginia, Richmond, in 1887, a member of the Medical Society of Virginia and the Petersburg Medical Faculty, and for twenty years a surgeon in the United States Army, died at his home on November 17, aged 52 years.

Dr. Robert Lee Edwards of Richmond, Va., a graduate of the New York University Medical College in 1894, died at his home on November 13, aged 42 years.

Dr. William B. Jones died at Philadelphia on November 18 at the age of 77 years. He was graduated from the Eclectic Medical College of Philadelphia in the class of 1861. He served in the Bucktail Regiment throughout the Civil War.

Dr. Albert W. Hendricks died at Philadelphia on November 19 at the age of 73 years. He was graduated from the Eclectic Medical College of Philadelphia in the class of 1871. He was a veteran of the Civil War, for thirteen years a member of the Thirty-fourth Ward Sectional School Board and at one time Surgeon to the Old Soldiers' Home.

Dr. Joseph D. Rush of Orlando, Fla., a graduate of the University of Alabama, Medical Department, Mobile, in 1873, and a member of the American Medical Association, the Florida Medical Association, and the Orange County Medical Society, died at his home on November 18, aged 66 years.

Dr. L. E. Bratton of Atkins, Ark., a graduate of the Memphis Hospital Medical College, Memphis, Tenn., in 1896, died at his home after a long illness, on November 18, aged 49 years.

Dr. John McI. Morrison of Point Richmond, Cal., a graduate of the Cooper Medical College, San Francisco, in 1893, died at the Roosevelt Hospital, Berkeley, Cal., on November 15, aged 42 years.

Dr. Frederic Matthew Helbig of New York, a graduate of the Bellevue Hospital Medical College in 1890, a member of the New York State Board of Pharmacy, and of the American Medical Association, the New York State and County Medical Societies, the Greater New York Medical Association, the Medico-Legal Society, and the American Dermatological Association, died at his home on November 26, aged 47 years.

Obituary.

DR. EDWIN KLEBS.

BERNE.

Dr. Edwin Klebs, pathologist and bacteriologist, and first to describe the *Bacillus diphtheriæ*, died recently at Berne, Switzerland, in the eightieth year of his age. He was born in Königsberg, Germany, and studied medicine in the university there, and during his long life had held professorships in the universities of Berne, Würzburg, Prague, and Zurich, and in the Rush Medical College, Chicago.

His identification of the *Bacillus diphtheriæ* in 1883 preceded by one year the growth in pure culture by Loeffler of the organism which thus became known as the Klebs-Loeffler bacillus. He was also the first apparently to make use of cold-blooded animals in the preparation of bactericidal fluids and had prepared serums which under the name of tuberculocidin and antiphthisin have received much consideration.

DR. LOUIS WICKHAM.

PARIS.

Louis Wickham, M.V.O., M.D., founder of the Laboratoire biologique du Radium and physician to the Hôpital Saint-Lazare, Paris, died recently, after a long illness, at the age of fifty-three years. Dr. Wickham was most widely known for his researches on the value of radium in the treatment of cancers and other diseases of the skin, researches which had twice obtained recognition from the French Academy in the granting of the Barbier and Benjamin Godard Prizes, and shortly before his death secured for him the decoration of the Legion of Honor. He began his work on radium in 1905, and in 1906 established the Laboratoire biologique du Radium, where he instituted a school center and with his colleagues developed this branch of physiotherapy. Here he received and instructed numbers of workers from England, Germany, and America, as well as from France, and from it he published, in conjunction with his coworker, Dr. Paul Degrais, the results of his researches. Translated into both English and German, these books have been accepted with much interest as containing the conclusions of one of the pioneer workers in the field of radium therapy.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SCHOOL OF TROPICAL MEDICINE—COMMITTEE ON ANTHRAX—UNIVERSITY EDUCATION IN LONDON, CAMBRIDGE—CONCLUDING FITZPATRICK LECTURE—INSURANCE TROUBLES—MEDICO-PSYCHOLOGY—OBITUARY.

London, Nov. 14, 1913.

Mr. Austin Chamberlain presided yesterday at the General Committee of the School of Tropical Medicine when Mr. C. N. Rothschild brought up the report of the city committee. The appeal for £100,000 has so far been successful—the fund having reached £71,444. In the original appeal, approved by Sir P. Manson, the pioneer and father of all this work, it was proposed, if money enough were obtained, to devote some of it to persons from the tropics of a class just above those for hospital charity but unable to pay for special treatment. This intention is now to be carried out and a Chamberlain ward endowed in recognition of the great work of Mr. Joseph Chamberlain and its continuance by his son. The government of India and several of the Dominions have contributed substantial sums and others are likely to arrive. The city committee has been dissolved and the fund practically closed.

The Home Secretary has appointed a committee to inquire into the prevalence of anthrax, the dangers arising from infection in the processes concerned with wool and hair, and report whether amendments are required in the regulations in force.

The recent report of the Royal Commission on University Education in London has given rise to consternation among the graduates of the University of London and especially among those in medicine. The members appointed to examine the matter had not their confidence at the beginning and the report amply confirms their distrust. The proposal is made to apply the multi-college system of London to the constitution of a single college university—proposes, in fact, to set up a new local body and give it the name of the university which has done good work for 55 years. It will destroy the whole of the so-called external work of the university and create one which will debar the unattached from degrees—thus abolishing the chief object for which the existing university was founded. The commission has utterly failed to understand the system of medical schools at our hospitals and would destroy them in its desire to Germanize them.

Cambridge University does not display much enthusiasm about the proposed government grant on behalf of its medical school. In fact it looks as if the professors were divided as to its advantage, judging from the discussion in the Senate House. Sir Clifford Allbutt, Regius Professor of Physic, spoke of the poverty of the medical department and urged that the grant would enable them to do more and better work and he did not think the conditions would endanger freedom of teaching and procedure. Provided the department was highly efficient it would be safe; at present he was of the opinion that its efficiency was imperilled through lack of funds. The Disney professor of archæology (Prof. W. Ridgeway) opposed this view, arguing that no financial assistance could compensate for government inspection and partial control, and these were conditions to be submitted to. This opinion was further held by the Cavendish professor of Experimental Physics (Sir J. J. Thomson), who held that some educational authority ought to be free from interference or control by the Board of Education and able to work out its own schemes independently.

In continuance of his subject of astrology in relation to medicine, Dr. Mercier describes in his other Fitzpatrick lecture some of the beliefs that had been held as to the influence of the planets on the functions of the human body, its diseases, death, etc. For example, Saturn presided over the bones, teeth, right ear, and bladder, besides being responsible for deaths from falls, shipwreck, and hanging. Jupiter over deaths in wars, duels, and those by command of princes; Mars over those from weapons, fire, bites of animals, and blood-letting by ignorant surgeons; Sol over those due to plague, syncope or the battlefield; Mercury over poisons or punishments for perjury, forgery, or passing false money, and Juno deaths from drowning. The masters of astrology of cast horoscopes by the movements of the celestial bodies and allowed their humbler followers to work on a less elaborate scheme which cast the burden of medical astrology on the moon, its position and its waxing or waning. Leaving what appears to us nonsense Dr. Mercier remarked that such men as Bacon and Albertus Magnus certainly believed in it and to understand it we must try to realize the overwhelming power of authority and the belief that the earth was the center of the universe. Within the memory of living men a philosopher had said there was nothing great in the world except man—no doubt he meant Scotsmen. Need we then wonder what men had

thought was the use of the heavenly bodies? The sun caused day and night and brought change of season, but it was one of 7 planets and it was a natural deduction that the others had influence over man. When all seemed chance the mind would grasp at any explanation. The moon was comparable to the sun and in its changes of position was one in opposition to him and therefore considered antagonistic. So the sun being benevolent the moon became malevolent. It was not strange then that to the planets were attributed pestilence, etc. The whole came of man's passionate desire for explanation. Astrology is outgrown, but absurdities are taught still by logicians. How about medicine? Explanation of aphasia is attempted by describing it as loss of memory and of ataxia by calling it loss of the power of co-ordination. Delusions are ascribed to lesion in the brain. The hypothetical increase in appendicitis to the hypothetical increase in meat food, acute diseases are said to be due to intestinal stasis, chronic to that blessed combination of words alimentary toxemia.

The working of the Insurance Act is still giving rise to unexpected questions and annoyances. In London there is a sum of money accumulated owing to insured persons not having selected their panel doctor. To this sum a claim has been made by those on the panel. It is, however, difficult to see the right of this claim for which no service has been done. It looks as if the money belonged rather to the insured persons and should be returned to them or used to reduce rates or taxes. But the committee has resolved to divide it among the panel doctors. At Worcester the committee has, by 15 votes to 9, allowed insured persons to choose a herbalist as their panel doctor. Surely this must be illegal and must be contested. Perhaps the general medical council will take up the question.

In Kensington the Health Committee has agreed to supply the panel men in the borough with outfits for collecting material and to pay for bacteriological examinations at the Lister Institute. The *Times* and other papers approve and would utilize the laboratories of all hospitals for this purpose. This looks like a long step in the direction of a state medical service—very acceptable to socialists.

The death of Dr. Dimock is the most regrettable incident so far due to the act. He was induced to go to Wisbeach to work the panel. Some friction seems to have occurred with the resident doctors who would all have worked it, but the committee resolved to engage an outsider. Some of the resident doctors were assailed with scurrilous, anonymous letters, some said to be unfit to print. Detectives were consulted with the result that the chairman of the local medical committee summoned Dr. Dimock for slander. The case was adjourned and before the next hearing Dr. Dimock, who was said to be greatly worried, was found dead in his bed. Veronal tablets were under the pillow and he seemed to have taken an overdose. A mob then attacked the houses of some other doctors, apparently fancying they had driven the deceased to suicide, though there was no foundation for their impression. But mobs do not reason and the riot act had to be read. The inquest is adjourned for an analysis, the Home Office expert stating it will take him a month to complete. The coroner said on Wednesday that he had been inundated with letters, but would not allow his court to be turned into a controversial arena and the only question for the jury would be the cause of death. The Statutory Local Medical Committee has recorded its entire confidence in the honor of the resident doctors and its sympathy with their wives and families. Moreover, in view of the allegations and inferences of a section of the press this body has made the strongest representations to the Home Office for a judicial investigation into the circumstances.

University College is not exactly the place where you would expect to meet mesmerists, spiritualists *et hoc genus omne*. But this week the Earl of Sandwich presided there at the opening of a "medico-psychological clinic." He told the audience that during his life he had had experience as a governor of several hospitals and there were few serious maladies he had not successfully treated. Further, he never failed in painful cases. He possessed "powers of healing" and had been examined by a committee presided over by the Dean of Westminster. Many thought him, he said, a lunatic, impostor, or liar, but it was enough for him to heal the sick and relieve the suffering. The medical surgical profession were opposed but he did not interfere with any doctor and was only happy to assist them. He thought probably many might possess the power he had though in less degree and had not the chance of using it. The knowledge of it would spread vastly. A professor and two or three others supported the movement, one of them frankly saying their main object was to get financial help. They had £650 and wanted a further £1,000.

Dr. R. D. Sweeting, senior medical inspector of the Local Government Board, died on the 10th inst. Dr. Sweeting was a barrister as well as a medical man. He was a temporary inspector during the cholera survey of 1885-6 and joined the medical department in 1890. He was the son of a doctor and born in 1856, educated at Oxford and the London Hospital, where he became in due course house physician, having gained the Buxton scholarship. He was medical superintendent of the Western Fever Hospital for about ten years.

Dr. H. F. Parsons, who died on October 29, was also in the same service and during a long time a most earnest and able sanitary reformer. He seemed, too, to be full of knowledge in every other branch of his profession and the sciences connected with it. He retired a year or two ago in ill health, but hoping to record some of his experiences. One volume is said to be completed and ready for publication.

Dr. Surg.-Gen. J. S. Comyn has died at the age of 76. He graduated at the University of Dublin, taking also the F.R.C.S. there. He joined the army medical service in 1858. He was in the Egyptian expedition in 1882 for which he received the medal with clasp and was also awarded the bronze star. He retired in 1883.

Dr. W. R. Shortt, who died at Ealing, was surgeon in the National Field Force, 1899-1901. He had been assistant medical officer in Durham Asylum, was a Durham medical doctor, and held the qualifications of the two royal colleges.

The Tuberculous Nature of Acute Nephritis in Childhood.—Debié and Paraf, at the recent French Congress of Pediatrists alluded to the relative frequency of tuberculosis as a possible cause of acute nephritis in childhood. They reported four cases in three of which recovery was complete. The tuberculous nature was indicated by the antigen reaction and by the positive result following inoculation of the guinea-pig.—*La Presse Médicale.*

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE LEYDEN LECTURE—ABDERHALDEN ON THE SEROLOGICAL DIAGNOSIS OF ORGANIC CHANGES—THE BIOLOGICAL SIGNIFICANCE OF DIGESTION—THE DEFENSIVE FERMENTS OF THE BLOOD—THE DIAGNOSIS OF PREGNANCY—THE SPECIFICITY OF THE DEFENSIVE FERMENTS—THE DIAGNOSIS OF ORGANIC DISEASES—A NEW ASPECT OF INFECTIOUS DISEASES.

BERLIN, November 1, 1913.

FOR the past three years the winter's sessions of the Berlin medical societies have begun with the Leyden lecture at the Society of Internal Medicine. This lecture, which commemorates the great clinician, is attended with considerable festivity and seems more and more to awaken the interest of Berlin physicians. On the present occasion the auditorium was filled to its capacity. Both the lecturer and his theme occupied the center of medical interest. Abderhalden was the speaker and his subject was the "Serological Diagnosis of Organic Changes."

The speaker began with the question: What is the real aim of digestion? Hitherto it has been thought that the disintegration of complicated nutrients results in the production of simple diffusible bodies. This is not the case. For diffusible cane sugar is not absorbed, but undergoes further splitting in the intestine. The object is to deprive the nutrients of their individuality in order that the body cells may receive the same structural elements for their activity. This conception might presuppose a far-reaching agreement in the building-up process in the different cells. This is, however, not the actual state of affairs. Each cell has a structure peculiar to itself. If it be borne in mind that the cellular substance is composed chemically of twenty structural elements, one can readily understand how by the different combinations of the single components it is possible to obtain the extraordinary number of 2,000,000,000,000,000,000 separate compounds.

The labor of transforming the nutrients for the needs of the body belong to the ferments in the intestine. These ferments are not normally present in the blood. But they arise in this medium as soon as substances foreign to the body gain access to the blood. They thus constitute defensive ferments whose function is to make the foreign substances assimilable, in this manner imitating the work of the digestive ferments. If the blood-serum of an animal that has not previously been operated upon be brought into apposition with albumin by means of a dialysis apparatus no dialysis will occur. If, however, albumin is injected into an animal beforehand, and if the latter's blood-serum is used in the above experiment, there will then pass into the dialysate decomposition products of albumin. From this it may be concluded that there is present in the blood-serum a ferment that causes the disintegration of albumin. This ferment may also be detected by means of the polariscope.

The first practical application of these researches was in the diagnosis of pregnancy. It had already been discovered that during pregnancy a large number of chorionic cells gain access to the circulation. According to the above experiments this occurrence would evoke a ferment which would become manifest if placental tissue were brought into contiguity with the blood-serum of the pregnant woman in the dialysis apparatus. This has actually been demonstrated. Abderhalden has investigated serologically 550 cases of pregnancy and has amply proved the diagnostic value of this procedure.

In the course of further investigations it was shown that the defensive ferments are specific. For instance, the blood-serum of a carcinomatous patient does not disintegrate placental tissue. A patient was under observation in whom the clinical diagnosis of esophageal carcinoma was made. Serological examination did not confirm this diagnosis. Exploratory excision then revealed the presence of a sarcoma. The question now arose whether it would not be possible to detect pathological changes in the organs by revealing the defensive ferments arising from the passage into the blood of the products of disintegration resulting from the above pathological changes. Let one suppose that an obscure ailment is under observation. The patient's blood-serum is now brought into contact with a large number of organ tissues, such as liver, spleen, etc. The organ which undergoes disintegration is the one that is concerned in the disease process. In a case of otitis media there was detected a disintegration of brain substance. At operation a cerebral abscess was revealed.

Likewise infectious diseases may with the aid of this method be looked upon in a different manner than has been the custom. The healthy body represents a completely closed-in organism. Into this there wander bacteria whose metabolism is fully foreign to that of their host. The bacteria die, their cellular detritus gets into the circulation and evokes the defensive ferments. These may be sought for. In fact they have frequently been detected in cases of tuberculosis. The defensive ferments are probably the substances that free the body of the various infections. It is also possible that the defensive ferments, produced in an excess, actually provide the noxious factor. These theories may not be of permanent value. The speaker particularly realized this. But he hoped that the facts revealed by his method would lead to serviceable results.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 20, 1913

1. Observations on Summer Diarrheas in Children. 1911. A. I. Kendall, A. A. Day, and E. P. Bagg.
2. Saprophytism, Parasitism and Pathogenism. A. I. Kendall.
3. Observations on Summer Diarheas in Children. 1912. A. I. Kendall and A. A. Day.
4. Observations on the Etiology of Severe Summer Diarrheas of Bacterial Causation. A. I. Kendall.
5. Two Types of Infectious Diarrheas in Infants. R. M. Smith.
6. Preparation of Common Infant Foods. R. B. Hunt.
7. The Wetnurse Problem. F. B. Talbot.
8. Relation of the Hospital to the Hygiene of Pregnancy. J. L. Huntington.

1. **Infantile Summer Diarrhea.**—A. I. Kendall, A. A. Day, and E. P. Bagg, Jr., present the following conclusions drawn from a study of the cases of diarrhea occurring in the Boston Floating Hospital in 1911: In every case of infantile diarrhea studied (with the exception of the few fermentative diarrheas) there was a general conformity in bacterial type of the intestinal flora, which was uniformly proteolytic in character. This proteolytic flora forms a striking contrast to that of normal children of similar age, in which the putrefactive activities are minimal. Superimposed upon this proteolytic background various of the well-known intestinal pathogens may stand out conspicuously. In the past the isolation of such organisms has sufficed to establish the diagnosis; it now appears that such is not necessarily the case, inasmuch as one or more of them may be present without the production of noteworthy symptoms. On the other hand, cases are met with in which these organisms cannot be found,

yet show blood, pus, and mucus in the stools, and severe toxemia. In these latter cases the flora has been found to be proteolytic in character.

7. **The Wetnurse Problem.**—F. B. Talbot believes that the wetnurse problem can be solved by establishing a wetnurse directory such as has been established by the author in Boston. It is probable that such an institution can become self-supporting. The secret of success lies in widely advertising the fact that wetnurses can be obtained quickly, and in giving the prospective wetnurse a place where she can live without expense until she obtains a position. Infant mortality can be lowered to a minimum by insisting that the mother and baby are not separated. The directory for wetnurses gives these babies an opportunity in life which they can not get otherwise, and makes it possible to save the lives of many babies that would otherwise die.

8. **The Pregnancy Clinic.**—J. L. Huntington points out that in the ideal pregnancy clinic all patients should apply without reference to the subsequent confinement, being guided as far as they are willing by the physician in charge. The nurse who receives the patient and assists the physician in making the examination should make the follow-up visits. She should be trained to take the blood-pressure and make the nitric acid test for albumin and carry with her on her visits to the patient's home the necessary apparatus for taking these observations. From the date of application the patient should be visited by the nurse or report to the clinic at least every two weeks. Patients failing to report at the clinic should be traced by the nurse. All patients when applying to the pregnancy clinic should be given a complete physical examination. In the clinic the urine examination should include an examination of the sediment in every specimen showing albumin by the heat test. Such an ideal pregnancy clinic must be associated with a hospital providing beds and adequate obstetrical care for the graver complications of pregnancy and for operative obstetrics. It should also be associated with an out-patient service providing care for patients in their own homes.

New York Medical Journal.

November 22, 1913.

1. Recent Progress in Orthopedic Surgery. C. Ogilvy.
2. Observations on Inoculation Therapy. M. J. Synnott.
3. Prejudices and Superstitions Met with in Medical School Inspection. J. Sobel.
4. A Quantitative Chemical Reaction for the Control of Positive Wassermann Reactions. D. M. Kaplan and J. E. McClelland.
5. The Aurometer. M. Lubman.
6. A Test for Adult Imbeciles and Six Year Old Normals. H. A. Knox.
7. Myiasis, or Fly Larvæ as Parasites of Man. M. G. Wohl.
8. Expecant School Diseases. H. B. Wood.
9. A New Apparatus for Proctoclysis. W. D. Miningham.

1. **Recent Progress in Orthopedic Surgery.**—C. Ogilvy first discusses the progress made in the treatment of the deformities of anterior poliomyelitis. Arthrodesis has been successfully employed for a number of years. Tendon transplantation has been effective in selected cases. Artificial silk ligaments were first employed by Lange in 1903. Nerve transplantation and nerve anastomosis are still in the experimental stage. In congenital dislocation of the hip the author has found Calôt's modification of the Lorenz method to be even better than the Lorenz method itself. In the operative treatment of Pott's disease he prefers Albee's procedure to that devised by Hibbs. The mobilization of ankylosed joints has been attained by Baer with the use of chromicized pig's bladder. In appraising the value of Abbott's method of treating rotary lateral curvature of the spine, the author concludes as follows: Rotary lateral curvature of the fixed type, developed in childhood and persisting in adolescence, cannot be perfectly cured. The general condition of the patient can be much improved. The anteroposterior postural deformity, the lumbar lordosis, and the lateral deviation of the body can be corrected. The lateral deviation of the spine is corrected in earlier cases. The rotation of the vertebræ may be improved but not corrected. The results obtained by the use of the plaster jacket applied by the Abbott method in flexion, with corrective felt pads, are very satisfactory in that one is enabled to obtain the results in a shorter time (within six months) than by any other method of treatment.

2. **Vaccine Therapy.**—M. J. Synnott states that the vaccine therapist should have a well-equipped general and special laboratory, a vast store of clinical experience, the ability to estimate accurately the opsonic index in doubtful or difficult cases, and the skill necessary to prepare quickly an autogenous vaccine when one is required. He should also understand how to test therapeutically the various strains of bacteria as to their immunizing power, so as to determine the doses of the vaccines made up from them. In long standing chronic infections vaccine therapy can be expected to give definite results only after a long succession of inoculations and there is no security against a relapse until the infections have been completely extinguished. Hence the inoculations should be continued even after an apparent cure for a long period, at intervals of several weeks or longer, in order to prevent a recurrence.

5. **The Aurometer.**—M. Lubman describes an instrument which he has devised for the exact determination of the hearing distance and of progress in the treatment of various conditions of deafness. It consists of a circular headband adjustable by a thumbscrew to fit any size of head. At the sides of this headband, opposite the ears, are extended two angular bars graduated in ½ inches. On each bar is a sliding upright piece controlled by a thumbscrew and with a small hook at the top to suspend a watch; the watch will be in the exact line of the external canal. The headband has two eye shields to obstruct the patient's vision. The watch should hang on a string from the hook, as this will prevent the transmission of vibrations from the watch.

Journal of the American Medical Association.

November 22, 1913.

1. The Present Status of the Diagnosis and Treatment of Vesical Tumors. H. H. Young.
2. The Transverse Incision and Abdominal Fascia as a Method of Approach in Suprapubic Operations on the Bladder and the Prostate. G. MacGowan.
3. Vasostomy—Radiography of the Seminal Duct. W. T. Belfield.
4. Transplantation of the Testicle. V. D. Lespinasse.
5. The Operative Treatment of Hallux Valgus and Bunion. J. D. Singley.
6. The Local Specific Therapy of Infections. II. Treatment of Certain Infections. S. Flexner.
7. Treatment of Inguinal Hernia in Children. A. E. Hertzler.
8. The Hospital Management of Contagious Diseases. D. L. Richardson.
9. Hollow Foot—Pes Cavus. C. A. Parker.
10. Fields for Research in Oral Surgery. V. Loeb.
11. The Etiology of Trifacial Neuralgia or Tic Douloureux and Clinical Treatment. N. T. Shields.
12. Typhoid Fever in the Canal Zone. A Study of One Hundred and Ninety-five Cases from the Clinical and Bacteriological Standpoint. W. G. Baetz and L. B. Bates.
13. An Improved Clinical and a Micro-Chemical Test for Blood. W. A. Groat.
14. A Unique Case of Vicarious Menstruation. D. H. Galloway.
15. An Unusual Anomaly of the Left Pulmonary Vein. J. Patterson.
16. Rupture of the Sigmoid by an Air-Blast of 120 Pounds Pressure. H. Shoemaker.
17. A Case of Amebic Dysentery Treated with Emetin Hydrochlorid. R. E. Cloud.
18. A Simple and Practical Method for the Preparation of Pure Buttermilk. S. Oftedal.

1. **Diagnosis and Treatment of Vesical Tumors.**—H. H. Young notes in a review of 117 cases of vesical tumor, 83 per cent. of which were malignant, that excision, as usually carried out, is utterly inadequate and is followed by a prompt recurrence in both benign and malignant cases. The cautery is an extremely valuable agent in conjunction with suprapubic or intraperitoneal operations, and when it has been thoroughly applied even in apparently hopeless cases some brilliant cures have been obtained. Carcinoma of the bladder, except in very ex-

tensive cases, is best treated by suprapubic resection of the bladder, leaving a wide area of healthy wall around the tumor, the ureter being transplanted if necessary, and the peritoneum excised when the tumor involves that portion of the bladder. Intraperitoneal operations are rarely necessary (except in tumors of the vertex and posterior wall), as an excellent view of the bladder can be obtained by an extensive median incision, wide separation of the recti muscles, upward displacement of the peritoneum, a long incision into the bladder and good retraction. The use of 50 per cent. resorcin, or alcohol, to kill any tumor particles which may have dropped into the bladder also seems desirable, but a better plan is to cauterize the tumor thoroughly before beginning the resection of the bladder. For benign tumors the treatment with the high-frequency spark seems thoroughly satisfactory, but should be vigorously applied, and for this purpose in extensive cases the fulgurating sound or the application of a strong spark through an open endoscope or cystoscope, the bladder being filled with air, may be very helpful. In apparently hopeless cases, destruction of the tumors and their bases and adjacent portions of the bladder wall by means of a Paquelin, hot-air, or electric cautery may occasionally give unexpected cures and brilliant results. Before applying treatment an adequate specimen should usually be obtained by means of the cystoscopic rongeur for microscopic diagnosis. When one depends on examination of a few villi washed from the bladder or removed by small forceps a satisfactory diagnosis is often impossible.

4. **Transplantation of the Testicle.**—V. D. Lespinasse states that transplantation of the testicle is a successful procedure in frogs and chickens; spermatogenesis and sexual characteristics are preserved. In guinea-pigs, rabbits, and dogs the results are variable. Some experimenters report that there is no success at all; others assert that the interstitial cells remain and functionate. In the two human cases that have been tried to date, the one with the blood-vessel anastomosis was a failue as far as spermatogenesis is concerned; but the interstitial cells may be and probably are present. In the author's case the result clinically has been perfect. The man has regained his sexual powers completely, both as to desire and as to ability to perform. These powers have continued for two years.

7. **Treatment of Inguinal Hernia in Children.**—By A. E. Hertzler. (See MEDICAL RECORD, June 28, 1913, page 1189.)

8. **Hospital Management of Contagious Diseases.**—By D. L. Richardson. (See MEDICAL RECORD, June 28, 1913, page 1191.)

9. **Hollow Foot.**—C. A. Parker concludes that hollow foot, or cavus, is usually accompanied by some malposition of the foot as varus or valgus, equinus or calcaneous. So-called true or essential cavus is rare. Cavus is practically always of neurogenic origin. Leaving out of account the paralytic calcaneus and possibly the congenital types, it is safe to assume that a perversion of the normal reciprocal action between the flexors and extensors of the toes can account for most if not all of the remaining types of cavus. Simple measures commonly suffice to restore the normal balance in the initial stages, while in the fixed deformity severe force, frequently accompanied by resection of bones and section of soft tissues, is often necessary to restore in a measure the normal condition of the foot.

12. **Typhoid Fever in the Canal Zone.**—W. G. Baetz and L. B. Bates state that typhoid fever in the Canal Zone tropical native pursues the same variable course as in patients of the temperate zones. The absolute diagnosis of typhoid fever may be obtained only by a positive blood culture. The earlier in the disease the blood is cultured, the greater the chance of making a positive diagnosis. The Widal test has been positive in 89 per cent. during the second and third weeks. At the same time the test has also been positive in 22 per cent. of the authors' advanced tuberculosis cases and in 15 per cent. of non-tuberculous cases of various diseases. The value of the test seems to depend entirely on its repeated application in selected cases. The white blood count is of great value in the diagnosis of typhoid fever. During the fever a change from leucopenia or normal to leucocytosis invariably points to a complication. Splenic enlargement in the tropics is of practically no value in the diagnosis of typhoid fever, unless previous or coexisting malarial infection can be definitely excluded. In the differential diagnosis of typhoid fever, disseminated or acute miliary tuberculosis and "acute infections of undetermined origin" present the greatest difficulty and should always be kept in mind in the presence of leucopenia and repeatedly negative blood cultures. The most frequent complication of typhoid fever in the Canal Zone is malaria. To prevent the discharge of typhoid carriers, routine stool and urine examinations of convalescents are necessary.

The Lancet.

November 15, 1913.

1. The Degeneration of the Neuron in the Light of Recent Research, Especially in Relation to Syphilis and General Paralysis. F. W. Mott.
2. Gonorrhea Phylacogen; Report on an Investigation into Its Value in the Treatment of Some Gonococcal Infections. L. W. Harrison.
3. Report and Remarks on a Small Epidemic of Poliomyelitis, Occurring in the Practice of G. H. Jones and G. M. W. Hodges. P. B. Roth.
4. Notes of an Outbreak of Acute Anterior Poliomyelitis at West Kirby. G. Jubb.
5. Two Cases of Ascites Treated by Multiple Paracentesis and by Femoral Drainage. W. Gifford Nash.
6. Polyvalent Tuberculin and the Types of Temperature Reaction; a New Technique. H. Sutherland.
7. Tubal Gestation Continuing to the Sixth Month after Rupture at the Sixth Week. R. Nairn.
8. The Diagnostic Value of Abderhalden's Method in Carcinoma. R. St. L. Brockman.
9. A Note on Five Cases of Porocephaliasis in Man from Southern Nigeria. J. W. S. Macfie and J. E. L. Johnston.

1. **Degeneration of the Neuron.**—F. W. Mott points out that degeneration of the neuron may occur from an inherent lack of durability of certain correlated functional systems, as occurs in certain diseases which affect members of families at the same age in life and often generation after generation—*e.g.* Huntington's chorea, hereditary ataxia. Degeneration of the neuron may result from direct injury or local extension of inflammation or by ischemic softening due to obstruction of the blood supply by vascular occlusion; the degeneration that results therefrom is secondary. But when for whatever cause nervous tissue disappears the neuroglia always reacts by a nuclear and fibrillar proliferation—a law formulated by Weigert in 1890. The replacement of the nervous tissue by the neuroglia tissue causes a "sclerosis." But the term "sclerosis" in the sense of a neuroglia proliferation being the primary cause is incorrect; the sclerosis is the effect, not the cause. A pure primary decay of the neuron has been termed by Sir William Gowers "abiotrophy." Many of these conditions of abiotrophy are associated with chronic inflammatory changes, and it is very difficult to say how far these cause the decay of the neuron or are the result of it; certainly a proliferation of neuroglia tissue may result from simple atrophy and decay of the neuron, but a perivascular lymphatic infiltration with lymphocytes and plasma cells is evidence of a reaction to the poison. There are two diseases in which this perivascular cell infiltration, together with neurolgia proliferation, is particularly marked and more or less universal in the central nervous system. They are the diseases caused by two specific protozoal organisms—the *Trypanosoma gambiense* and the *Treponema pallidum*.

8. **Abderhalden's Method in the Diagnosis of Carcinoma.**—R. St. L. Brockman believes that there is sufficient evidence to show that the blood of persons suffering from carcinoma contains a substance absent in the blood of all others, and that this substance has a proteolytic action on carcinoma tissue only. There are also several factors which point to its being of the nature of a ferment. If the serum from a patient is left to get stale it becomes inactive, but the addition of a trace of fresh human serum will activate it again. The reaction takes place best at 37° C. At room temperature the reaction does not occur, while heating the serum to 55° C. for 5 minutes inactivates it beyond recall. If, then, as is maintained by the author, this substance is of a protective nature it would be natural to expect to find it present in larger quantities in patients who are in good general health. The results of these tests point strongly to such being the case. The author has noticed throughout his whole series of cases that a patient with a growth of the tongue or of the breast, who is in good general condition, will give an intensity of coloration in 12 hours which a patient in a low state of health would fail to give in 24. A case of carcinoma of the larynx which gave a negative result only brings this test into line with others. No pathological test is infallible. It is obvious that for practical use such a test must give a reaction in the early stages of the disease. Two of the tongue cases were early localized ulcers, one intestinal growth was small and easily removable, while one breast case was an early scirrhus. All these gave a markedly positive reaction in 24 hours. The facts set forth point to the test being of some practical advantage as an aid in the diagnosis of carcinoma, especially in such sites as the stomach and intestines, thereby allowing early surgical interference.

British Medical Journal.

November 10, 1913.

1. The Degeneration of the Neuron in the Light of Recent Research, Especially in Relation to Syphilis and General Paralysis. F. W. Mott.
2. The Relation of the Internal Secretions to the Female Characteristics and Functions in Health and Disease. W. Blair Bell.
3. Epidemic Cervical Adentis. J. G. Sharp.
4. Treatment of Gonorrheal Epididymitis by Bier's Method. A. C. Wilson.

1. **Degeneration of the Neuron.**—By F. W. Mott. (See page 1045.)

2. **The Internal Secretions and the Female Characterestics.**—W. Blair Bell asks: What is it that makes a woman a woman? In answering this question he states that although the potentiality to produce femininity exists in the earliest stages of segmentation of the ovum, this potentiality is directed towards the future development and correlations of the endocrinous glands which are to control the sexual evolution of the individual. The ovaries alone are not responsible for the female characteristics. It has been shown that the suprarenal cortex is largely responsible for the secondary sexual characteristics. Although the genitalia may be normal morphologically at birth (primary development), they become functionally active only at puberty (secondary development) if the whole endocrinous system is in perfect harmony and acting efficiently. Thus, thyroid or pituitary insufficiency may cause the genital organs to remain infantile; and disease of these structures may cause retrogression in the genitalia even after they have functionated normally. Removal of the thyroid alone produces an intense degree of atrophy in the uterus. The ovaries, however, do not retrogress; on the contrary, there appears to be increased activity, especially in the follicles. While suprarenal hypernephromata in male children are practically always associated with precocity of the sexual organs and secondary characteristics, in female children with suprarenal hypernephromata the sexual organs are not precociously developed, for the tendency is rather to produce in them the characteristics of the male—a deep voice, enlargement of the clitoris, hirsuties, and so on. An excessive ovarian secretion leads to an increase in sexual activity both locally and generally. The local effects may be seen in an increased and prolonged menstruation. An excessive ovarian secretion affects the metabolism in the opposite way to oöphorectomy, and one of the most important metabolic disturbances is the abnormally large excretion of calcium salts. A few years ago Bossi of Genoa suggested the injection of suprarenal extract as an alternative to oöphorectomy. Apparently many cures have been effected by this treatment, and also by the injection of pituitary extract. Thyroid insufficiency always causes a decrease in or the complete cessation of the function of menstruation, according to the degree of insufficiency. Insufficiency of pituitary secretion is associated with amenorrhea or scanty menstruation. Various investigators claim for different portions of the pituitary body different functions, but the author believes in the unity of the whole gland. Patients with pituitary insufficiency are always obese and dull. An excess of pituitary secretion, such as occurs in acromegaly, produces masculinity, and while in the male this may give rise to excessive sexuality, in the female it causes amenorrhea and loss of desire, as is only natural if masculinity be produced.

Berliner klinische Wochenschrift.

October 27 and November 3 and 10.

Treatment of Cancer with Benzol.—Kiralfi states that his work was really experimentally carried out on cancer patients. The benzol was injected directly into the cancerous tissues of two subjects, the disease being inoperable. The drug exerts an intensive action on the cancer cells, destroying them in part. This may be due in a measure to the setting free of cholin by the benzol from the lecithin of the cells. The benzol does not come in direct contact with many of the destroyed cells. Those cancer cells which are uninfluenced by the benzol continue to proliferate, so that the drug can only have a limited use.

Treatment of Pneumonia with Ethylhydrocuprein and Pneumococcus Serum.—Lenne has employed these two alleged specifics for croupous pneumonia together, using the remedies for a separate series of cases. In one series of 17 cases treated with ethylhydrocuprein alone the mortality was 11.8 per cent. and in another of 18 both drugs were employed together with a mortality of 16.5 per cent. In a small series (six cases) treated with the serum alone the mortality was 33 per cent., while in a series of 40 cases treated without the aid of either specific the mortality was 30. This small material appears to show, as has long been conceded, that the serum treatment of pneumonia is a rank failure and that nothing is gained by combining it with ethylhydrocuprein. The value of the latter is still problematical. Two children and a man of 60 were not saved by its use.

Present Status of Treatment of Malignant Tumors.—Blumenthal of the Berlin Cancer Research Institute, writing especially of chemotherapy, discusses the tumor-affin substances, otherwise tumoratrophic. He states that the halogens increase the tissue affinity of arsenic. Iodine alone has considerable tumoratrophic power. The affinity possessed by selenium is enhanced by eosin. All substances of this class are naturally toxic, especially in combination. Some which are very effective are but little toxic—for example the iodides. The problem seems to be to form synthetics which shall get the greatest possible use out of the less toxic and more highly specific factors. The metalloids appear to attack the cancer cells only by damaging the capillaries. The once praised combination of novocain and adrenalin as a starvation procedure is now forgotten. The good results obtained with mesothorium show most plainly that cancer is not incurable, and

should point the way to further advance if we succeed in finding out whereby the cure is effected.

Surgery of the Nervous System.—Loewy notes the most recent advances in this field. Among these are the cure of hydrocephalus by ventricular puncture. In tumors of the brain we see daring interventions along with a tendency toward conservatism, the former being indicated of course when life is menaced. When delay is obtainable von Eiselsberg, a leading cranial surgeon, pushes Hg and I for months. A few intraspinal tumors are amenable to operation. Hypophysis operations are of course on the increase and the author speaks of von Eiselsberg's 18 cases as if it were a record. Cushing is ignored. Förster's operation for spastic palsy continues to be a subject for endless discussion.

Cylinders and Cylindroids.—Posner refers to the original cylindroids of Thomas, described in 1870. The nature of these cast-like substances was variously interpreted in subsequent years. They were found to differ much from true cylinders when subjected to intensive study. Most of them seemed to consist of mucin and were not casts, as shown by their contours, which were not parallel, and by their ramification. With the introduction of dark field illumination it became possible for the first time to understand the relationship between cylinders proper or true casts and cylindroids. They could not be separated by such criteria as branching or want of parallelism of their edges, for even true cylinders exceptionally show these peculiarities. In fact there is no doubt that the cylindroids of Thomas and others were in many or most cases true cylinders, the nature of which is still far from being understood. Dark field illumination has revolutionized our knowledge of hyaline casts. We know that in certain cases of nephritis the albumin is visible to the naked eye as a "nubecula." It represents a coagulation of albumin and if studied under dark field illumination is seen to be made up largely of very coarse filaments of the relative thickness of casts. These are extremely wavy, doubling at times upon themselves, or drawn out into long, tapering streaks and branching in a rude fashion. Instead of terming individual fragments cylindroids it would be much better to regard the whole mother substance as cylindroid material. Hence there can be no absolute distinction between true cylinders and some at least of the cylindroids, in that both represent coagulated albumin, whether in the renal tubules or elsewhere. There are cylindroids of mucoid substance which simulate these bodies and proceed from the ducts of the urinary tract, and it may be necessary to exclude them in diagnosis, but this should not be difficult, and their presence has no practical bearing.

Magnesium Sulphate in Tetanus.—Berger gives a collective review of this subject, concluding with a summary by Kocher who is termed a "second father" to the latter, Meltzer being of course the first one. It holds off the danger until the antitoxin can penetrate to the hiding places of the germs. Kocher thinks the 15 per cent. concentration better than Meltzer's 25 per cent., but he gives larger amounts, sometimes five times the maximum child's dose of some physicians. If the spinal canal puncture is followed by escape of blood the injection is not made. Posture is of absolute importance, varying with the case. If there be tetanus of the head and thorax muscles, the solution must be able to anesthetize the cerebrum at once. We must however be prepared to treat a sudden arrest of respiration (artificial respiration, physostigmine injection, deep insufflation of oxygen). Arnd had advised washing out of the entire meningial sac after lumbal puncture, and speaks of the astonishingly good results. Kocher states that magnesium has given brilliant results in the severest cases. Serotherapy should always accompany its use.

Vaccination Against Chickenpox.—Kling makes a provisional communication on this subject which concerns work done under Medin, the well-known Swedish pediatrist. In the midst of an epidemic of the most typical forms of chickenpox the idea occurred to him to seek to prevent the transmission of the disease to certain young children. He took the clear lymph from a pock and inoculated it into the arm of an infant. After eight days appeared a papule, small and red, which within 24 hours passed into a typical varicella vesicle, about which appeared an areola the size of a penny. On the third or fourth day the vesicle dried up and the efflorescence slowly vanished. At the site of the vesicle a small scab formed and was not cast off for about two and a half weeks. There were no tendencies of generalization of vesicles nor was there any systemic reaction. The author obtained positive results in 58 cases, in only 6 of which was autoinoculation successful. In regard to the amount of protection, no one can say. Out of 31 nurslings exposed, but 1 took the disease in a very mild form.

Münchener medizinische Wochenschrift.

November 4, 1913.

Treatment of Granulating Wounds.—Heisler reports a severe case in which skin grafting appeared to be the sole outcome but which he succeeded in healing by physical therapy (he is director of an air cure sanatorium). None of the new cell proliferants were tested, although the opportunity presented was excellent. The patient's hand had been badly shot, leaving a large granulation surface. A surgeon advised immediate transplantation to prevent serious ciratricial contraction. The author had just been reading Bergeat's work on the power of the hot-air douche, but as he was unable to obtain one, simply allowed a current of air to be blown upon the surface. The effect was surprising. Shreds of the injured tissues began to come away, and a glistening pellicle was seen in the act of formation. The air treatment was continued for half an hour daily. No epithelial bridges formed. Only a zinc dressing was used after healing was nearly complete. An objection to the method was the coldness of the air as it impinged on the limb. Hence the douche should often be interrupted. The author thinks that the rationale agrees with that of the hot-air douche, *i.e.* in both cases it is a matter of active drying of the surface.

Apex Catarrh.—Litzner writes at length on the subject of nontuberculous apex catarrh. An enthusiast in a Western city, now deceased, who used to defend against all comers this view of a simple apex catarrh and who was ridiculed good-humoredly by all his colleagues, would have rejoiced to see this day. Litzner states that as a result of the increased thoroughness of physical examinations in sanatoria we have learned that the supposed anatomical and physiological differences between the percussion sounds of the two apices may have caused us to dwell too slightingly on these differences. He states that we can now allow for such dissimilarities and still detect the presence of a catarrhal condition of one apex, which is certainly not tuberculous. The author is inclined to impute the catarrh to inhalations, especially in connection with trades. However, in such cases both apices are affected. Certain microorganisms, as the influenza bacillus, can also attack the apices. The American specialist referred to claimed the existence of a, for the most part, unilateral right apex catarrh, recognized by flatness on percussion and diminished heart sounds heard from behind. He preferred to treat these cases as tuberculous to give them the benefit of a mistaken diagnosis and insisted that they regularly cleared up under treatment. Some of the author's cases are counterparts of the preceding. A very severe type was not infrequently seen in which hemoptysis, involvement of the left apex, night

sweats, etc., occurred; but strange to state these were not of tuberculous origin, the actual cause being the irritation of sensible bodies inhaled in connection with occupation, pneumomycoses or perhaps, as already suggested, some bacterium like the *B. influenzæ*. While essentially bilateral, such cases begin in the right apex, for reasons well known to the pulmonary specialist.

Deutsche medizinische Wochenschrift.

October 30 and November 6, 1913.

Changes of Doctrine in Gastric Lavage.—Boas refers back to the indications for lavage as taught by Kussmaul nearly fifty years ago which he states to be fundamentally sound to-day. The progress which has been made in the meanwhile is documented in the fact that we no longer use lavage throughout the treatment but only at the onset of the latter. For the rest it has been supplanted by dry expression. No longer is lavage the dominant factor in treatment, but an accessory doomed to be supplanted in part by improved dietetics. Other uses are empirical and unscientific such as washing a stomach which should expel its contents into the intestine.

Cause of Variola and Vaccinia.—Very recently several authorities have claimed the relative isolation of the smallpox exciter. Paschen, the well known Hamburg expert, now comes to the fore with a long article. He describes an organism which agrees in part with those isolated by Prowazek and Casagrandi. They are not only extremely small but take stains very poorly. Evidently they live within the body cells in which they produce vacuolation. The cytoryctes of Guarnieri while specific for smallpox is not an organism but a reaction product of the cell, and can be demonstrated at will in infant lymph. The cytoryctes may sometimes be found to contain a minute, coccoid, blue stained (Giemsa) corpuscle in groups. These may or may not be a form of the actual microbic exciter, but at any rate is commonly associated with the supposed cause of the disease, which does not stain with Giemsa, and which passes through a Berkfeld filter. The author does not allude to the work of Fornet (abstract in Medical Record) and his apparently successful cultivation of a parasite, until the very close of his paper. He expects to be able to cultivate his own discovery.

Attempts to Prepare Vaccine Which Shall Be a Pure Culture of the Exciting Cause.—Paul of the Vienna Vaccination Institute has already made wholesale efforts to prepare a vaccine which shall derive its efficacy from Paschen's bodies as described above. The antivaccinationists in Austria urge that no attempts are being made to isolate the active cause of smallpox and employ it in pure culture. This contention is a just one and the best neurobiologists in the world are now at work upon the problem. Prowazek went to Brazil in 1905 where the disease always flourishes, while lymph cannot endure the heat and rapidly deteriorates. The dark field illumination is a discovery which makes for increased knowledge of this subject and a general advance along the line has been made in filtrable viruses. Paul has installed a large filter for separating alien matter from the true exciter. He believes that filtration will confer the necessary separation. Glycerin may be added to the filtrate as preservative and the author makes but a mere suggestion as to keeping the virus fresh by cultivation, as emphasized by Fornet. The source of the crude lymph for him will still be the calf. Much else remains to be done. Glycerine preservation is a makeshift and something more must be done to prevent secondary contamination of pure lymph during vaccination.

Pseudopélade Brocq.—Dreuw discusses an affection of the scalp which must be differentiated carefully from alopecia aerata. Under the name alopecia atrophicans it is barely known in medical literature. Brocq described it in its matured state in 1885, but little has been known as to its initial stage, and this manifestation is what the author means to clear up. The affection has now become quite common in the Berlin schools and something must be done to detect it in its early stages, as is possible with ringworm diseases. In 1910 the author had occasion to study 200 incipient cases of this affection in school children, the incidence being practically epidemic. However, the diagnosis was extremely difficult, since so many affections had to be excluded. So great was the confusion that an attempt was made to settle everything upon a strictly bacteriological and cultural basis. Before undertaking this research, it was found that over a dozen kinds of alopecia had to be reckoned with clinically. The usual parasitic diseases were represented, but many accidental and transitory forms were present. The author found two types of alopecia which did not fit into any system. These are *A. atrophicans* of Brocq and *A. parvimaculata*, which from their independent status in regard to other affections, may be assumed for the once to be identical. The parvimaculate form may or may not be atrophic in character. Clinically many photographs are given to illustrate it—its beginning as a mere point, with loss of a few hairs. A few of these minute areas may coalesce to form a bald spot the size of a dime. In other cases the minutest spots are diffused over the scalp, with no attempt at enlargement. These minute areas the author regards as the initial stage of Brocq's pseudopelade. Since no parasite could be discovered in the author's epidemic, he is thrown back upon the hypothesis of a neurotrophic origin, dependent upon the unusual conditions inseparable from beginning school life.

Pneumonia and Cardiac Lesions.—Keller states that in pneumonia, even so slight a lesion as a lateral arteriosclerosis may be sufficient to render the heart the *locus minoræ resistentiæ*. During the pneumonia the arteriosclerosis may become apparent, perhaps as a stenosis and insufficiency of the aortic valves. The author no doubt refers to this complication as it occurs in young and middle-aged people, since in the old the association must be extremely common. A subject who has never experienced any illness is stricken at an advanced age with pneumonia. If some evidence of arteriosclerosis did not crop out during repeated examinations, one would be surprised. The author's patient was a man of 36, in apparently perfect health. He passed through a typical pneumonia, the heart behaving throughout in a normal manner, until about four weeks after the onset of the disease, when he complained of dyspnea. Heart boundaries were normal but a systolic murmur was everywhere present. Later the noises became loudest about the aortic valves. Recovery occurred to some extent, the patient being able to go about as usual, but the state of the valves showed no change. The author had made a diagnosis of endocarditis following pneumonia but the picture and history showed that the heart lesion must have been atypical. An *x*-ray showed a heart of normal size and site. There was no evidence of arteriosclerosis, and as a high degree of anemia was present it was believed that this formed a link between the pneumonia and cardiac lesion. Some months later a second examination showed that the anemia had disappeared, while the symptoms pointed entirely to arteriosclerosis. There could be no doubt that an early arteriosclerosis or presclerosis had been intensified by the pneumonia.

Privileged Communications.—The testimony of a physician as to the state of his patient's general health and mental condition is admissible if it does not appear that what he stated on the stand was information which "was necessary to enable him to prescribe for her," which is essential, in order to bring it within the Michigan statute as to privileged communications.—Steketee v. Newkirk, Michigan Supreme Court, 138 N.W. 1034.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

THE TECHNIQUE IN HELLER'S TEST FOR ALBUMIN.

Heller's test maintains a well-earned reputation for reliability and simplicity. Other excellent tests have been devised, but it is doubtful if any of them possess greater, if as great, merit. It would seem that the presence of a very small quantity of albumin is indicated occasionally by the reaction of some other test when the result by Heller's method is negative with the same specimen. This is especially true of the test in which a saturated salt solution and acetic acid are employed. After working with this test for some time a good many observers have come to suspect that it is oversensitive or reacts with other substances as well as with serum albumin. In any event, long experience teaches that Heller's method, properly and carefully conducted, is sufficiently reliable and sensitive for all clinical purposes; furthermore, that albumin present in quantity small enough to escape detection by this procedure is negligible.

A trace of albumin is often overlooked in urinalysis when one or more of the few following simple directions are not observed. The directions apply to all tests as well as Heller's:

1. Cleanliness of test tubes and apparatus. A small amount of albumin is liable to escape detection when the tube is dirty or covered with smears and stains. The glass should be cleansed to the state of crystalline transparency, so as not to obstruct vision to the smallest degree. Nitric acid followed by rinsing with clear water will remove stains from the inside. The outside surface of the tube becomes sooty from the flame, or cloudy from the salts remaining after evaporation of moisture from the outer surface of the tube; in either case the tube should be gently cleansed with a damp cloth before inspection of the contents.

2. Clear urine. The urine should be filtered until clear, so that the contrast between the portion containing the coagulated albumin and that in which no change has occurred will be marked. A specimen containing bacteria will not be clarified by ordinary filtering. If, however, the earthy phosphates are precipitated by the use of ammonium hydroxide and the urine then filtered, it will usually be found that the precipitate has carried the bacteria with it.

3. Light. Tests cannot be properly made or read by dim or artificial light. A trace of albumin may easily be passed by unless looked for in a good natural light.

4. A background of black at a window will assist in the discovery of albumin. A good practice is to hang a board with a blackened surface on the window sash for this purpose.

Further details applicable to Heller's test appears in the following description of the two methods for conducting it.

1. Pour half an inch of pure, colorless nitric acid into the test tube. The tube is then held at an angle of at least 45 degrees while clear urine is allowed to trickle from a pipette slowly down the side of the tube until one inch of it overlies the acid. If this is carefully done there will be no mixture of the urine and acid.

2. A more sensitive method and one requiring more skill to prevent mixture of the acid and the urine, is the following: Place about one inch of the suspected urine in a perfectly clean tube; allow pure nitric acid to trickle slowly from a pipette down the side of the tube, which is inclined to at least 45 degrees. The acid should collect in the bottom of the tube without mixing with the urine.

In both methods the presence of albumin is denoted by the presence of a white layer or cloud immediately above the acid. The white zone will occasionally form slowly for some unknown reason. Consequently, the tube should invariably be set aside for at least fifteen minutes. The band of albumin may form and become diffused during this time, however, so it is necessary to inspect the contents of the tube about every three minutes until the procedure is completed. These two precautions are often neglected, and this accounts for many of the apparent shortcomings of Heller's test.

A diffused cloud with a layer of clear urine between it and the acid indicates urates or nucleoproteid, not serum albumin. If the person has been taking any oleoresin, such as cubebs, copaiba, etc., a white ring may form at the junction of the two liquids, but the presence of these substances may be easily differentiated from that of albumin by means of the heat test.

Failure of the Colleges to Teach Insurance Medicine.—Gaillard considers that the reason why medical colleges have not included instruction in life insurance work in their curriculum lies in the fact that the teaching faculties of these colleges have failed to realize the vast importance of modern life insurance institutions, and the vital part the medical profession must necessarily exert in such great activities. The professional prominence usually enjoyed by those who attain the privilege and distinction of teaching our undergraduates is such as to bar them more or less from active participation in insurance examining work, and they are inclined, by unfamiliarity with its requirements, to minimize the qualifications absolutely essential to an examiner who hopes to be successful.—*Lancet-Clinic*, September 6, 1913.

Life Insurance as an Aid to Longevity.—J. M. French, in a paper on this subject, says that some wives object to life insurance for their husbands, because of a superstitious fear that it would hasten their death, but these wives can hardly be twentieth century wives. Life insurance is, in fact, an aid to a longer life, and the insured live to a greater age than the uninsured. The reason given is that the minds of the men who are insured are freed from worry as to the preparation for the future, hence the reaction of the mind on the body is much lessened, resulting in a happier and better old age, through less impaired physical condition. Especially is this true in those past middle age. Then, too, if the man who carries life insurance outlives his family—providing he has one—he has more assurance that he will be taken care of in his old age, if only for the hope of his insurance. A sad thought, but a true one. Life insurance is a potent factor in the physical and mental improvement of the race, and this is of even greater importance than the promotion of long life in the individual, as it tends to make the next generation longer lived and more enduring than the present. Life insurance promotes eugenics because it stands as a guarantee that the men and women who are insured and who marry are of sound mind and body.—*American Medicine*, October, 1913.

Book Reviews.

The Medical Record Visiting List or Physicians' Diary for 1914. Newly revised. Price $1.25. New York: William Wood & Company.

This old and favorite visiting list contains the usual ruled pages for daily use, and also space for consultations, obstetric engagements and practice, vaccinations, addresses of patients and nurses, and for cash account. There is also the usual introductory matter, and a number of necessary changes have been made in the table of drugs and doses, in order to bring it up to date, and some of the unimportant and obsolete preparations have been omitted. The visiting list has long enjoyed a well deserved popularity, not only on account of its excellent arrangement but also because it is of convenient size and is handsomely bound.

Studies in Cancer and Allied Subjects. Contributions to the Anatomy and Development of the Salivary Glands in the Mammalia. Conducted under the George Crocker Special Research Fund at Columbia University. Vol. IV. Price $5.00 net. New York: Columbia University Press, 1913.

This volume of studies, the second to appear though the fourth in the series, is devoted to the anatomy and development of the salivary glands. It includes contributions by Churchill Carmalt, George S. Huntington, and H. von W. Schulte and presents what is probably the most complete study of these glands yet published. It is far too extensive to review here in detail. The work is based upon the extensive research of the late Dr. Carmalt on the comparative morphology of the salivary structures. At his death the work was scattered and to a certain extent unfinished. Huntington and Schulte went over the mass of material which was left, completed some of the lines which he had begun and present this volume as the result. The book is profusely illustrated with excellent drawings and is published in the same style as the previous work done under this fund. The publication of this work under the Crocker fund is justified on the basis that one of Dr. Carmalt's purposes was to furnish a sound morphological foundation for the study of neoplasms of this region.

Gould and Pyle's Pocket Cyclopedia of Medicine and Surgery. Based upon the Second Edition of Gould and Pyle's Cyclopedia of Practical Medicine and Surgery. Second Edition, revised, enlarged and edited by R. J. E. Scott, M.A., B.C.L., M.D., New York; formerly Attending Physician to the Demilt Dispensary; formerly Attending Physician to the Bellevue Dispensary; Author of "The State Board Examination Series"; Editor of "Witthaus' Essentials of Chemistry and Toxicology" and "Hughes' Practice of Medicine," etc., etc. Price $1.00 net. Philadelphia: P. Blackiston's Son & Co., 1913.

This is a wonderfully compact little volume, full of information arranged for quick reference. The flexible leather binding, the thin paper, the gilt edges adapt this book admirably for the coat pocket. The paper is however, too thin, the print showing through. It may also be noted that the name of the author of this revision has strangely been omitted from the cover.

The Physicians' Visiting List (Lindsay & Blakiston's) for 1914. Sixty-third year of its publication. Price $1.25. Philadelphia: P. Blakiston's Son & Co.

This popular visiting list appears promptly for the sixty-third time but with the same familiar face. It contains the reading matter usual in these annuals, such as a dose table, list of incompatibles, rules for the treatment of asphyxia, and direction for first-aid in cases of poisoning. Some of this reading matter might be brought up more nearly to date, for example the section on the treatment of asphyxia; but as few people ever make use of such matter the lack of revision will do no harm.

Practical Bacteriology, Blood Work and Animal Parasitology, Including Bacteriological Keys, Zoological Tables and Explanatory Clinical Notes. By E. R. Stitt, A.B., Ph.G., M.D., Medical Inspector, U. S. Navy; Head of Department of Tropical Medicine, U. S. Naval Medical School; Professor of Tropical Medicine, Georgetown University, etc. Third Edition, Revised and Enlarged. Price $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1913.

In its third edition this book shows evidence of a distinct enlargement, which, however, is not commensurate with the large amount of new material which has been introduced into it. It has been quite thoroughly revised and many new methods have been added. The work is divided into four parts, bacteriology, study of the blood, animal parasitology and clinical bacteriology, and parasitology together with an appendix containing sections on chemical examinations and the preparation of histological specimens. Everything is condensed to the last possible degree. The section on animal parasitology is particularly complete and satisfactory. It is to be regretted that the author has seen fit to vary somewhat one of the standard terms in immunity. He divides immunity into inherent and acquired and the acquired into natural and artificial. In the minds of most of his readers the term natural immunity connotes what he means when he says inherent immunity, while his natural immunity is generally known as active immunity. There is hardly a good reason for the change and the subject is difficult enough without introducing a confusion of terms. It is rather surprising that he retains a description of the Cammidge reaction which has been pretty thoroughly discredited since the appearance of the second edition. The volume is an attractive one and contains an immense amount of information.

Operationen Am Ohr (Operations on the Ear). By Dr. B. Heine, Professor and Director of the University Ear Clinic, and Poliklinic for Diseases of the Ear, in Munich. Third Enlarged Edition. Price 8.80 marks. Berlin: S. Karger, 1913.

The first edition of this work appeared in 1903; the second in 1906. With the rapid development of operations on the middle ear, labyrinth, semicircular canals, and the new and fearless surgical work in connection with dural and pial brain abscesses, as also in conjunction with sinus thrombosis and inflammations of the jugular bulb and vein, a work of this class under the auspices of a University cannot but meet with approval. The third edition enlarges more particularly upon the use of the Roentgen ray in mastoid disease; describes plastic operations for the cosmetic as well as physiological healing of bad curettage of mastoid and tympanum. As to opening of the mastoid, the author does not wait a given time—four to six weeks. Each case must rest on its own merits, although the position of the surgeon in a symptomless case is most disagreeable. The Roentgen ray is of use to define the limitations of large and small cells in the mastoid rather than the inflammatory processes of the mastoid itself. There is apparently little new in the method of the author as to Lanfols' and Schwartze's radical operations, here given in detail. Some fresh facts are brought out, as, for example, the harmlessness of injury to the horizontal semicircular canal, provided the preceding steps of the operation are thoroughly aseptic. A clear and succinct description of the course of pus from middle-ear through the oval and round windows through the horizontal rather than the posterior or superior canals, until the labyrinth is reached, is well written. The author points out the danger to life of the complication of pus in the labyrinth. Wonderful advance has been made within the last few years in this localized surgery. Not only can labyrinth disease be diagnosed, but its purulent processes can be checked and life saved. The author has prepared a useful guide for the otologist and aural surgeon. He is evidently not familiar with the English and American surgical work of the last ten to fifteen years—and in so far fails of a broad, comprehensive view which this work commands. The illustrations by Frln. Lisbeth Krause from the author's preparations are highly artistic.

Das Gehörorgan und die oberen Luftwege. By Dr. William Hasslauer, General Staff Physician. Price 6.50 marks. Berlin: Oscar Coblentz, 1913.

This little monograph has special regard to the muster in and military necessities of the soldier in service during peace or war, and is written from a German army surgeon's standpoint. It is a most readable and instructive guide to both candidate for army service and examiner of recruits. It illustrates the extreme care given to examinations of the aural passages, the anterior and posterior nasal fossæ, the pharynx, fauces, tongue, teeth, and gums—not only of the probationed recruit but of the soldier in military maneuver. Relations and behavior of the muscles of head and neck, development of glands and auricles, epiphyses of bones, neuroses of neck and ear, are written of in minutest detail. Aural and nasal reasons for refusing otherwise healthy recruits, the physical care and protection of these organs in foreign climates, monaural deafness, malingering, etc., are depicted with most instructive pen, so that even an anatomical artist might tread on the ground covered by this little work with fear and trembling. The aural examination for the German, Bulgarian, Danish, French, Italian, Austrian, and other European armies, also for the Japanese army, are reported in fullest detail, as given by the war ministry of the various nations.

Society Reports.

NEW ENGLAND PEDIATRIC SOCIETY.

Special Meeting, Held in Boston, November 8, 1913.

THE PRESIDENT, DR. JAMES F. STONE, IN THE CHAIR.

THE Pediatric Section of the New York Academy of Medicine, the Pediatric Section of the Medical Society of the State of New York, the New Jersey Pediatric Society, and the Philadelphia Pediatric Society were the guests of the New England Pediatric Society on this occasion. Clinics were given at the various hospitals of Boston during the day, dinner was served to the visiting physicians at the University Club, after which a scientific session was held in John Ware Hall, Boston Medical Library.

On the Bacteriological Diagnosis and Treatment of Alimentary Disease in the Infant and Child.—Dr. RALPH VINCENT of London, Eng., presented this paper in which he first pointed out the importance of appreciating the nature of the biochemical processes occurring under normal conditions before it was possible to appreciate the significance of the abnormal. He grouped the organisms concerned in the alimentary conditions of infancy under four heads: 1. Bacteria producing lactic acid, but not producing gas. This group was represented by the *Streptococcus lacticus* and the *Bacillus lacticus*. The *Streptococcus lacticus* was the typical organism growing in pure milk at a temperature of 38° C. At a later stage, when the acidity had become too great for the streptococci, the *B. lacticus* appeared, this organism being exceptionally tolerant of acid. 2. Bacteria producing lactic acid, carbon dioxide, and alcohol. This group embraced the whole of the colon group and included the *B. acidi lactici* of Hueppe, *the Bacterium acidi lactici aërogenes* of Escherich, and the *B. coli communis*. When raw milk was incubated the growth of the organisms belonging to this group was inhibited by the growth of the organisms belonging to the first group. When milk was grossly contaminated the colon organisms might gain dominance, and in such cases the curdled milk showed evidences of gas production. 3. Bacteria growing in pasteurized milk. The *B. putrificus* and the *B. enteritidis sporogenes* were examples of this group and their products were of highly irritant and dangerous character. 4. Bacteria growing in the milk after it had been raised to 100° C., owing to the fact that their spores had not been destroyed. These organisms were found in milk that had been boiled or sterilized, or in condensed milk. This group embraced a large number of organisms, the chief representatives being *B. subtilis, B. mesentericus,* and *B. mesentericus vulgatus*. When they developed in the intestines extremely powerful poisons of an alkaloidal nature were created and their absorption produced profound coma and death. These organisms were quite unable to grow in raw milk, for their growth was entirely prevented by the acid-forming bacteria. A series of experiments showed that pasteurization of milk at low temperatures did not destroy the lactic organisms as they finally appeared after long incubation in all instances. In the majority of cases they were so badly injured that they failed to appear at all within twenty-four hours, while the effect of their being unable to develop was that other organisms did develop, such as the *B. megatherium, B. subtilis, B. mesentericus,* and *B. enteritidis sporogenes*. It was impossible to find a method of pasteurization which would destroy pathogenic organisms without destroying the lactic organisms. The grave alteration of the milk was shown in the development of the acidity and the time of curdling. Fresh milk curdled at 38° C. within twenty-four hours, the acidity being from sixty to seventy degrees, while in pasteurized milk the average time of curdling was fifty-five hours and the average acidity at the end of twenty-four hours 20 degrees, which was the acidity at the time of milking. In raw milk *B. enteritidis sporogenes* never developed. If a milk was heated at 10° F. it was nearly certain that *B. putrificus* would appear on incubation despite the fact that there were other organisms in the milk capable of developing if only the conditions were favorable. If the temperature was too high for the *B. putrificus* to escape destruction, then the *B. enteritidis sporogenes* developed and held back all other organisms. In pure milk the *Streptococcus lacticus* grew rapidly for twenty-four hours, when the acid produced inhibited its growth; in about forty-eight hours no further growth was seen. The production of acid did not proceed regularly, the largest amounts being produced in the hours from the sixteenth to the twenty-fourth. The contents of the small intestine were normally acid owing to the formation of lactic acid from lactose by lactic acid bacteria. The lactic content gradually diminished as the food products passed through the alimentary canal, till, in the lower part of the colon there was no acid at all. This explained the difference between the flora of the large and small intestine. Were it not for the acid condition putrefactive processes would occur. This statement of the effect of acidity was absolute as regarded the obligate proteolytic organisms, but it was relative as regarded the colon organisms. The colon bacilli could act in an alkaline as well as in an acid medium, but the acid must be moderate in amount. One of the dangers of pasteurized milk was that while some of the organisms of putrefaction produced most unpleasant odors, others, notably the *B. mesentericus vulgatus,* grew in profusion without creating any change that could be detected by the senses. Dr. Vincent then described the technique for the examination of the intestinal dejecta. He stated that he preferred the Zeiss microscope. He had used two routine staining methods, the Loeffler's blue and a special method which he had devised, in which the Gram method was used with the Loeffler's blue as a differential stain. The great advantage of this method was that it differentiated all the lactic group from the colon group. The normal dejection contained numerous lactic acid bacilli, some colon bacilli, and possibly a few diplococci. In some instances lactic acid bacilli were found in almost pure culture, in others masses of diplococci or streptococci were seen, and these might be combined with lactic bacilli; in still other cases one might find a mixed specimen, lactic organisms and colon bacilli, together with the *Oidium lactis*. All of these acid conditions quite excluded a colon toxemia. This was a valuable indication as to treatment. Fresh milk would completely rid the intestines of *Oidium lactis* and similar fungi in about twenty-four hours. A cooked milk containing an excessive amount of sugar favored the development of these organisms. The colon organisms were facultative fermentative organisms and could deal with the remnants of lactose that might pass the ileum producing not only lactic acid but a small amount of gas. The administration of starches markedly encouraged the growth of the colon organisms. Some considerable practical experience was necessary to enable the observer readily to pick up the leading indications presented by the specimens, but it would be found that the majority of cases were straightforward, while in others there were special factors which had to be taken into account. Among the workers at the Infants' Hospital there was no doubt that by the means of bacteriological examination they had arrived at a means of diagnosis which in respect of accuracy and precision was far superior to any other means at their disposal. Their diagnosis and treatment were fundamentally dependent upon the reports from the research laboratory as a number of instances cited demonstrated. Upon the question of the relationship of proteolytic streptococcus to alimentary disease Dr. Vincent said he had not been able to arrive at a definite conclusion. In the large majority of cases he had not been able to attribute any serious conditions to the presence of proteolytic streptococci. As a rule the children in which they were present were suffering from a mild toxemia. The speaker stated that his investigations in regard to the biochemical changes occurring in raw milk had taught him that the usual periods of bacteriological incubation were too long; they systematically investigated the conditions found at the end of four and eight hours' incubation at 38° C. Dr. Vincent reported a number of cases demonstrating their method of making a diagnosis on the basis of their bacteriological findings. In England involvement of the intestinal mucosus membrane was distinctly rare in diarrheal diseases. This statement was based on the examination of many thousands of consecutive cases. Cases of acute colitis caused by the *B. enteritidis sporogenes* were not uncommon, but he had never seen a case in a child under twelve months of age. In dealing with an intestinal condition due to the dominance of the acid forming organisms, the first line of treatment was the exclusion of all diet calculated to assist the lactic organism. Raw milk must be forbidden. Cooked milk with the lactose reduced to a minimum was indicated. In such cases a reasonable amount of fat might be given and a considerable amount of protein in the form of caseinogen. They employed precipitated casein. In these cases chalk might be useful together with minute doses of opium; thus some very old fashioned remedies were found to have their justification in the bacteriological condition of the intestine. Another preliminary treatment was albumen water made with normal saline to which a few teaspoonfuls of meat extract were added, while small doses of brandy were given at intervals. Very gradually a milk

diet was introduced. The treatment was constantly checked by the examination of the dejections. In these cases the value of purgation had been overestimated; active stopping of the diarrhea was not unsound treatment, as it gave the irritated intestine rest by stopping the excessive production of acid. The treatment of the condition arising from the predominance of the colon bacilli depended upon the age of the child. In infants under six months of age, particularly under four months, it was a mistake to undertake too active treatment. It was better to adopt dietetic measures favoring the development of the lactic organisms. If the cases did not respond to these measures cultures might be administered. Cases of intestinal toxemia never occurred in their experience unless the infant had been fed on cooked food, or there had been some other marked departure from a rational diet. In cases of bronchopneumonia the dejections should be examined and on the appearance of colon dominance, cultures of *Streptococcus lacticus* should be immediately administered. Children fed on boiled milk were more likely to contract tuberculosis by reason of the toxemia resulting from the proteolytic action of the colon bacilli. Treatment by cultures of antagonistic organisms was, as a rule, not indicated in young infants, but in older infants and children most gratifying results had been obtained by the bacteriological treatment. The bacteriological examination should be made by the physician; he should know everything at first hand about his patient. The cultures must be prepared under his direction and control. The patient must be kept under observation and control and the dejecta subjected to systematic examination. Bacterial treatment had better be altogether neglected than carried out in a perfunctory or superficial manner.

Dr. E. S. Dow of Boston, Mass., said that Dr. Vincent had touched on the main point at issue. There were two groups of men at work on the problems presented by the diarrheal diseases of infancy. The one was working along chemical lines, studying fat, carbohydrate, and protein intolerance, and this group was inclined to omit the importance of bacteriological conditions. On the other hand, the bacteriologists were inclined to neglect the chemical aspects of the problem. These two lines of study should be brought into harmony. It had always seemed that bacteriology would furnish a sound basis for the treatment of these conditions. The two conditions, over-acid and putrefactive, had long been recognized, but what was needed was a reliable method of differentiating them.

Investigations in Vulvovaginitis by Means of the Female Urethroscope.—Dr. JOHN F. SINCLAIR of Philadelphia, Pa., read this paper. He declared that the great majority of medical men had slowly but surely come to regard vulvovaginitis as a serious infectious disease, not usually venereal in origin, but in the vast majority of instances due to the presence of the Niesserian organism. It was primarily with the view of improving the methods of prophylaxis that the present study was undertaken. The characteristic tendency of the disease toward periods of latency was so misleading that new and improved methods of vaginal examinations were sought. Leopold and Rubin, in January last, reported their experience with the electric lighted female urethroscope in searching for evidences of vulvovaginitis in children. Their method seemed to be an improvement on the use by Koplik in 1893 of Skene's urethral speculum for this purpose, so they had determined to test its efficiency. During the present year eighty-three infants admitted to the Babies' Hospital of Philadelphia had been examined with the female urethroscope and the bacteriological findings noted. Only the negative cases were admitted to the general wards, all positive and suspicious cases being isolated for further study. They had used the dry swab, the moist swab, and the platinum loop in taking the smears; the last had given the best results, the moist swab being somewhat less satisfactory, and the dry swab much inferior. They had also used a 1-1,000 solution of bichloride of mercury, injecting it deep into the vaginal vault with a pipette provided with a small rubber bulb and then recovering the solution and subjecting it to careful bacteriological examination. This method had not proved as satisfactory in their hands as when employed by Van Gieson. This might be due to their faulty technique, as Hamil and Kolmer spoke highly of the method. The complement fixation test was employed in ten cases and the results of this series was detailed in a chart. These were so far as the author knew the first complement fixation tests made on infants which were accompanied by notes of endoscopic examination of the cervix and vaginal vault. That 55 per cent. showed a positive reaction to the test was also of interest, as former investigators were unable to report any positive reactions. The source of infection was sought for, and an effort made to fix upon the date of onset, when this was possible. Complications and sequelæ were noted when present. Of the 83 cases examined 16, or 19 per cent., were found to be infected with the gonococcus at the time of admission to the hospital, or to present highly suspicious evidence of such infection. Seven cases which were negative upon admission subsequently developed vaginitis of specific origin. Five of these had been in the hospital from five weeks to thirteen months, and had shown no evidence of vulvovaginitis on repeated examinations. They were sent to a convalescent home in the country between June 3 and June 26, and no vaginal discharge was noted until July 20, when one of the babies was reported to have gonorrheal ophthalmia, and examination disclosed a specific vulvovaginitis. From this time till July 29 four additional cases of gonococcus infection were discovered. Of the remaining two cases one was positive on August 13 and the other baby which was negative when admitted did not present positive signs of vulvovaginitis until August 13. Nine of the cases well illustrated the well-known tendency to latency in this disease and suggested the thought that one of the great questions in regard to proper prophylaxis had to do with early recognition of the infectious agent in these latent cases. Of the total number of cases found in the first two groups 21.74 per cent. would have escaped detection without the use of the electric lighted female urethroscope. Only 30 per cent. of the cases in the group showed any visible sign of discharge upon admission. The source of infection was a most difficult one to determine and in none of their cases had it been definitely settled. The date of onset could only be accurately recorded in those cases beginning *de novo* in the convalescent home or hospital. The complications noted were ophthalmia, an exanthematous condition of the vulva, buttocks, and thighs, and proctitis, each of these occurring but once. Treatment consisted of irrigations of permanganate of potassium 1-8,000, and local applications of argyrol in 20 per cent. solution. When the discharge became scanty a solution of hydrochloric acid 1-10,000 was substituted for the solution of potassium permanganate. Irrigations with both of the solutions were discontinued with the disappearance of the discharge and were thereafter only employed on the days when a discharge was again present. To be effective prophylaxis must begin with a campaign of education in the homes where infants were born and raised as well as in all manner of institutions which had to do with the various phases of child welfare. Day nurseries, infant and orphan asylums, hospitals, shelters, public baths, recreation centers, and even the school houses were prolific sources of infection, and would continue to be until adequate medical supervision was exercised and individual cases were isolated until free from specific infection. In all institutions where children were received each child should be examined upon admission for clinical and bacteriological evidences of gonococcal infection and promptly removed or isolated if the findings were positive. Proper isolation in institutions demanded the employment of special nurses who should not come in contact with other children. The lay helpers should be free from gonorrheal infection and this should be determined by the bacteriological examination and the complement fixation test. Systematic examinations of all inmates of such institutions should be made at convenient intervals in order that latent cases might be early detected and isolated before becoming centers of infection.

Boards of Health should be empowered by law to make gonorrheal infections reportable and to exercise their authority along lines similar to those which they now employed in dealing with tuberculosis. Medical attendants, especially gynecologists and genitourinary surgeons, should inform their patients clearly as to the nature of the disease and the danger of communicating it to innocent babes and children, and should give them minute instructions as to how they might safeguard those about them. Special clinics for the treatment of vulvovaginitis should be established in all large cities as they had been in Boston and New York.

Dr. RICHARD M. SMITH of Boston, Mass., said they had been working on this subject endeavoring to work out a line of treatment, and he wished to call special attention to the value of the complement fixation test. They had had several instances come under their observation where children were kept out of school and treated for vulvovaginitis when they were found later to have had a mixed infection. The complement fixation test would settle such cases as these.

Active Immunization in Diphtheria by Toxin-Antitoxin Mixture.—Dr. WILLIAM H. PARK of New York described the experiments that had been made with toxin-antitoxin mixtures in the laboratories of the New York

Department of Health and Willard Parker Hospital. He recalled that many of their methods of immunization and treatment were the result of accident. The use of antitoxin was discovered by accident and the use of the toxin-antitoxin was the result of an attempt to economize in the use of guinea pigs. After giving the guinea pigs toxin they gave them more antitoxin than was necessary, so that they might use them over again and they soon found that the guinea pigs had developed a certain degree of immunity. This action had been noted as far back as 1895, when they gave horses diphtheria toxin and then more antitoxin by one-half than would neutralize the toxin. In Boston Dr. Smith had found that not only his guinea pigs had immunity but that the young of these immunized pigs had a certain degree of immunity. Hitherto, in most of their immunity experiments they had been using horse serum which was an alien antitoxin and was eliminated in about four weeks from the human system, so it had been suggested that if they developed antitoxin in the human system the immunity should remain for a greater length of time. Working along these lines Behring a year ago injected a number of children with toxin-antitoxin mixture and actually immunized them against diphtheria, and this led them to carry out the same line of investigation. Dr. Park presented charts showing the results of their experiments with guinea pigs and horses. In making this study they found themselves confronted with two dangers; the danger of using too large an amount of toxin when the animal speedily died, or with a lesser amount became paralyzed; or, on the other hand, the danger of giving too large an amount of antitoxin when no immunity resulted. They designated that amount of toxin which produced active symptoms of diphtheria and death as 100 per cent, and then gave smaller percentages, 90, 80, 70, and so on down to 40 per cent. They found that as the amount of toxin was decreased the number of deaths and paralyses decreased. When from 60 to 70 per cent. of the fatal dose was administered the greatest degree of immunity was secured together with the greatest degree of safety. Different proportions of antitoxin were also employed, and it was found that the proportion that gave the greatest immunity was an amount a little greater than was necessary to neutralize the dose of toxin. In a series of experiments on horses it was found that 0.66 of a unit of toxin to one unit of antitoxin produced the largest amount of antitoxin in the blood and the greatest degree of immunity to the disease. In their experiments with children they found that about four-fifths of the children receiving the toxin-antitoxin injections, after ten days, developed from one-half to two units of diphtheria for each cubic centimeter of blood. This persisted for a number of months in gradually lessening amounts. In one series of fifteen cases there were five that developed no antitoxin in the blood; and of these, two developed diphtheria; they were then given antitoxin without any serious results and made rapid recoveries from the disease. One of the children in this series had one-tenth of a unit of antitoxin normally, and in fourteen days this child developed four units of antitoxin. The children who had antitoxin normally in the blood developed greater amounts of antitoxin than those who had none normally. None of the children with antitoxin normally in the blood developed diphtheria. In the scarlet fever wards, of 433 children receiving 1,000 units of antitoxin as a prophylactic dose on admission to the hospital, 20 developed diphtheria; all were given another dose of antitoxin and in no instance had there been any evidence of anaphylaxis, while in every case the diphtheria was controlled. In scarlet fever Behring found that active immunity broke down in several instances. Dr. Park then compared the mortality and morbidity curves of diphtheria in New York City since 1893. These curves showed that while the mortality of diphtheria had been reduced from 1.30 per 1,000 population in 1893 to 0.21 in 1912, the morbidity curve had fallen but very little if any. The morbidity in 1898 was 3.42, rising in 1903 to 4.85 and in 1904 to 4.65, and falling in 1912 to 3.61. This showed the need of some procedure which would lessen the incidence of diphtheria, and the question arose as to whether active immunity would give enough benefit to be worth the trouble when active immunization conferred immunity on about three-fourths or two-thirds of the children receiving injections for a period of about one year. It was possible that there was a need for active immunization in cities where diphtheria was endemic, but in outbreaks of diphtheria in institutions and families passive immunization was undoubtedly the better method in the present state of their knowledge regarding active immunity.

Dr. E. H. Place of Boston, Mass., said that, in regard to the production of active immunity, Dr. Smith had suggested the idea, but no one had had the courage to attempt it in the human being. As to the incidence of diphtheria, it was not evident that there had been any reduction in this respect. Although the morbidity curve was slightly lower it should be remembered that culture diagnosis had come into use and had exerted some influence on the morbidity curve. All sought some means of bringing about active immunity as this under the present conditions of living seemed to offer the only hope of controlling and limiting the incidence of the disease.

Dr. Park said that he might add that the results of their work on active immunity had not made them feel at all discouraged in attempting further investigations and they were planning to use this method on thousands of cases and to follow them up for several years.

The Position of the Stomach in Children.—Dr. James Warren Sever of Boston, Mass., said that he had examined a large number of stomachs of infants and children of various ages and physiques by means of the bismuth meal and the *x*-ray in the effort to determine the average location of the stomach in the erect position of the individual. In the literature on this subject much was found that would have to be discounted, if not altogether discarded, in the future, as they became more cognizant of the subject. He believed that they had been led to lay too much stress on the condition of so-called visceral ptosis, congenital or otherwise. Dr. Sever quoted a number of authorities as to the position of the stomach and pointed out the great diversity of opinion in regard to the normal location of this viscus. In the series of cases under consideration 83 children were examined, 60 girls and 23 boys. These children varied in age from four to eighteen years, the average being ten or eleven years. The weight, state of nutrition and general body development were also observed, as well as the attitude and the size, shape, and capacity of the thorax, and the costal angle. No attempt was made to outline the stomach by palpation or by inflation with gas, as this was felt to be unsatisfactory. The crests of the ilia were used for purposes of comparison. The average of the series was well up in size and weight to Holt's averages. Of the girls, 47 were well developed and nourished and thirteen were poorly developed and nourished. As far as they had been able to observe, general condition and body weight, with or without much adipose tissue, had very little to do with the position of the stomach. There could be no established rule on this point. In this series the capacity of the thorax was measured relatively by the chest expansion which showed a good average. In some of the cases a long flat narrow thorax was noted, but there was quite apt to be a stomach relatively high in these cases as in others with a normal thorax. No relation could be established in regard to the shape or capacity of the thorax with the degree of ptosis present or to be expected. The costal angle in these cases was generally normal or broad. They had taken the so-called index of Bescher and Lenhoff, the determination of which was supposed to give an adequate idea as to the relative capacity of the upper abdomen, but this had proved rather a failure as a means of estimating the probable position of the stomach. Cases with the highest indices showed no other evidences which could suggest ptosis, and others with low or moderate indices showed all degrees of ptosis. There could be no definite lines or relations established between the index and the shape, development, or capacity of the thorax, or shape of the costal angle. As to the position of the stomach itself in these cases, it was noted that, taking the crests of the ilia as landmarks, twenty-five showed the lower border of the stomach opposite the fourth lumbar vertebra, nine showed it at the level of the crests, and in 49 instances the lower border was well below the crests of the ilia, often in the pelvis, often as much as three or four inches below the crests. The finding of a uniformly low position of the stomach in such a large proportion of the series could mean nothing but that that was where the stomach belonged. He believed that such a low position was normal, and that in the future the second lumbar vertebra would have to be discarded as the normal landmark of the lower border of the stomach. In studying the *x*-ray plates, the size and shape of the stomachs was notable as well as the positions. The shape varied considerably, the most persistent type being that of the sink-drain variety. There were very few stomachs presenting the so-called normal cow's horn shape, and none of these were in the position usually regarded as normal. Many of the stomachs were seen in the middle line, but many were also seen to the left, apparently resting well within the iliac fossa. Ideas in regard to the position of the stomach would have to undergo a change. A low stomach in a child did not mean a pathological ptosis.

Dr. Maynard Ladd of Boston, Mass., said that all their work had been done on infants under nine months of age and done with reference to gastric motility rather than to the position of the stomach, but he believed that the position of the stomach in these younger children was higher than they had been accustomed to think. In twenty-five cases that he had examined there were none in which the lower border of the stomach reached anywhere near the crest of the ilium.

Dr. Abraham Jacobi of New York said that Dr. Ladd's remarks were in order. In infancy the position and shape of the stomach changed rapidly. In the newborn the stomach was in nearly a vertical position and by the end of one month it was in an oblique position, the lower border being in front of the tenth dorsal vertebra. It then gradually descended. It was to be hoped that Dr. Sever would take up this subject and observe the position of the stomach at the different months and years of infancy and childhood. The shape and position of the stomach in infancy was influenced by the food, whether the infant was breast fed or artificially fed. In looking up the literature he had found that the first demonstration of the localization of the stomach was made in 1825, and at that time the stomach was pictured as in a vertical position at birth and soon afterward.

Dr. Arthur R. Kimpton of Boston, Mass., said that he had had occasion recently to do two autopsies, one on a child three weeks of age and the other on one of four days. In the first case a diagnosis of pyloric stenosis had been made and a palpable tumor could be definitely made out, so the pyloric stenosis was not spasmodic. This stomach was in the oblique position higher up than the text books showed. The illustration presented was interesting as showing a picture of pyloric stenosis. The child's stomach was normal in size and the tumor looked like a new growth rather than a hyperplasia. The second case was not one of pyloric stenosis, but of congenital absence of the large intestine. In this subject the stomach was extremely high up and in an oblique position. The large intestine was about the thickness of a lead pencil and was filled with inspissated, putty-like material. The obstruction occurred about an inch from the ileocecal valve. In such cases one should look for the obstruction close to the cecum rather than in the large intestine.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, Held at New Orleans, La. October 23, 24, and 25, 1913.

The President, Dr. Albert E. Sterne, Indianapolis, Indiana, in the Chair.

(*Continued from page* 1007.)

Technique and Results of Anoci-Association.—Dr. Harry G. Sloan of Cleveland, Ohio, said the best results would be obtained when we were able to protect the patient's central nervous system from all insults, whether these arose from psychic, traumatic or anesthetic factors, for the condition of the central nervous system was the cornerstone on which the ultimate outcome of each surgical case rested. The depletion and exhaustion of the central nervous system were readily accomplished, whereas its convalescence and return to normal function were notoriously slow; hence prophylaxis was of the greatest importance. Soon after waking on the day of operation the patient received a hypodermic injection of morphine and scopolamine and thereafter was disturbed as little as possible by nurses and friends. He was encouraged to doze off. On reaching the operating room he was at once anesthetized with nitrous oxide, in order to spare any unnecessary delay. In order to cut off from the brain the afferent nerve impulses from the field of operation, they blocked each successive plane of the operative field with novocain before it was invaded by the scalpel. All tissues were handled with the utmost gentleness, especially those viscera whose nerve supply it was impracticable to block. Gentle manipulation produced the least amount of tissue injury, and in turn necessitated the minimum amount of healing. Clean cut tissues contributed to the postoperative comfort. Trauma by destroying local immunity predisposed tissue to infection. The tissue trauma should be as slight as possible. First, the skin and the subcutaneous fat along the course of the proposed incision were blocked with 1-400 novocain solution; 10 c.c. Record hypodermic syringes were used and both the surgeon and the first assistant infiltrated the tissues at the same time so as to expedite matters. The aim was to infiltrate between the superficial and deep layers of the skin with the first line in such a manner as to cause a pig skin appearance. Putting the skin on tension facilitated this and when the proper plane was found the needle was progressively pushed along beneath the skin parallel to the surface while the injection was being made. In this manner a 10 cm. skin incision could be infiltrated by making only three skin punctures. The pig skin effect was much more easily obtained in some skins than in others on account of the varying cohesion of the two layers. The infiltrated line was massaged to spread the anesthetic and then immediately incised. Each tissue plane was blocked in a similar manner before the knife invaded it. Operating under local anesthesia alone was a valuable practice for learning effective local blocking. In such a case any careless move would call forth a protest from the patient. As a result of an abundant experience with conscious patients, the surgeon when operating on the anesthetized patients would automatically plan the infiltration and his handling of the viscera in the manner which would cause the least pain were his patient conscious. Wherever it was possible, they blocked the sensory nerves which supplied the operative field. An abdomen opened in such a manner, as described, showed perfectly relaxed walls because no sensory impulse had reached the cord to call forth the protective stiffening of the muscles. Since there was no increased intra-abdominal pressure the intestines in sliding up and down with the respirations would not protrude from the wound. The cut in the abdominal wall gaped open as it would in a cadaver. In order to achieve such a result, however, the blocking must be absolute, for careless infiltration would not turn the trick. This demanded practice, but practice would make perfect. Wherever practicable they blocked the whole nerve supply of the viscus on which they were operating; in this way they could isolate the uterus, appendix, bile passages, etc. Unless nerve conduction was interrupted in the cord, it was well nigh impossible to obtain perfect relaxation beyond the block in the muscles overlying an inflamed peritoneum or in a cancer-studded viscus which could not be included in the block. By blunting the keener faculties of the patient during the day of operation he was spared the anxious uncertainty that naturally occupied his thoughts at such a time. The induction of nitrous oxide anesthesia entailed no more discomfort than would dozing off in his own bed at home. In the hands of an expert this was one of the safest anesthetics known. By the use of a local anesthetic, the amount of general anesthetic required was reduced to one-third or one-half the amount ordinarily used. This was true of both nitrous oxide and ether. The post-operative comfort of patients who had been subjected to this technic was probably the most convincing evidence of the value of this procedure. A rapid convalescence and a rapid return to normal condition after an operation were in direct relation to the amount of damage done to the central nervous system.

Dr. W. F. Parham of New Orleans said he had been carrying out the method of Dr. Crile which had distinct advantages in the prevention of shock and the after comfort of the patient. Dr. Crile had given strong evidence of the effect of trauma upon the cells. He did not see how, with the careful method which he carried out in determining whether there was any such effect upon the nerve tissue or not, he could be in error, so that from his standpoint he would accept the statement from Dr. Crile as proved. He had recently been able to withdraw a kidney under local anesthesia entirely. He had brought the kidney up through a small incision, opened the pelvis of the kidney, removed a good sized stone from the pelvis, sewed it up, and then resected a cyst as large as a walnut from the lower pole of the kidney, put the kidney back into the cavity, and sewed up the wound with practically no pain. He had preceded this local injection by scopolamin 1/150th grain, and morphia, 1/6 grain. If that could be done, and it had certainly been done in a sufficient number of instances to prove its practicability and its advisability in many instances, then the addition of an anesthetic which was harmless in character, which would abolish the psychic effect, was a combination which made operative work about as nearly perfect as it was possible to make it at the present time.

Dr. E. Denegre Martin of New Orleans said that anyone who watched Dr. Crile work for any length of time was impressed by the fact that in his operations no unnecessary damage had been done. His effort had been to shorten the time of operations, to perfect his technic so far as he could, to traumatize the patient as little as possible, and to affect the patient as little as possible by the use of the ether, and he had succeeded in making

them more comfortable by shortening the operation, and they were less nauseated from the use of ether.

Dr. W. M. Perkins of New Orleans stated that in the matter of anoci-association great emphasis was laid on the patient's tranquility and upon the patient's confidence in the physician or surgeon who was to do anything to him or for him. That particular part of the paper should be emphasized, and especially for the benefit of those who did hospital practice. Patients psychologically would be treated very often in hospitals and if there was anything that they did not get in the way of cell exhaustion, it was only by luck.

President's Address: The Civic Importance of Some Phases of the Neuroses with Suggestions as to Their Control.—Dr. Albert E. Sterne of Indianapolis pointed out that of the many medical questions of civic importance probably none had acquired greater prominence than that of drug addictions. By reason of the baneful effects, not only upon the individual user, but upon his family and upon succeeding generations as well, by reason of the enormous proportions to which the various habits had spread, by reason of the crying necessity for authoritative control, and most important, by reason of the comparative ease with which this control could be attained, if the right measures be pursued, this drug question easily outstripped the rest in importance to society, and the opium question, the morphine question and the cocaine question had attained tremendous magnitude. Slaves of the one or the other or all of these drugs were numerous in every community, whether urban or country. Their total reached millions. Individual health or precongenital defect in loss in earning power formed an economic civic problem of the highest order. In its ramifications it touched many social conditions. Its association with the vice situation brought it startlingly into the foreground. It was safe to assert that 80 per cent, probably 90 per cent, of commercial white-slaves and their hangers-on were users of drugs. Many had become public prostitutes through drug addictions, more than had become drug habitues after inauguration into the body traffic and no small percentage had been designedly let into the thralldom of drug effects in order to make them easy victims of the tenderloin. This was particularly true in the larger cities to which ignorant immigrants swarmed, or to which many country girls were lured. If we, as physicians, were earnestly engaged in fighting disease conditions, personally and communally, if we were striving to prevent disease, to uplift humanity, and to teach the quality of man with the animal kingdom, to advocate quality rather than mere quantity of the human species, then it was our business to hit this drug monster with every atom of strength that we possessed. There was not a single community in this country or anywhere else in the civilized world which had not suffered from the effect of this great social disorder, concealed though it be as far as possible. Unlike the alcohol question, which paraded itself openly and thrived on publicity, the drug question sneaked, hiding as long as it could, save in those instances of common habit among a group of individuals or a given class of workers. The ratio of usage of drugs was as great or greater among the wage earners as among the wealthier and far greater among the very lowest social grades. In the South the number of drug users was uncountable. Race riots had been not infrequently attributed to the effects of these crazing poisons. Various States had legislated or sought to legislate and legitimatize the traffic in habit-inducing drugs. Indiana last year passed a law regulating the sale and use of these drugs, but the law was too faulty to be of much use. It was drawn by druggists, wholesale and retail, and never was designed to wholly prohibit trade in these nefarious stuffs. In Ohio a similar law was being urged. In several other States an analogous situation prevailed. This whole question was not one limited to any city, State or States, but was country wide and could be solved only by the federal government. Restrictive legislation and control by States would help to some degree, but unless some laws were obtained and were enforced by all states anything like adequate results would be mere speculation. As long as dispensing drugs of this sort remained lucrative, there would be found some means of supplying the demand, unless the matter could be absolutely controlled by federal authority which had the machinery already in action wherewith to effect proper control. He would emphasize the national regulation of all habit-forming drugs of every type, but especially those of opium and cocaine derivation. It took cognizance of the fact that only through federal action could any real result be gained and quickly gained. Concisely his plan was: *First*, the establishment of a national warehouse or central depository for imported opium and cocaine, and like raw drugs. *Second*, the establishment of regional or district depositories either for a group of States, or, if deemed advisable, for each State either for raw material, or manufactured products, or both. *Third*, the appointment of authorized pharmaceutical agents to convert the crude products into commercial form. These three departments would constitute the business plan, the proper operation of which would enable almost perfect control of raw material and finished product.

Child Culture the Function of Organized Medicine.—Dr. Henry B. Favill of Chicago stated that improvement in the conditions of future generations must be accompanied by an improvement in quality. The burning question is "How can the human stock be improved?" The relation of crime, insanity, pauperism, degeneration and social degradation to individual and hereditary defects had been proven. The control of the unrestrained breeding of defectives was immediate and urgent. This, however, was only a small part of the problem. The real question was not how to prevent the bad, but how to develop the good. The difficulty was that our knowledge of heredity was not as yet sufficient to enable us to control conditions. As we had not the facts on which to base any plan of control the most that could be accomplished at present was the creation of a public sense of conscience and responsibility, at the same time making every effort to increase scientific knowledge regarding the factors involved in heredity and eugenics. This was a field in which physicians must be able to qualify as experts. As a whole, the medical profession had not hitherto risen to the situation. Legislation could not proceed in advance of public opinion, and public opinion would not allow an invasion of private rights without overwhelmingly positive evidence being presented. This evidence must be secured and properly presented to the public by scientific physicians, if a public feeling of social responsibility was to be developed. Child psychology and proper methods of pedagogy were also involved. The prime question in any life was the character of its growth. The personality of the child was a determining factor in its development. Teachers could not be expected to solve the problems involved without assistance from physicians. Parents were in need of assistance from both physicians and teachers. We must make ourselves competent advisers to the parent and the teacher, in order to develop in each child the best of which it was capable. Health was a function of character. Under civilized conditions the maintainance of health became a question of self-restraint. Sanitary science could control mass conditions, but great progress in the physical welfare of the race would not be made until individuals were thoroughly trained in ideals as to health standards and their obligations to others. The evolution of the child was of the utmost importance in the solution of health problems, and physicians were not justified in saying that they would deal with the child's body and that some one else must mold its soul. Viewing the child and its development from any point, the conclusion was inevitable that the problems involved must be solved by physicians as a class. Again, the question presented itself, "Are we qualified for this responsibility?" It was a deplorable fact that in medical schools in this country, instruction in personal hygiene was almost unknown, and instruction in psychology was unheard of. The only explanation of this tremendous defect was that the profession had not as yet realized its responsibility in these directions. The greatest contributions of the medical profession of the future to human welfare would be the furtherance of child culture. The Council had undertaken to ascertain the exact public health situation in this country by inaugurating a survey of all public health agencies. This involved a survey of the public health work being done by the national government and a comparison of federal health work in this country with that of other civilized nations, as well as the development of practical plans for the establishment of a National Department of Health that would be second to none in importance in the government. Of still greater importance in this country was the State health work. Yet no one knew what was being done by the various State boards of health, because there was no standard or basis of comparison. The Council had undertaken a detailed and painstaking study of this question. A trained sanitarian of the highest rank was about to make a personal study of every State board of health to discover the work, powers, equipment and support of the health department in different States. After this had been completed a similar survey of the municipal health work was planned. Aside from official health activities, there were in this country many organizations springing from the private initiative and supported by popular

subscriptions. The importance of these organizations could not be overestimated. While the Council was carrying on these investigations in the existing health conditions, it had also started definite measures for the education of the public. A press bureau had been organized, which sent out to five thousand newspapers every week a press bulletin dealing with important public health subjects. The newspapers had recognized the fact that there was no sinister purpose or private interest behind this effect and they were using freely the material thus sent out. A speakers' bureau had been established, through which one hundred and thirty of the leading physicians of the country were offered to local organizations for addresses on public health without expense to the local body. The speakers donated their time, the Council paid their traveling expenses and the local organization furnished the meeting place. A bureau of literature was also preparing and sending out pamphlets on public health questons, written for the instruction of the people. Many special committees were at work on special subjects. A medicolegal bureau had been established to study public health laws in this country and others, and to draft, with the assistance of prominent educators, social workers, lawyers, judges, governors, and others, model laws for the protection of the public health. We recognize that in this work the legal point of view must be common. If asked what had public education to do with child culture, the answer was: "Everything." We could not mold the future on criticism. We could not educate and perfect children without intelligent co-operation of the present generation. The more intensely we saw our duty to posterity, the more profoundly we realized the necessity for sane conservative advance at present. The improvement of the future generations and the salvation of the people from disease was possible if the medical profession would take the lead and if the people would support its efforts.

Endocarditis with Special Reference to Its Etiology; Ulcerative Appendicitis in a Rabbit Produced by the Intravenous Injection of the Streptococcus Rheumaticus.—Dr. Robert H. Babcock of Chicago said it was his desire to emphasize the tonsil as the most frequent atrium of infection in rheumatic fever and endocarditis of whatever type. Unfortunately this relationship was not sufficiently appreciated, and mainly perhaps, because in childhood an acute tonsillitis may be so mild as to be overlooked, but ever since the work of Meyers in Germany years ago called his attention to the connection between follicular tonsillitis and rheumatism and endocarditis, he had made it a rule to investigate the condition of the tonsils in all cases of acute or chronic valvular disease coming under his observation, and he did not hesitate to assert that he invariably discovered evidence or obtained a history of previous tonsillar infection. The main reason perhaps why the etiological influence of follicular tonsillitis was not recognized more often was as pointed out by Rosenow, that the tonsillar involvement was very apt to precede the rheumatism by a number of days or even weeks. And as Rosenow said this was owing to the fact that time was required for the hemolytic streptococcus causing the tonsillitis to become converted into the rheumatic streptococcus. When at length this had been accomplished, this latter strain was taken up by leucocytes and carried directly into the blood. By this stream conveyed to the joints or to the capillaries of the valves they there set up the characteristic inflammation, and we saw the phenomena of articular rheumatism and endocarditis or in the case of a child only an endocarditis without joint involvement. In many cases he had discovered slight, but to his mind convincing, evidence of appendicial mischief and had attributed these stomach attacks to acute exacerbations of a chronic appendicitis. Generally the family physician or the parent had been unwilling to accept the diagnosis and the case had been allowed to go on. But in the following case an acute appendicitis was diagnosed by more than one physician though recourse to operation was not had. A young man whom he had seen in consultation some years before and who had aortic regurgitation developed a sharp attack of inflammatory rheumatism and reinvolvement of the already damaged valves was feared. Therefore, he was asked to see him in consultation with two other physicians. The tonsils were actively inflamed. Under treatment the case was progressing favorably when he developed unmistakable symptoms and signs of acute appendicitis for which a competent surgeon was called. Owing to the gravity of the cardiac condition no operation was thought advisable by the surgeon. After a time this as well as the other rheumatic symptoms abated and at his advice the tonsils were removed under ether. A year later this young man was driving his automobile and appeared in fine health excepting, of course, his aortic lesion. In the light of this specimen here exhibited we could understand the occurrence of the appendicitis in this case and should be in position to recognize such a complication or accompaniment in future cases of acute rheumatism or rheumatic heart disease. He considered the etiology of the endocarditis due to the *Streptococcus viridans*. This organism which Rosenow believed was a strain or modification of the pneumococcus, since by appropriate cultural methods he had transformed it into the pneumococcus, existed in the throat and was frequently found on diseased tonsils. It did not itself occasion tonsillitis, but found an unhealthy tonsil good soil for its growth. Consequently, it could be taken up by the leucocytes and carried into the blood stream to lodge in the capillaries of the heart valves in the same manner as were the germs of rheumatism. If the capillaries were fairly abundant, as in the young, the bacteria might be attacked by the phagocytes and destroyed before they had time to grow and multiply. But if the capillary supply to the valves was poor, as was the case with sclerotic valves from former endocarditis, then leucocytes could not get at and destroy the streptococci which, therefore, grew rapidly and produced massive vegetations as in the specimen presented and in the slides submitted for inspection. Two conditions were generally requisite therefore, a throat infection or an atrium of infection elsewhere, and a chronic valvular lesion. Of the latter it appeared to be aortic insufficiency, that was particularly liable to this form of ulcerative endocarditis. What now was the lesson to be drawn from these specimens and these cases? In the first place, we should take care of the throats of children by the removal of adenoids and the correction of any other defect that predisposed to throat infections. Never regard any sore throat or tonsillitis in the young as trifling and whenever a child displayed languor, slight fever, etc., examine the throat. In particular parents should be taught the danger of throat infections and the necessity of frequent inspection of the throat. Finally, in any person with valvular disease who had recurring sore throats or rheumatic pains strict attention should be paid to the care of the throat, and if the tonsils were diseased, even though not enlarged, they should be taken out, not merely clipped. Tonsillectomy skilfully performed under ether was less dangerous than was the risk of endocarditis of the deadly kind shown in this second specimen. He had had a considerable number of children and adults with valve lesions and bad tonsils subjected to this operation, and as yet had not seen unfortunate results in a single instance. We should not pass over recurring attacks of so-called indigestion with fever in a child with an endocardial lesion as merely a "stomach attack," but bear in mind the possibility of appendicitis in association with or as a result of rheumatic infection and tonsillitis and direct particular attention to the appendix. If convinced that it was responsible for these attacks of digestive and febrile disturbances, have it removed, if possible. A chronically infected appendix might serve as the atrium of infection for this terrible foe to patients with valvular disease, the *Streptococcus viridans*.

Dr. Willard J. Stone of Toledo, Ohio, discussed the clinical significance of diastolic pressure variations, with especial reference to hypertension and cardiac overload.

Functional Testing of the Cardiac Power.—Dr. Charles Spencer Williamson of Chicago drew these conclusions: (1) "In diseases of the cardio-vascular apparatus, the examination of the quietly resting patient gives us no clew as to the functional efficiency of his heart, except there be present manifest signs of cardiac insufficiency. (2) In the present state of our knowledge, the most satisfactory method of arriving at a knowledge of the functional efficiency of the heart, is by subjecting the patient to exercise tests, and in a doubtful case no diagnosis should be regarded as complete without such tests. (3) None of the methods which have been as yet devised, and which depend on variations in pulse, rate and blood pressure, are free from considerable sources of error, and none of them can be regarded as furnishing a numerical estimate of the cardiac strength. (4) In spite of the inadequacies and inaccuracies of these various methods, it is possible for the purposes of practice, to obtain a very accurate estimate of the functional heart power by submitting the patient to an accurately measured, but familiar exercise, such as climbing a certain number of steps, and by observation of the pulse, respiration and blood pressure, together with the quickness of the return of these to the normal. The severity of these exercises should be strictly individualized, and in every case, adjusted to the patient's general muscular development and condition. (5) For more scientific work, the only method which is capable of giving numerical results is that of obtaining the size of the heart before and after exercise, as deter-

mined by the orthodiagraphic method or some of its modifications."

Thrombosis and Embolism.—Dr. Walter L. Bierring of Des Moines, Iowa, described a series of unusual circulatory accidents occuring in acute infections.

Case I. Gangrenous appendicitis, mesenteric thrombophlebitis, pyelophlebitis of the liver, acute endocarditis, simultaneous embolism of the left middle cerebral and left axillary artery.

Case II. Suppurative cervical lymphadenitis, operative trauma left facial artery, embolism left middle cerebral artery, right hemiplegia.

Case III. Exophthalmic goitre, acute influenza, chronic infectious endocarditis, embolism with occluding thrombus of right posterior and anterior tibial artery with resulting ischemic gangrene of right leg.

Case IV. Male, 39 years of age, acute tonsillitis, thrombosis of left posterior tibial artery; ischemic gangrene of left foot and leg; embolism of right middle cerebral artery; (partial) left hemiplegia; exitus.

Case V. Male, 57 years of age. Acute follicular tonsillitis, cervical lymphadenitis, femoral thrombophlebitis, local abscess formation, general fatal septicemia.

Case. VI. Male, 21 years of age, acute tonsillitis, bacteriemia, acute parenchymatous nephritis, edema, uremia, thrombosis of the right internal jugular vein and right cavernous sinus.

Case VII. Young girl, aged 17 years. Acute pleurisy, central pneumonia, thrombophlebitis of right and left jugular veins, acute right and left cavernitis. Duration of illness four days.

In this series of circulatory accidents, the acute infectious process in four instances was an acute tonsillitis, and one example of acute pleurisy and pneumonia, influenza (lymphadenitis), and appendicitis. As regard localization, the posterior tibial artery was involved in two cases, the middle cerebral three times, the axillary artery once, one example of femoral thrombophlebitis and two of cerebral sinus thrombosis. In two cases multiple embolism occurred in the same patient. In summarizing this series of cases, which were all instances of acute infection accompanied by general bacteriemia or septicemia, tonsillitis, and apparently acute infection of the upper air passage, played a prominent role. This gave to acute tonsillar infection an importance that might not have been recognized heretofore, and supported the conception that it was an expression of general septicemia, and most of all emphasized the need of rest as the main essential in its treatment.

Dr. James Birney Guthrie of New Orleans said that for a number of years he had been an exponent of the light percussion method of outlining the borders of the heart. On one occasion, after having carefully outlined the heart of a patient in bed who was suffering with a marked degree of cardiac insufficiency, and having drawn on the chest wall a projection diagram, he was interrupted for a few minutes, and then he returned and repeated the procedure. To his surprise he found that the outline had changed, and that the right heart border was pushed out 2 cm. Investigation as to the cause of this phenomenon showed that the patient had coughed rather violently in the interval, and in so doing had dilated the heart. This patient he regarded then as a most interesting and unusual case of heart weakness. A number of his colleagues were brought in to see this case and concurred with him as to the existence of cough-dilatation. The dilatation reached its maximum after three cough efforts and in this particular case lasted five minutes during which time there was a gradual return of the original outline. For some time he believed that this case and similar ones which he found subsequently were extreme cases of cardiac weakness. He discovered them in a colored service made up largely of cardiorenal cases. This view, in the light of subsequent work, he no longer held, but had come to look upon the procedure of outlining the heart by percussion or X-ray before and after cough timing the return to the original size of the outline, as a most valuable index of the integrity of the heart muscle. The healthy heart dilated on coughing to a degree perceptible during X-ray examination, but not appreciably by percussion. The time factor was quite as important as the measurement of the outward displacement of the right heart border. The graver the heart weakness, the longer the dilatation lasted. The longest cough-dilatation time observed so far had been fifteen minutes and the shortest five seconds. This statement was based on careful examination of over one hundred cases. It was probable that this range of cough-dilatation time would be extended on further observation.

Dr. Albert E. Sterne of Indianapolis reported a case of chorea, arthritis, and endocarditis in a girl whom he saw in consultation. A month or so before he saw her she had fallen down stairs and cut her forehead on the base-plate of a stove. The injury seemed trivial. The attending physician cleansed it but the wound did not heal, and in spite of every measure at the hands of an excellent surgeon the wound kept suppurating. She developed in the course of the second week after the injury polyarthritis. In the course of a few days, after the joint invasion, she developed a profound and severe form of chorea of the ordinary type, at which time he saw her in counsel with her physician and the surgeon who had attended her. These cases usually developed severe infectious endocarditis, and in this case, in the course of a few days the endocardial lesion occurred. At the time of his first visit the heart sounds were perfectly normal. Under careful treatment this child seemingly did very well, but she did not regain her strength; the joint condition practically disappeared, the chorea subsided and the heart murmurs lessened, but did not entirely disappear. In about four weeks after the time the heart lesion first manifested itself the joints again became inflamed; the chorea again became severe; the heart sounds again became indistinct and the child died of all the symptoms characteristic of thrombosis and embolism of the several sinuses.

Dr. T. J. Halsey of New Orleans asked Dr. Stone whether he had made an attempt to correlate the diastolic and systolic findings on blood pressure. The pulse rapidity might have an enormous influence on the diastolic pressure from the fact that with the more rapid time we had a shorter diastole and a slighter and shorter interval in which blood pressure had fallen.

Dr. F. M. Pottenger of Monrovia, California, said that in considering the tonsil as a port of entry or a culture medium and in advising the removal of tonsils he had sometimes wondered whether or not in removing them we were not taking away a source of protection to the patient. He had had the tonsils of his own children removed, but at the same time he felt probably we were doing wrong in taking the attitude we did toward the tonsil as a whole.

Dr. Walter L. Bierring of Des Moines, Iowa, said it was a matter of great interest to note how the clinical experience of such an extensive clinical observer corroborated the work of Rosenow. It was still more interesting to recognize the fact which Dr. Babcock had been emphasizing for years, namely, that the relationship existing between focal infection, particularly of the biliary or intestinal tract and its influence upon the heart muscle and upon diseases of the endocardium, was being corroborated by the work of Rosenow. In this etiologic unity which Dr. Rosenow had established between various offsprings of the pneumococcus, he had illustrated how acute infection of the tonsils, the endocardium and the appendix were all the same. He had gone still further and by modifying the organisms had produced experimentally cholecystitis with the same organism, and in another dog had produced typical round ulcer of the stomach.

Dr. Willard J. Stone of Toledo, Ohio, said regarding the pulse rate, the systole and diastole and pulse pressure had been taken with the patient at rest as far as possible. He thought the only condition in which we were apt to have increased heart rate, so far as it effected a difference in pressure, would be in connection with shock or hemorrhage. It was perfectly apparent that in estimating the systolic or diastolic pressure we failed to consider the venous pressure.

Dr. Babcock said in answer to Dr. Pottenger's question, we were not justified in recommending the removal of healthy tonsils whatever their exact function might be, but when a tonsil was no longer healthy, when it was diseased, he believed to safeguard the patient the tonsils should be enucleated.

The Possibility of Differentiating Between Active and Quiescent and Healed Tuberculosis by the Character of the Reaction to the Cutaneous Tuberculin Test.—Dr. F. M. Pottenger of Monrovia, California, pointed out that a positive clinical history, suspicious signs within the chest, and a maximum reaction to tuberculin within the first twenty-four hours, gave grounds for making a diagnosis of active tuberculosis. With a questionable clinical history, questionable signs on physical examination, a reaction to tuberculin reaching its maximum after twenty-four, or particularly thirty-six hours, he believed we were safe in saying that we were dealing with a partially quiescent lesion.

(*To be continued.*)

The Liver in Chronic Malaria.—C. Fraga notes that the hepatic troubles associated with chronic paludism, if intense, are the result of causes others than malaria, particularly, of alcoholism and bad nourishment.—*Revue de Médecine.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

KRANKHEITSENTSTEHUNG UND KRANKHEITSVERHÜTUNG. By Dr. HANS MUCH. Paper; illustrated; price 2.50 marks; 117 pages. Curt Kabitzsch, Wurzburg.

THE WHITE LINEN NURSE. By ELEANOR HALLOWELL ABBOTT. Illustrated; cloth; price $1.00 net; 276 pages. The Century Company, New York.

DIE UBERTREIBUNGEN DER ABSTINENZ. By Dr. WILHELM STERNBERG. Paper; price 2.50 marks; 93 pages. Curt Kabitzsch.

POCKET CYCLOPEDIA OF MEDICINE AND SURGERY. Second edition; revised; enlarged and edited by R. J. E. SCOTT, M.A., B.C.L., M.D., New York. Leather; price $1.00 net. P. Blakiston's Son and Company, Philadelphia.

THE NERVOUS AND CHEMICAL REGULATORS OF METABOLISM. Lectures. By D. NOEL PATON, M.D., B.Sc. Cloth; price $2.00 net; 217 pages. MacMillan and Company, Ltd., London.

INVESTIGACIONES EXPERIMENTALES. By D. SATURNINO GARCIA HURTADO. Paper, 16 pages. Valentin Tordesillas, Madrid.

FRACTURAS DEL FEMUR Y SU TRATAMIENTO. By DR. S. G. HURTADO. Paper; illustrated; 55 pages. Madrid. 1914.

HAEMOCYTES AND HAEMIC INFECTIONS. By FREDERICK W. E. BURNHAM, M.D., C.M. First edition; cloth; price $6.00; illustrated; 462 pages. E. B. Treat and Company, New York.

A CODE SYSTEM FOR THE HOSPITAL PATHOLOGICAL LABORATORY. Part I. Autopsy Work. By O. C. GRUNER, M.D. Paper, 33 pages; price 65c. Murray Printing Company, Ltd., Toronto.

DISEASES OF WOMEN. Medical and Surgical Gynecology. By CHARLES A. L. REED, A.M., F.C.S., M.D. Cloth; illustrated; 944 pages D. Appleton and Company, New York and London.

UBER NEUERE BESTREBUNGEN ZUR HEILUNG VON HAUTKRANKHEITEN DURCH BLUTVERBESSERUNG. By Prof. Dr. P. Linser, Paper; 20 pages; price 0.75 mark. Carl Marhold, Halle a. S.

DAS SCHICKSAL VON PATIENTEN MIT KERATITIS PARENCHYMATOSA AUF HEREDITAR-LUETISCHER GRUNDLAGE. By DR. IGERSHEIMER. Paper; illustrated; 52 pages; price 1.50 marks. Carl Marhold, Halle a. S.

DIE AUGEN-SYMPTOME DER RAYNAUDSCHEN KRANKHEIT. By DR. E. E. BLAAUW. Paper; 27 pages; price 1 mark. Carl Marhold, Halle a. S.

DIAGNOSIS OF BACTERIA AND BLOOD PARASITES. By E. P. MINETT, M.D., D.P.H., D.T.M. & H., M.R.C.S., L.R.C.P. Second Edition. Cloth; price $1.00 net; 80 pages. Paul B. Hoeber, New York.

INDIGESTION, CONSTIPATION, AND LIVER DISORDER. By G. SHERMAN BIGG. Cloth; 168 pages; price $1.50 net. Paul B. Hoeber, New York.

RADIUM AND CANCER. By LOUIS WICKHAM, M.V.O., and PAUL DEGRAIS. Translated by A. and A. G. BATEMAN, M.B., C.M. Illustrated; cloth; price $1.25 net; 111 pages. Paul B. Hoeber, New York.

VEREIN DEUTSCHER LARYNGOLOGEN, 1913. Paper; price 7 Mks.; illustrated; 245 pages. Curt Kabitzsch, Würzburg.

A COMPEND OF DISEASES OF THE SKIN. By JAY F. SCHAMBERG, A.B., M.D. Fifth Edition, Revised and Enlarged. Illustrated; cloth; price $1.25 net; 302 pages. P. Blakiston's Son & Company, Philadelphia.

MODERN PROBLEMS OF BIOLOGY. By CHARLES SEDGWICK MINOT. Cloth; illustrated; price $1.25 net; 124 pages. P. Blakiston's Son & Company.

THE SURGICAL CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago, October, 1913. Volume II, Number 5; paper; illustrated. W. B. Saunders Company, Philadelphia and London.

OBSTETRICAL AND GYNECOLOGICAL REPORTS, Sloane Hospital for Women, New York City. Volume I, 1913. Cloth; illustrated: 142 pages. Edited by Wilbur Ward, M.D.

A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS. By JOHN H. MUSSER, M.D., LL.D. Sixth Edition, Revised by JOHN H. MUSSER, Jr., B.S., M.D. Illustrated; cloth; 793 pages. Lea & Febiger, Philadelphia and New York.

Miscellany.

Needed Financial Basis for the Medical Profession.—According to statistics, there are now practising in the United States and Canada about 150,000 physicians. In that territory there are between 3,000,000 and 4,000,000 people constantly ill, and unnumbered millions on the border-line of illness. Eugene Lyman Fisk, Medical Director, Postal Life Insurance Company, thinks that overcrowded as the profession is supposed to be, it is questionable whether the supply of competent physicians would exceed the demand if these sick people turned for relief to the men trained to do the work, instead of relying on almanacs, cookbooks, soothsayers, or any other mysterious medium of relief, except the doctor, until they finally appear at his door demanding that he instantly restore their diseased tissues and organs to normal condition. Assuming that preventive medicine continues to reduce this morbidity, the balancing factors derived from closer contact with the public may result in improving the economic condition of the physician. The average physician goes about his work unmindful of these remote possibilities, happy if he can in any way lessen the suffering in his community. It is, however, the physician's duty to take thought of all proper ways by which his profession may be placed upon a financial footing that will enable it to render the most efficient public service. Is it not important that the scientific men to whom are committed the health and lives of families be placed upon an economic basis at least equal to that of a skilled mechanic? An underpaid and oftentimes never paid "last resort" medical profession is not in line with public welfare. There should be, however, no yielding to the commercial spirit of the age.—*Lancet-Clinic.*

Medicine and the Pulpit.—W. Sampson Handley points out that there are many men who, like St. Luke, have abandoned medicine for the ministry. An eminent example is Canon Arnott, now, and for the past twenty-eight years, rector of Beckenham, who is a Fellow of the Royal College of Surgeons, a distinguished pathologist, and the author of a work on cancer. In entering the ministry of the Church he realized a youthful ambition, deflected for a time to medicine by parental wishes. He rigidly abstains from any exercise of his old craft of surgery, whether by way of advice or practice, and this appears to be the safe general rule of those who leave the profession. His busy life in a large parish with four churches has left him little time to keep up his old and still vivid pathological interests. But he admits that while medicine has no direct value in his present field of work, the old scientific training, the long hours spent in microscopic work, the power of sympathy with suffering, the realization of the inexhaustible study and experience needed for anything like dogmatism in the ways and by-ways of nature, the humility necessary before the baffling problems of life and disease and death—all this is of incalculable value in his present profession. He speaks, too, of the knowledge of men and affairs which medicine gives, and of the intimate acquaintance with the seamy side of life to be gained perhaps better in a hospital surgical out-patient practice than anywhere else in the world. Such is Canon Arnott's personal estimate of medicine as a liberal education.—*Lancet*, October 4, 1913.

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Original Articles.

SURGICAL TREATMENT OF DIFFUSE SUPPURATIVE LABYRINTHITIS.*

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The main facts and established theories of labyrinthine physiology are now so generally known and accepted as no longer to require argument. When, however, we come to a consideration of clinical problems and particularly of the vexed question of surgical treatment, we find our discussions bristling with opposing statements, and that many problems await solution. If this statement seems exaggerated, we have only to ask ourselves the following questions:

1. Shall we operate in the acute stage of suppurative labyrinthitis? and, if so, upon what indications?

2. Shall the clinical evidences of latent suppurative labyrinthitis be regarded *per se* as an indication for operating upon the labyrinth?

3. Are there cases of chronic, or latent, suppurative labyrinthitis in which the radical operation for chronic middle suppuration, without draining the labyrinth, may be admissible.

4. What shall be regarded as a complete or adequate operation in the majority of cases of diffuse suppurative labyrinthitis?—*i.e.* what mechanical result shall be regarded as the surgical end in view?

5. Which of the classical operations subjects the patient to a minimum of risk while securing to him the best chances of recovery?

Apparently, the questions which interest us today are those of differential diagnosis, treatment, the correct interpretation of surgical conditions, etc., rather than of theory. I shall try, therefore, to limit my discussion strictly to certain practical surgical questions which all of us are obliged to consider in connection with the cases coming under our care.

Before taking up the question of surgical treatment, it may be well to recall briefly certain facts bearing upon the gravity of the lesion:

According to Hinsberg,[1] one in every 100 cases of middle-ear suppuration leads to suppurative invasion of the labyrinth. According to the earlier investigations of von Stein,[2] the percentage of cases leading to labyrinthine infection is even greater: *i.e.* about 2.2 per cent. All competent observers agree that suppurative labyrinthitis results far more frequently from the chronic than from the acute forms of suppurative otitis media; and not a few have believed that labyrinthine infection as a result of acute purulent otitis media is a rather remote possibility. In opposition to the latter view, Habermann[3] has maintained that suppurative labyrinthitis is a not very infrequent complication of acute suppurative otitis media. This view has had the support of the later investigations of W. Brock[4] of the University Clinic of Erlangen. Brock has collected from the literature thirty cases, and added thereto four cases coming under his own observation in which the labyrinth became infected during the course of an acute purulent otitis media. To these thirty-four cases the writer can add at least one case from his own practice in which a destructive type of diffuse suppurative labyrinthitis occurred as an early complication of an acute suppurative otitis media.

As throwing some light upon the relation of the mode of infection to the subsequent course of the disease, one should bear in mind the small but instructive series of cases recorded by Jansen[5] in 1908, in which labyrinthine infection was the immediate result and sequence of accidental injury to the stapes during the radical and other tympanic operations. These cases taught an impressive lesson in the high mortality rate, nine out of nineteen having ended fatally. While the cases of labyrinth infection due to stapedial injury collected from other sources (*e.g.* Hinsberg's collected series) have not given so large a mortality, the accident is rightly to be regarded as one very seriously jeopardizing the patient's life. The writer personally knows of two cases in which the annular ligament of the stapes was torn during the radical operation. In each case the patient developed suppurative labyrinthitis and died within a week of diffuse leptomeningitis.

An interesting fact brought out in Brock's analysis of cases relates to the pathway of infection in cases of labyrinthitis complicating acute suppurative otitis media. Of thirty-one cases investigated, in twelve infection took place directly through the oval window; in thirteen, by other routes, the stapedial foot-plate and ligament remaining intact, while in six the exact mode of invasion remained in doubt. According to these figures, so far as the path of infection could be determined, the oval window provides the point of attack in nearly 50 per cent. of cases complicating acute purulent otitis media—a percentage certainly far greater than in cases secondary to chronic middle-ear suppuration. This is an important fact which will be referred to later as having a direct bearing upon the surgical indications in certain cases.

Sifting a little further the facts at our disposal, we know that of cases of labyrinth infection due to surgical injuries of the labyrinthine capsule, those due to dislocation of the stapes or rupture of its annular ligament are far more dangerous to life than are those caused by accidental opening of one of the semicircular canals—*e.g.* the horizontal. In

*Read by invitation before the Clinical Congress of Surgeons of North America, Chicago, November 14, 1913.

cases of suppurative labyrinthitis secondary to chronic middle-ear suppuration, the path of infection in the great majority of cases is not through the labyrinthine windows but through a tract involving the horizontal canal or passing from the infected antrum or mastoid cells indirectly through the petrous bone. In cases of labyrinthitis complicating acute middle-ear suppuration, on the other hand, the oval window, according to Brock, is the point of actual invasion in nearly 50 per cent. of cases. This conclusion rests not only upon his careful analysis of conditions observed post mortem, but also seems the logical sequence in acute middle-ear lesions where the tympanum houses the chief focus of infection and in which the denser parts of the labyrinthine capsule would hardly have time to undergo necrosis. Reasoning now by analogy with the recognized gravity of surgical injuries to the stapes or its annular ligament, it seems a reasonable deduction that those cases of labyrinthine infection complicating acute suppurative otitis media and reaching the vestibule through the oval window will be found to furnish a particularly high percentage of fatalities.

Indications for Labyrinth Operation.—As to the indications for operating, there is no field of surgery in which dogmatism is so unwarranted as in the case of the infected labyrinth. The question of operating in any case depends so largely upon the surgeon's interpretation of symptoms that it is difficult to formulate any rules that may not lead to serious error. There are, however, certain conditions which in themselves constitute so grave a menace to the patient's life or his comfort in living as to constitute a more or less definite call for surgical intervention. Among such may be mentioned the following:

(1) Labyrinthine infection following quickly upon surgical injury of the stapes. I have personally known of two cases in which this accident has been followed almost immediately by symptoms of diffuse labyrinthitis, this in turn giving rise to a remarkably rapid and fatal leptomeningitis. The labyrinth was not operated upon in either case. To be of any value in such a case, surgical intervention must be prompt—*i.e.* before meningeal infection shall have had time to take place.

(2) Suppurative labyrinthitis complicating acute purulent otitis media, and accompanied by high fever, rapid pulse, headache, etc. It is obvious that this condition may be pathologically analogous to those resulting from stapedial injury. Unless the fever, headache, and pulse rate show very early and progressive tendency to subside, prompt drainage of the vestibule would seem to be called for.

(3) The acute stage of a suppurative lesion of the labyrinth being passed, the evidences of a latent suppurative labyrinthitis plus symptoms of chronic middle-ear suppuration calling for relief, would in my opinion constitute a fairly definite indication for an operation on the labyrinth.

(4) Physical evidences, found during the radical operation, of intravestibular suppuration, as shown by pus escaping, or granulations protruding, from the oval window or from a defect (fistula) in the promontory, or the presence of a fistula leading to the vestibule through the horizontal canal—such findings would naturally leave no question as to the necessity of surgical intervention.

As having an important bearing upon the indications for operating and upon the prognosis in cases operated upon, I wish to say a word as to the most favorable stage of a suppurative labyrinthitis for opening the vestibule. There can be no question that the latent stage of the disease is the period in which the vestibule may be opened with least risk. Nearly all the deaths following a labyrinthine operation which have come within the range of my personal knowledge have occurred in cases operated on during the acute stage. I have, myself, operated in a number of cases of diffuse suppurative labyrinthitis during the latent stage, all of which have made perfect recoveries. I believe that the uniformly favorable results in these cases were due very largely to the fact that I was able to postpone operation until the acute stage was well passed.

Anatomico-Surgical Features of the Labyrinthine Capsule.—Differentiating it from other parts of the temporal bone and from all other bones of the body, the labyrinthine capsule presents the following structural features:

(1) It is composed of peculiarly hard, dense bone. According to Gray of Glasgow,[6] its Haversian canals are smaller than are found in any other bones of the body. This extreme density of bone undoubtedly confers comparative protection from rapid suppurative attack from without. Intralabyrinthine infection having occurred, *e.g.* through the labyrinthine windows, it seems fair to assume that the same influence would oppose in some degree the early and rapid extension of the lesion through bone from within outward. This obviously adds to, rather than lessens, the gravity of intravestibular infection.

(2) Within the bony spaces of the labyrinth there is complete absence of the diploic tissue so liberally distributed throughout other parts of the temporal bone, and which forms so favorable a starting point for osseous necrosis. The provision of free drainage should therefore suffice to check the lesion in cases in which intracranial infection has not already occurred.

(3) The inner walls of the vestibule and of the labyrinthine spaces communicating therewith present, for the most part, smooth and even surfaces which should offer considerable resistance to the rapid spread of a suppurative process from the membranous labyrinth to its bony encasement.

It is clear that the anatomical conditions described above should be taken into account in any attempt to define the scope and limitations of labyrinthine surgery. In suppurative labyrinthitis is it our duty as in mastoid surgery to expose, investigate, and remove all structures possibly infected or likely to become diseased? Or is our task merely to provide adequate surgical drainage? Personally, I am convinced that in a majority of cases the provision of free drainage from the vestibule is all that is required and all that it is wise to attempt.

Division of All Cases of Acute Suppurative Labyrinthitis into Two General Groups.—According to clinical experience there is apparent justification for separating all cases of acute suppurative labyrinthitis into two general groups: 1. The first group includes (*a*) cases secondary to chronic middle-ear suppuration, and (*b*) those which develop as a late complication or sequela of a protracted attack of suppurative mastoiditis. A very large proportion of such cases pass uneventfully—*i.e.* without intracranial involvement—to the latest stage of suppurative labyrinthitis. 2. To the second group belong (*a*) cases of sudden labyrinthine infection due to a surgical injury to the stapes or its annular ligament, and (*b*) those coming on as an early complication of

acute purulent otitis media. Whether resulting directly from stapedial injury or as a rapid spread of infection from an acute middle-ear suppuration, the point of invasion is, in a large percentage of cases, the same—*i.e.* the oval window. In either case the pathways of infection to the meninges are comparatively open and unguarded, and the prognosis proportionately grave.

The practical significance of this classification must be clear; for if we may assume that the immediate risk to the patient's life of a labyrinthine lesion secondary to chronic middle-ear suppuration is of comparatively moderate degree, and tends to become less as the acute vestibular symptoms subside, then it becomes clear that the wisdom of early operation is open to question.

On the other hand, in cases of labyrinthine infection directly resulting from surgical injury to the stapes or developing as an early complication of an acute suppurative otitis media, the danger of leptomeningitis is far greater, and the need of early surgical intervention more clearly indicated.

The purposes of this paper do not call for descriptions of operative technique. It is of the greatest importance, however, that the surgeon should have a correct conception of the operative indications in the two classes of cases above outlined. While in both free drainage of the vestibule is the chief desideratum, the lesions are in many cases so widely separated, both in their local manifestations and in the risks to the patient's life, that it would be surprising if some variations in the method of treatment were not called for. I should like, therefore, to say a word as to the rationale of the operative treatment (1) of *latent*, and (2) of *acute* suppurative labyrinthitis.

Surgical Treatment of Latent Diffuse Suppurative Labyrinthitis.—Locally the latent stage of suppurative labyrinthitis invariably includes practical destruction of the membranous labyrinth, or at least destructive changes so advanced as to cause permanent loss of the vestibular function. Further than this, the lesion may vary considerably in the extent of damage to the bony capsule. In my own limited operative experience, the following changes have been observed: (1) Complete destruction of stapes with granulations protruding through a necrotic and enlarged oval window. (2) Destruction of stapes plus defect (fistula) in promontory. (3) Wide destruction of horizontal canal showing original path of vestibular infection. (4) In one case, a large portion of the bony capsule was separated as a sequestrum. (5) In another, no loss of continuity in the capsule was demonstrable, the bone being merely thickened and therefore giving an impression of unusual density. (Diagnosis in this case was made on past history of characteristic vestibular attack plus absolute loss both of vestibular and cochlear functions.)

Obviously some variation in operative technique may be called for by these variations in the extent and direction of necrotic tracts in the bony capsule. Thus with absence of involvement of the facial nerve and with a demonstrable but circumscribed tract of necrosis through the horizontal canal, or with the path of vestibular invasion not macroscopically demonstrable, the Hinsberg operation would seem to me the simplest, most direct, and therefore, perhaps, the safest operation. On the other hand, with widespread necrosis of the capsule, facial paresis or paralysis, and with granulations occupying the position of a necrotic facial ridge, I can conceive that the Neumann operation might provide the point of attack exposing the nerve to least risk of permanent injury.

The point I wish most particularly to emphasize, however, with regard to all cases of latent, or chronic, suppurative labyrinthitis is this: that the acute stage having passed without evidences of meningeal involvement, we may assume that the natural pathways of intracranial infection—*i.e.* the vestibular and cochlear aqueducts and the minute nerve channels leading from the labyrinth to the internal auditory canal—are to some extent safeguarded by inflammatory thickening of the membranous structures contained therein. In a word, the lesion at this stage describes a functionally dead membranous labyrinth confined within bony spaces temporarily walled off from the meninges, though surrounded by areas of osseous necrosis of variable extent. The operation calls, therefore, for very careful and thorough removal of all diseased bone from the osseous capsule, plus the provision of free drainage from the infected vestibule. Beyond this the safety of the patient demands the greatest care to avoid injury to the modiolus. Dr. Richards[7] of New York was the first to call attention to the danger of injuring this structure. If our purpose in operating is mainly to prevent intracranial infection, the modiolus should not be disturbed, for therein lie the innumerable foramina for the filaments of the cochlear nerve, the opening of which may determine a rapid spread of the infection to the meninges.

Surgical Treatment of Acute Suppurative Labyrinthitis.—Some five years ago, reports of cases of suppurative labyrinthitis operated upon during the acute stage were not uncommon. In addition to these were many cases operated upon but never reported. While a majority of them probably recovered, the number of fatalities was also impressive. Today the number of such reports is comparatively small. Otologists are happily coming to recognize the fact that in the great majority of cases *it is safer not to operate until all signs of vestibular irritation have completely disappeared.* To this general rule there are two possible exceptions, viz. (*a*) cases of labyrinthine infection directly following a surgical injury to the stapes, and (*b*) cases of suppurative labyrinthitis developing as an early complication of acute suppurative otitis media.

As a reason for placing such cases in a separate category we must bear in mind this fact, viz., that whether due to an injury to the stapedial ligament or to a sudden extension from an infected tympanum, the point of invasion is in a large proportion of cases the same, *i.e.* the oval window. In either case we would have to deal with the sudden infection of a previously healthy vestibule, or, in other words, with a possibly rapid accumulation of pus within a bone cavity from which the natural channels of intracranial communication are unguarded by previous inflammatory change.

Our problem is, therefore, whether we shall operate promptly in order to forestall meningeal infection or delay operation in the hope that the acute stage may pass without intracranial involvement. Undoubtedly, this happier sequence of events will occur in a certain proportion of cases. We must consider, however, that after meningeal inspection shall have taken place, the outcome, with or without operation, is usually death. I am inclined to believe, therefore, that in any large series of this particular class of cases early operation will result in a reduction of the percentage of mortality.

Operative intervention having been determined upon, we shall do well to bear in mind two facts, viz., (1) that, aside from the defect or lesion at the oval window, the bony capsule is usually not diseased, and (2) that we must enter a peculiarly unprotected field in which any unnecessary manipulations may actually conduce to meningeal infection. Reasonable operative speed and the reduction of the operation to the simplest possible technique are therefore important factors. Drainage of the vestibule is all that the condition calls for and all that should be attempted. When we have uncapped the vestibule above, and provided through drainage below by removal of the stapes and outer wall of the promontory, we have done all that is possible in preventing meningeal infection in these cases. Any extension of the operation beyond this is an error which may be paid for with the patient's life.

Fig. 1.—Radical operation, preliminary to operation upon labyrinth. a, Prominence of horizontal semicircular canal; b, diploic tissue above horizontal canal.

Labyrinthitis Complicated by Leptomeningitis.—There is admittedly still another class of cases requiring operation during the acute stage, viz., cases of acute suppurative labyrinthitis accompanied by evidences of meningeal infection so unmistakable and pronounced that surgical intervention becomes the last resort in an effort to save the patient's life. So far as I have been able to draw any conclusions from the cases coming under my observation or from the results recorded by others, such cases almost invariably represent an already established leptomeningitis. At least no such case has come to my knowledge in which a labyrinth operation has been the means of arresting the progress of the meningeal lesion. Such cases, with or without operation, almost invariably end fatally. They provide a field urgently calling for careful investigation and study.

Fig. 2.—Same bone, with diploic tissue above horizontal canal removed.

Fig. 3.—Same bone with horizontal semicircular canal opened

but they do not, in my opinion, properly fall within the scope of a paper dealing solely with the treatment of uncomplicated suppurative labyrinthitis.

The Operation.—Naturally the preliminary step to opening the labyrinth is the radical operation, the excavation being rather larger than in ordinary cases of chronic middle-ear suppuration. In most temporal bones—all, in fact, except the sclerotic or semi-sclerotic type—there is found just above the prominence of the horizontal canal a considerable mass of deploic tissue (Fig. 1). In preparation for opening the vestibule, this diploic tissue should be thoroughly removed. This is easily accomplished by any suitable curette and leaves a depression, or recess, of considerable depth, its height varying with variations in the level of the tegmen antri (Fig. 2). The outer part of the floor of this recess is formed by the hard, dense bone constituting the superior wall of the horizontal canal. We begin the actual work upon the labyrinth by scraping away this hard bony prominence from above downward until the fine, thread-like horizontal slit representing the open canal is seen (Fig. 3). To eliminate the danger of facial nerve injury, we should use only a very sharp instrument by which the bone may be scraped away without exerting a pressure which might fracture the delicate bridge of bone containing both the horizontal and facial canals. The writer has designed for this purpose a curette which holds its edge better than the ordinary spoon curette and which has seemed in his hands to facilitate the work in this field. The horizontal canal, opened in this way, presents an anterior expansion, or enlargement which represents its ampulla, or anterior vestibular opening. This occupies a position vertically above the oval window. Applying now the curette just behind the ampulla, and again using care not to exert pressure upon the facial bridge, the vestibule

Fig. 4.—Vestibule uncovered above; promontory removed below. Tympanic probe passed behind facial ridge and through opened vestibule.

is easily opened by scraping away the extremely thin layer of bone which remains of its superior wall.

The promontory is next in part removed by pressure of the same curette upon the small bridge of bone connecting the niches of the round and oval windows. Removal of the outer shell of the promontory *without curetting the cochlear spaces thus exposed* is usually as far as we should go. A small bent tympanic probe may be passed from the cochlear space upward behind the facial bridge and through the uncovered vestibule (Fig. 4), or vice versa. This provides perfect drainage and in a very large percentage of cases is all that the condition calls for.

The writer is of the opinion that the technique of the labyrinth operation as described by most writers is unnecessarily elaborated. While the technical difficulties are admittedly considerable, they can be reduced, and the patient's safety enhanced, by a careful search for the simplest and safest method of reaching the vestibule, and then by resolutely eliminating from the operation every surgical step which the condition does not actually call for.

Before closing my paper I would like to say a word in regard to what seems at the present moment to be a very much unsettled question—*i.e.* the question of operating upon the mastoid without opening the labyrinth in cases of chronic middle-ear suppuration complicated by latent suppurative labyrinthitis. When I was in Vienna five years ago, the school there had already formulated the rule that in no case of latent diffuse suppurative labyrinthitis should the radical operation be performed without at the same time draining the diseased labyrinth. In a lecture there at that time I heard the arguments in support of this theorem stated somewhat as follows: (1) That in a very considerable percentage of cases the presence of a latent focus of suppuration within the labyrinth would defeat the purposes of the operation, *i.e.* the discharge from the ear would not be permanently arrested; (2) that there were in some cases certain indefinite but recurring symptoms referable wholly to the morbid process within the labyrinth, which would not be relieved; and (3) that to perform a radical operation upon an individual suffering from latent diffuse suppurative labyrinthitis without at the same time draining the vestibule actually augments the danger of meningeal infection, and places his life at greater hazard. While these facts, if accepted, would constitute a logical basis for the rule in question, the rule itself does not seem to have gained universal acceptance in this country. It is claimed by some of my colleagues, for whose work I have the highest respect, that they have performed the radical operation without opening the labyrinth in a number of cases presenting the negative symptoms of latent suppurative labyrinthitis, and without untoward results, *i.e.* the patients have recovered and the wounds healed satisfactorily as in a case of uncomplicated middle-ear suppuration. Such experiences have naturally influenced them to call in question the value of a ruling which calls for so many seemingly needless explorations of the labyrinth.

To my mind this is an exceedingly important question in regard to which we should not indulge in hastily formed conclusions.

Let us consider for a moment a hypothetical case. Let us suppose a case of chronic middle-ear suppuration which while under our care and observation has undergone an unmistakable attack of diffuse suppurative labyrinthitis. Let us suppose further that all acute symptoms and evidences of vestibular irritation have completely disappeared leaving the involved ear absolutely deaf to all sounds and absolutely irresponsive to the caloric test. Should some condition now develop in mastoid or tympanum demanding surgical intervention, would any of us venture upon a radical operation without also draining the labyrinth? If I am right in believing that none of us in such a case would leave the labyrinth unopened, then it seems clear that we must still recognize the sound surgical principle underlying the dogma that in the actual presence of a suppurative process within the labyrinth no operation upon the mastoid is safe which does not provide surgical drainage of the labyrinth.

As to the successful results obtained without draining the labyrinth, it seems to me that the best educational value of such experiences will be developed if we are stimulated thereby to a careful restudy of the late clinical phenomena of latent suppurative labyrinthitis. In such an investigation questions which might well be made the subject of special research are: (1) Does a suppurative focus within the labyrinth, though quiescent, remain for all time a menace of intracranial infection? (2) Does a latent suppurative process within the labyrinth tend in any degree to be self-limited? and (3), if so, is there a time limit, after which we may operate with comparative safety without opening the labyrinth? (4) Finally: In chronic middle-ear suppuration is absolute functional inactivity of the labyrinth a reliable indication of labyrinthine infection? Until time and the patient sifting of further evidence shall have shed their light on these questions, we shall do well to think twice before we permit our sanction of new theories which may later be proved at the cost of human life to have been founded upon error.

In passing, I wish to propose for your future consideration this somewhat pertinent question: In a case of chronic middle-ear suppuration, showing absolute loss of both cochlear and vestibular functions, does the opening of the labyrinth add materially to the risks of the radical operation? In skillful hands, I personally do not believe that it does.

In conclusion I would like to refer briefly to four surgical cases which seem to have some bearing on the subject under discussion.

Case I.—For the privilege of citing this case I am indebted to Dr. John D. Richards of New York. The patient, a woman, had suffered from chronic middle-ear suppuration of many years' standing. The radical operation was performed for the usual purpose, *i.e.* of terminating a suppurative process and bring about cessation of discharge. In spite of personal postoperative care, the discharge was not controlled and satisfactory, or at least complete, epidermization could not be obtained. Dr. Richards, than whom I know of no keener observer of macroscopic bone changes, assures me that there was nothing in the appearance of the bony capsule of the labyrinth, as seen during the operation or afterward through the canal, to indicate labyrinthine necrosis. Ultimately, in order to correct a condition for which no other cause could be assigned, the labyrinth was investigated. The vestibule was found to be filled with pus, and as soon as the outer shell of the promontory was removed, areas of necrosis in the bony labyrinth became apparent.

Such a history permits two deductions, viz., (1) that so far as this particular case was concerned, draining the labyrinth at the first operation would have been the safer procedure, and (2) that had complete epidermization been possible and have taken place, the danger of intracranial infection would have been enormously increased.

Case II.—This case occurred in the hospital practice of Dr. A. B. Duel of New York. The patient, a woman, presented the usual physical signs of long-standing suppuration of the right middle-ear, plus the characteristic symptoms of a latent suppurative process within the labyrinth. During the radical operation careful search was made for a labyrinthine fistula or other signs of necrosis of the labyrinthine capsule. No physical evidence of such a defect being demonstrable, the labyrinth was not opened and the radical operation was completed in the usual way.

After several months of careful postoperative treatment, the wound remained unhealed. She was, therefore, subjected to a secondary operation, at which the wound was laid open and all visible areas of diseased or questionable bone were removed. Following this second operation, exactly the same sequence of events occurred. Complete healing could not be brought about. Finally, to terminate this trying condition, it was decided to open and investigate the labyrinth. The vestibule was found to contain pus.

I have had an opportunity of examining this patient within the past ten days, and her ear is dry and apparently healed.

The two cases above cited would seem effectually to dispose of the thory that a suppurative lesion of the labyrinth may always be detected during the radical operation through macroscopic evidences of necrosis in the labyrinth capsule.

Case III.—This case was reported by Dr. Wendell Philips before the January meeting, 1913, of the otological section of the New York Academy of Medicine. The patient was a sufferer from unilateral chronic middle-ear suppuration of long standing. In addition there were evidences of latent diffuse suppurative labyrinthitis, the ear being absolutely deaf and caloric reactions being completely absent. For the relief of this condition, it was determined to try the effect of a radical operation without disturbing the labyrinth. Following closely upon the operation, the patient developed a leptomeningitis from which he died.

Case IV.—This case, which has already been reported in full, refers to a man of sixty, who came under my care in 1909, suffering from chronic middle-ear suppuration of the right ear, dating from childhood. While no history of an acute labyrinthine attack could be obtained, it was assumed that at some time in his life he had suffered such an attack, since his right ear was totally deaf to all sounds and the caloric reactions were absolutely wanting. The necessity for operation was found in the presence of both pain and tenderness over the right mastoid. Arguing that the invasion of the labyrinth had probably occurred many years previously and that the labyrinthine lesion had very possibly undergone spontaneous resolution, I decided to do a radical operation and open the labyrinth only if macroscopic evidences of necrosis (fistula) were present. No such obvious defect was found, and the radical operation was completed in the usual way. The patient left the hospital on June 7, with instructions to return regularly to the clinic for postoperative treatment. From that time until I went away on my vacation, the ear continued to discharge, and the patient complained at times of indefinite pain and discomfort in the right ear. Late in September of the same year, during my absence from the city, the patient was readmitted to the hospital complaining of severe head pains. A secondary operation by a hospital colleague did not relieve the condition, the patient dying suddenly on September 30. Autopsy revealed a cerebellar abscess of the size of a hazel nut and surrounding purulent leptomeningitis. In searching for the path of infection the labyrinth was opened and found filled with pus.

To my mind the death of this patient was due to my error of judgment in not opening and draining the functionally dead labyrinth at the time of the radical operation. In partial excuse may be mentioned the fact that he came under my care more than four and a half years ago when our interpretation of labyrinthine phenomena rested upon a thinner ground-work of knowledge than to-day. Until I learn of some method by which, in a functionally dead labyrinth, the presence of a quiescent but potential focus of infection can be definitely excluded, it is an error which I shall not repeat.

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RADIUM AND ROENTGEN THERAPY IN CANCER.*

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The treatment of malignant tumors with radium, mesothorium, and Roentgen rays presents undoubtedly a most potent addition to our none too rich store of methods for combating the disease.

Is radium or Roentgen therapy a true *cancer cure* as the term is understood by a lay reader of a newspaper article? The best answer to such a query will be an analogy drawn from another chapter of modern therapeutics. The subject is chemotherapy of trypanosomiasis and spirillosis and more particularly the treatment of syphillis with salvarsan.

The discovery of salvarsan by Ehrlich is certainly the greatest achievement in therapeutics of our time. The therapeutics in syphilis presents a much simpler problem than in cancer, since the former is a parasitic disease, in which the nature of the parasite as well as the correct methods of diagnosis are well established. Salvarsan, when introduced into the circulation of the patient, kills the *Spirochetæ pallidæ* without injuring the normal tissues of the organism of the host. Should the salvarsan treatment be instituted during the first couple of weeks after the appearance of the initial lesion, when the Wassermann reaction is still negative and the disease is localized, one or two injections of the drug may destroy all the parasites and actually cure the patient. In these cases salvarsan acts as a true *therapia magna sterilisans* as postulated by Ehrlich for a specific chemotherapeutic agent. But in practice such a result is obtained only in a small number of cases. If the spirochetes entered the circulation before the treatment was instituted then a small number of the parasites escape the action of the salvarsan. This most usually happens with the spirochetes which enter the central nervous system, where salvarsan is apparently unable to reach the parasites. The few remaining spirochetes multiply and form, as Ehrlich has shown, a new strain of parasites which resist the sterilizing action of the drug. The disease not only relapses, but may become refractory to the action of salvarsan, and one must then resort to the old methods of treatment of the disease. Moreover, in the later stages of the disease there develop severe lesions in vital organs as, for instance, the nervous system. The treatment with salvarsan instituted at this period of the disease may result in the destruction of all the parasites circulating in the organism of the patient and still the lesions of the various organs remain uninfluenced. It is clear

*Read at the meeting of the Section of Medicine of the New York Academy of Medicine, October 21, 1913.

then that salvarsan is a true specific therapeutic measure against syphilis, but it is not a *syphilis cure, i.e.* it is unable to cure definitely every case subjected to its influence.

The difficulties of effecting a cure with even a specific remedy in parasitic diseases are enhanced in the case of cancer. All the clinical manifestations of a malignant tumor are due to the unlimited proliferation of the cancer cells in the region of the primary tumor or in the local recurrences and to the transport and subsequent proliferation of the cancer cells in distant parts of the organism in the case of metastatic tumors. This view holds good whether we adhere to or deny the parasitic theory for the explanation of the pathogenesis of the original transformation of a normal cell into a cancerous one. Consequently, a specific therapeutic agent in cancer must attack the cancer cells without injuring the adjacent normal cells of the organism. On the other hand, while the true etiology of cancer is still unknown, it is quite evident that the disease begins as a local condition. All the recurrences of metastatic tumors are caused by the proliferation of the cells transported from the original tumor. This interpretation of the mechanism of the disease must be borne in mind in the study of therapeutics of cancer.

In order to appreciate the similarity between the action of a chemotherapeutic agent like salvarsan and the rays of radium or a Roentgen tube a brief explanation of the psysics of the rays is indispensable. The discovery by Henry Becquerel in 1896 of radioactive substances, which closely followed the discovery of .r-rays by Roentgen in 1895, radically changed our conceptions of the properties of matter and energy, and of the laws of chemistry and physics. Until then pure elements were considered to be inert matter the constitution of which could not be changed by any known physical or chemical agent. An atom of pure element was supposed to be indivisible. The radioactive substances (radium, mesothorium, and others) present a group of pure elements (metals), which constantly and spontaneously, without the aid of outside energy of any known kind, disintegrate and throw off new atomic elements and at the same time retain their original chemical structure. In the case of radium such disintegration may continue for hundreds of years without diminishing perceptibly the quantity of metal. It takes nearly 2000 years for a milligram of radium to lose half of its strength. This disaggregation, or *radioactivity*, as it is called, manifests itself by the emission of invisible rays. These radiations are capable of passing through plates of metal and other substances opaque to ordinary rays of light; they further act on a photographic plate in a manner similar to Roentgen rays and ionize the air, *i.e.* they transform the air in a good conductor of electricity, and what is most important for the present discussion, they influence in a certain characteristic manner the cells of plant and animal tissues, which they penetrate.

The radioactive substances emit different types of radiations, which can be distinguished by the following two methods. By observing whether the rays are deflected in a magnetic field and by comparing the relative absorption of the rays by solids and gases. Examined in these ways it has been found that there are three distinct types of radiation emitted from radioactive bodies, which have been termed by E. Rutherford α, β, and γ-rays. The α-rays have very little capacity for penetration, and are readily absorbed by thin metal foil or by a few centimeters of air. These rays represent particles of matter charged with positive electricity the size of an atom of hydrogen, which are thrown off by the radioactive substance with an initial velocity which is equal to about one-fifteenth the velocity

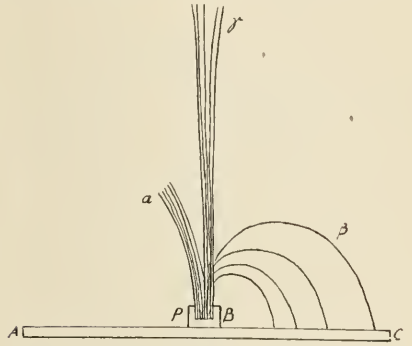

Fig. 1.—Showing the deflection of the α and β-rays by a magnet.

of light. When its motion ceases, *i.e.* the energy transmitted to it by the atom of radium at the moment of expulsion is exhausted, it is transformed into an atom of inert matter called *helium*, which is a new element. When these rays are brought in contact with the skin they produce superficial burns.

The β-rays are on an average far more penetrating in character than the α-rays, and consist of particles of matter charged with negative electricity. The particles represented by β-rays are 2000 times smaller than the hydrogen atom, and are thrown off by the radioactive substance with velocities equal to the velocity of light.

The γ-rays are extremely penetrating—more so than the most penetrating β-rays—and are not deviable by a magnetic field. Their true nature is not yet definitely settled. The majority of physicists consider them to be waves of ether similar to light or electricity, but some investigators are of the opinion that the γ-rays also consist of minute particles of matter. Fig. 1 illustrates the effect of a magnetic field on a pencil of rays from a radioactive substance giving out the three kinds of rays. Some radium is placed in the bottom of a narrow cylindrical lead vessel R. A narrow pencil of rays consisting of α, β, and γ-rays escapes from the opening. If a strong uniform magnetic field is applied at right angles to the plane of the paper and directed toward the paper the three types of rays are separated from one another. The γ-rays continue in a straight line without any deviation. The β-rays are deflected to the right, describing circular orbits the radii of which vary within wide limits. If the photographic plate AC is placed under the radium vessel the β-rays produce a diffuse photographic impression on the right of the vessel R. The α-rays are bent in the direction opposite to that of the β-rays, and describe a portion of the arc of a circle of large radius, but they are rapidly absorbed after traversing a distance of a few centimeters from the vessel R.

The rays emitted from the radioactive substances present a very close analogy with the rays which are produced in a highly exhausted vacuum tube when an electric discharge passes through it. The .r-rays are analogous to the so-called channel

rays, which have been shown to consist of positively charged particles of matter projected with great velocity. The β-rays are the same as the cathode rays, while the γ-rays resemble the Roentgen rays. In a vacuum tube (*x*-ray tube) a large amount of electric energy is expended in

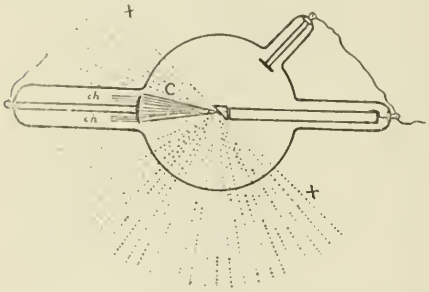

Fig. 2.—Ch = Channel rays; C = Cathode rays; X = Roentgen rays.

producing the rays, but in the radioactive substances, as stated above, the rays are emitted spontaneously and at a rate uninfluenced by any known chemical or physical agency. The α and β-rays from the active bodies are projected with much greater velocity than the corresponding rays in a vacuum tube, while the γ-rays are of much greater penetrating power than Roentgen rays. Fig. 2 illustrates the relationship of the different rays in the *x*-ray tube, and Fig. 3 shows graphically the difference in the penetrating power of the different rays of radioactive substances and of the Roentgen tube. We see that the γ-rays are the most penetrating, and consequently the radioactive substances are superior in their action to the Roentgen rays. Moreover, the source of the γ-rays of a radioactive substance can be placed nearer the effective area than the source of the *x*-rays. On the other hand, the γ-rays of radium and mesothorium are identical in their qualities and penetrating powers, consequently there is no difference in the action of the two metals.

The sharp dividing line which was thought to exist between the action of chemical and physical agents begins to disappear. Many biological phenomena in animal life, which were thought to be chemical in nature, are explained to-day on the basis of physical properties of organic substances (viscosity, surface tension, etc.). Apparently both

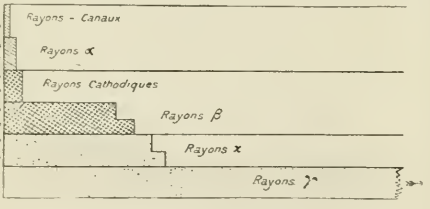

Fig. 3.—Showing the different degrees of penetration of the various rays.

radium and Roentgen rays are minute particles of matter suspended in the air in the same manner as particles of salvarsan are suspended in the fluid. It is easy to demonstrate that the rays can penetrate through the whole body of an organism. If a radium or Roentgen tube is placed on one surface of the body, and a fluoroscope screen on the other, the latter will become fluorescent. The physicists observed very early in their experimentation with radioactive substances that they produced burns and ulcerations on the hands of the investigators. It was therefore self-evident that the rays must produce a certain biological effect on plant and animal cells. A great deal of experimental and clinical work was done on the subject, and a general conclusion can be drawn as a result of it that the different cells and tissues of the organism react differently to the rays. For instance, the liver cells are more susceptible to the rays than the gall duct cells, and the tubules of the kidney react stronger than the glomeruli. The liver as a whole is more susceptible than the kidney. The pancreas is still less susceptible. The most resistant tissues are the connective tissue and the muscles. Highly interesting and of practical importance is the action of the rays on the testicle and the ovaries. The rays affect the spermatozoa—forming epithelium, and the Graafian follicles; azoospermia may occur in a man and a cessation of menstruation in a woman without any other lesion in the organism. This highly selective action of the rays has its limitations, and if a sufficiently large quantity of the rays is used every cell in the organism may be destroyed. The large percentage of rays are the α and soft β-rays. Since they have a small penetrating power, they are all absorbed by the superficial layers of the skin, and there injure every cell they meet, acting as an ordinary caustic. On the other hand, the γ-rays represent only a small fraction of the whole radiation, and penetrate very far, consequently the rays are greatly diluted, each cell absorbs comparatively little of the rays, and the selective action becomes very apparent.

Old and highly differentiated cells are more resistant to the action of the rays, while the young embryonic cells, and cells in a state of active proliferation, are very susceptible. It is therefore clear *à priori* that the rays must exert a selective influence on cancer cells.

Indeed, radium and Roentgen rays were employed in the treatment of cancer nearly since the time the rays were discovered. The first attempts failed and the action of the rays did not seem to differ from the action of any other caustic. Dominici, Wickham, and Degrais in France showed recently that the failures were due to faulty methods employed by the investigators. The quantity of radium used was so small that the γ-rays had no effect at all, and the soft rays acted as a caustic. Their new method consists in employing large quantities of the radioactive substances and applying them for a much longer period of time. The other very important addition to their technique is the method of filtering off the soft caustic α and β-rays, which would be very injurious with the large quantities of radium used. Layers of aluminum, silver, gold, or lead, 0.5, 1.0, or 2.0 mm. thick, placed between the radium and the skin, absorb all the soft rays. These metal filters, under the influence of the absorbed soft rays, produce in their turn so-called *secondary rays*, which are irritating to the skin, and have to be filtered off by layers of paper, cotton, or rubber.

With this improved technique truly remarkable results have been obtained during the last couple of years by French and mainly German surgeons and gynecologists. The results in cancer of the uterus are so striking that experienced and con-

servative clinicians like Kroenig of Freiburg, Bumm of Berlin, Doederlein and Klein of Munich expressed an opinion that radiotherapy may be indicated even in operable cases.

Since the greatest amount of work done recently has been in carcinoma of the uterus, it is best to describe the results of radium therapy upon this condition. As soon as treatment is undertaken pieces of tissue are removed at stated intervals for microscopic examination. A few days after the beginning of the treatment one notices extensive degeneration with formation of vacuoles in the cancer cells accompanied by a proliferation of connective tissue, which surrounds the constantly diminishing islands of cancer tissue. Ultimately the cancer tissue is completely replaced by connective tissue, and at the same time the examination of the normal tissue of the uterus surrounding the carcinomatous growth shows that the cylindrical epithelium of the cervical glands remains intact. There are cases on record where an inoperable carcinoma of the uterus was treated with radioactive substances, the uterus was subsequently removed and no signs of carcinoma were found on gross or microscopical examination. Such results surely indicate a powerful selective action.

Kroenig and Gaus seem to be the most enthusiastic advocates of radium and Roentgen therapy in cancer, and in their latest publication they offer the following indications for this method of treatment:

1. When a cancer is yet operable, but can be easily controlled by sight and touch, then one should first employ radiotherapy, and if not successful, then operate.

2. When the case is still operable and not easily controlled by sight and touch, then operate, provided the postoperative mortality is low and the chances for an ultimate result good; otherwise employ radiotherapy.

3. When the case is inoperable then radiate.

4. Whether a case has been apparently cured through an operation or radiation a prophylactic radiation should be employed from time to time in order to prevent a recurrence.

In justification of their advice to radiate even operable cases they presented the following statistical chart, compiled from the material of various clinics:

Carcinoma of	Primary operative mortality. per cent.	Ultimate results. per cent.
Upper lip	0	30.7
Breast	4	18
Lower lip	4.3	17
Vulva	5	1
Body of uterus	8	47
Rectum	18	12.4
Tongue	19.3	16
Cervix	19.3	18
Vagina	30	4
Stomach	34	3
Gall-bladder	35.3	0
Colon	48	12
Small intestines	55.5	4.3
Esophagus	100	0

This chart shows that the primary operative mortality in cancer is very high, ranging from 20 to 40 per cent., while the percentage of ultimate radical recovery is low—from 4 to 30 per cent. The carcinoma of the body of the uterus is the only exception, with 47 per cent. of radical cures, but this condition is in their estimation so easily handled with radiotherapy that in about three weeks' treatment no carcinoma can be found on examination.

In order to place a true valuation on the radiotherapy in cancer a comparison with salvarsan may be again in place. A true radical cure of cancer with every cell destroyed is as rare as the *therapia magna sterilisans* in salvarsan therapy. One must not forget that the initial lesion in syphilis during the first few days does not penetrate any deeper than an epithelioma of the skin, and the latter can be radically cured by radiotherapy. But in the deeper conditions by no means every case responds as promptly and as well. I have seen cases of carcinoma of the uterus where the action of the radium was marvelous, and I have seen again cases which seemed to be identical clinically and microscopically, and still did not respond to the action of radium. I have also seen cases where the patient after treatment with radium appeared to be clinically well and the microscope showed only a few islands of carcinoma cells remaining. The treatment was discontinued for a couple of weeks, and the patient returned with a local recurrence of the carcinoma.

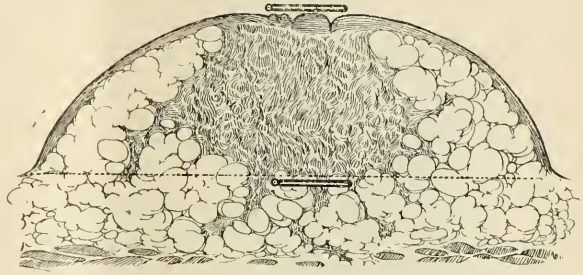

FIG. 4.—Radium treatment of carcinoma of the breast, before and after operation.

Radiation undoubtedly accomplishes as much as the knife in certain localized superficial conditions like the epitheliomata of the skin and ulcus rodens. It may even have certain advantages over the operative treatment inasmuch as it may reach microscopically small islands of cancer cells which the knife would have left behind. Furthermore, it does not open the lymph and blood channels and allow freed cancer cells to enter the circulation as an operative incision may do. On the other hand, the size and extent of the tumor growth may be such as to preclude the possibility of its being influenced in its entirety by the rays. Should the main mass of the tumor be removed surgically then the rest can be easily influenced by the rays.

Figs. 4 and 5 present schematic drawings of a carcinoma of the breast and one of the uterus. One radium tube is shown over the skin of the breast, and this tube will not be able to influence the whole of the tumor. Another radium tube is shown on the wall of the chest after the tumor has been removed surgically. This tube will have to influence the remaining islands of carcinoma, which is surely easier of accomplishment. The rays may also be brought in better contact with all the parts of the tumor by inserting the tube in the center of the growth, but a preliminary radical removal of the tumor is certainly a better procedure. In the case

of a cancer of the uterus the tube can be placed in nearer contact with all the parts of the tumor, as is seen on the illustration, and in a certain number of cases all the cancer cells within the uterus may be destroyed. But even in this case a few islands of cancer cells may remain and give rise subsequently to recurrence.

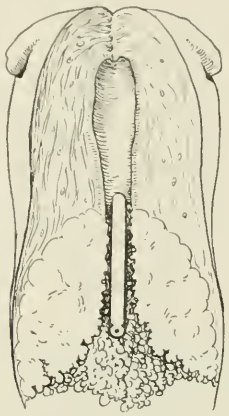

FIG. 5.—Radium treatment of cancer of the uterus.

In view of all these considerations the advisability of radiation as an only method of treatment of inoperable cases of cancer appears to me to be very questionable. In the present state of our knowledge I must emphasize strongly that the radical operative removal remains the paramount method of treatment in cancer whenever practicable. But in certain cases it may be advisable to radiate before the operation. The cases reported that were made operable through a preliminary radiation indicate the advantage of such a mode of procedure. Certain cases have also been reported where the radiation did not diminish the size of the malignant growth and still the condition seemed to have become more benign and the life of the patient was prolonged from a few months to a few years. A preliminary radiation may then improve the ultimate results of the operation. The same reasoning indicates clearly the absolute necessity of prophylactic radiation following every operation for a malignant growth. Inoperable cases belong undisputably to the domain of radiotherapy. But here another extreme must be guarded against. Cases with metastases in the liver or lungs and general dissemination should not be turned over as an *ultimum refugium* for radium therapy. This will serve only to discredit the method of treatment and demoralize scientific work. Barely 20% of the cases referred to me for radium treatment are suitable. The attending physician or surgeon should begin to consider radium early in his treatment of cancer cases, and not when the patient is moribund.

The radioactive substances are the most powerful chemical agents of any that we know at present, and a wildly proliferating cancer cell is the most treacherous enemy to handle. Too small a dose of radium may irritate and increase the growth of cancer, instead of arresting it. Too large a dose may necrotize the cancer tissue too rapidly and produce perforations into vital organs (esophagus, stomach, colon, etc.), or erode the blood vessels and produce a fatal hemorrhage. Very large doses may produce, also, alarming general symptoms—fever, nausea, and even collapse. Correct and scientific methods of radium and Roentgen therapy, methods which will lead to real progress in the future treatment of malignant growths, imply the correct selection of cases, correct dosage and filtration of the rays, and constant clinical and microscopical control of the patient under treatment. In other words, the physician who takes up radiotherapy as his life work and wants to protect himself and his patients against great disappointments and serious mishaps should not only be well acquainted with the physical and biological properties of the rays, but must also be a trained clinical surgeon and a pathologist.

To recapitulate: The radium and Roentgen rays are no more of a cancer cure than salvarsan is a syphilis cure, but these rays are therapeutic agents deserving at least as much consideration as surgery. Over-enthusiasm is as injurious to scientific work as over-pessimism is. Sober joint research in this field of the physicist, biologist, and the clinician, will surely be fruitful of far-reaching results in the therapy of malignant tumors.

119 West Seventy-first Street.

RADIUM IN THE TREATMENT OF CANCER.

By WILLIAM H. DIEFFENBACH, M.D.,

NEW YORK.

A RÉSUMÉ of eleven years of experience with radium employed in efforts to control neoplasms will, at the present time, be acceptable in view of the constantly increasing interest in the application of this remarkable element in the treatment of cancer.

In 1902 the late Dr. Henry G. Piffard induced the writer to invest in a tube of 1,800,000 activity radium bromide for experimental purposes in his clinical work. This tube has been supplemented from time to time by the following:

No. I. 100 milligrams of 200,000 activity radium chloride in a glass tube.

No. II. 225 milligrams of 500,000 activity radium chloride in a shellac mass.

No. III. 10 milligrams of 1,800,000 activity radium bromide in a glass tube.

No. IV. 10 milligrams of 1,800,000 activity radium bromide in a hard rubber disc with a mica window.

No. V. 5 milligrams of 1,800,000 activity radium bromide in a glass tube.

No. VI. A number of coated placques and bougies covered with a film of 25,000 activity radium bromide which were tested over large surfaces and in orifices of the body. These coatings were devised by Hugo Lieber, New York, to whom credit is herewith accorded. These activities were figured according to the uranium oxide scale and have not been re-valued according to the Curie scale in vogue to-day. They are given in detail to enable others to estimate relative dosage when employing radium in their own practices and will be referred to by numbers when reference is had to them in the recital of cases.

In 1905 the writer had collected sufficient data and experience to warrant his paper before the First International Congress of Radiology and Ionization held at the World's Fair at Liège, Belgium, of that year, where he represented the United States Government as official delegate by appointment of the late John Hay. This paper, "A New

Method for the Application of Radium in Neoplasms," was published in the transactions of the Congress, 1905, and also in the *Archives d'Eléctricité Médicale*, and is believed to have given impetus to the French school in developing the technique of coated discs and placques, as is evidenced by the work of Wickham and De Grais, Dominici and others, which first assumed importance since the delivery of above lecture. The résumé for the period of 1902-1905, as reported above, was as follows: "We can report absolute present success in cases of flat epitheliomata, small patches of lupus vulgaris, epithelioma of the lip and tongue—all of which must await the usual term of years before danger of recurrence has passed. In several cases of epitheliomata involving large surfaces, final results are still subjudice, in others failures resulted."

In spite of a large percentage of failures, especially in fungating epitheliomata involving large surfaces, the writer was convinced of the inhibitive action of radium rays upon pathological cells, as shown in frequently recurring favorable results, which, like white stones, showed the way along the path to success. To this period belongs a case of epithelioma of the concha (Figs. 1 and 2).

Fig. I.—Case of epithelioma involving concha. Before treatment.

Case I.—Miss L. M. G., aet. 63, came for treatment in 1905. Diagnosis: epithelioma. Patient had been advised to have operative removal of the concha as the lesion was growing rapidly. Eighteen hours of raying with No. VI coated discs resulted in disappearance of the lesion, leaving a perfect cosmetic result. This patient has been seen on and off for the past eight years and no recurrence has been noted.

In 1906 Mr. Hugo Lieber, New York, produced solutions of 25,000 activity radium dissolved in gelatine, the object being to use an animal product as a vehicle for disseminating radium within tissues by means of injections. This method was tested in a large number of cases of inoperable and inaccessible tumors. Incision into tissues, including laparatomies, with subsequent injection into tumors and burying glass tubes and coated rods in same for varying periods was carefully tested in non-operable tumors. The writer claims the credit in conjunction with Dr. W. T. Helmuth of New York of having had a laparatomy performed for the express purpose of securing access to an inoperable sarcoma of the groin and injecting the same with solutions of radium gelatine. Recital of this case will be valuable, for after two years an autopsy was secured and a careful microscopical study was made of the remnants of the injected tumor.

Case II.—Mr. E. C. H., aet. 59.—In 1909, the patient was referred for *x*-ray treatment for an inoperable tumor of the right inguinal region, which could be mapped out superficially and was fully eight inches in diameter, reaching downward into the pelvis. After a period of three months of raying with no marked diminution of the tumor, the writer suggested an exploratory laparotomy and the subsequent injection of radium into the tumor, if at all practical. Although no promise of improvement could be vouchsafed, the patient was willing to have the experimental work done, and the surgical work being performed by Dr. W. T. Helmuth, the writer prepared one ounce of gelatine containing 20 milligrams of 25,000 activity radium bromide (Lieber method). This solution, after exposure of the tumor and excision of a small particle for diagnosis, was injected into the tumor in four separate areas and a purse-string suture placed about the superficial opening caused by each needle thrust. The abdominal wound was then closed and the patient treated expectantly. The action of the absorption of the radium produced irregularity of myocardial contractions and physiological stimulants were required to tide over this attack, which lasted for 36 hours. The patient made an uneventful recovery and returned home in two weeks. Contraction of the tumor, which Dr. L. Heitzmann had pronounced round cell carcoma, ensued, and within four months but a small mass was palpable in the lower portion of the inguinal region. The patient gained in weight and insisted that he was well enough to resume business. It was suggested to him to have a second laparatomy and have the small mass still persisting removed surgically. This was declined.

Fig. II.—Case of epithelioma of concha after eighteen hours' exposure to 25,000 activity radium rods. No recurrence after eight years.

The patient was seen from time to time for *two years* in apparent good health, but during the last month of his life developed edema of the lungs, which was ascribed to metastasis—with exitus lethalis.

A post-mortem was granted and the following report given by Dr. Louis Heitzmann: "The tumor removed from the right inguinal region of Mr. E. C. H. at autopsy was irregular in outline and contracted from the hardening fluid, when received in my laboratory. It was then fully 2½ inches in length by almost two inches in width in its widest part, and had a thick capsule, which, however, varied considerably in thickness in different parts. On sectioning, one end of the tumor was found to show degenerative changes, being yellowish in color; this extended about three-fourths of an inch into the body of the tumor, becoming less and less marked. At the periphery this degenerative change extended over the entire length, and about two-thirds of the width. At the other end of the tumor the degeneration was not present, but only a thickened capsule. The chief mass or body of the tumor presented a variegated appearance, black areas alternating with white or grayish ones, to a varying degree, the former predominating near the surface, although not throughout the entire tumor.

"Microscopical examination of the capsule of the tumor showed dense fibrous connective tissue, near the surface, almost devoid of blood vessels, but looser in the deeper portions, containing a few blood vessels. In many places the cicatricial tissue has become considerably infiltrated with fat globules, the so-called fatty infiltration as distinguished from fatty degeneration. Besides this, a varying amount of pigmentation is also present and some of

the fibers are secondarily degenerated, breaking down the granules, a commencing necrotic change. Immediately beneath the capsule a large area of hemorrhage is present everywhere. This contains not only blood corpuscles and fibrin, but considerable pigment, and the pigment found in the capsule is undoubtedly derived from this. The hemorrhage has infiltrated the tumor proper, and becomes less marked the nearer we come to the body of the tumor.

"The tumor itself is a melanotic small round-celled sarcoma. It consists of numerous small, round, coarsely granular and nucleated corpuscles, partly in close contact with each other, separated only by a structureless basement membrane, partly separated by a small amount of fibrous connective tissue. Many of the nuclei show slight karyokinesis, while others have undergone karyorrhexis. In the majority of corpuscles, pigment granules are present in small numbers, due apparently to cellular activity, and causing the tumor to become more malignant and more liable to produce metastases. Masses and small clumps of pigment are scattered throughout the tumor and here and there red blood corpuscles in small groups are also present. The tumor is moderately vascular, the walls of some of the blood vessels being infiltrated with sarcoma corpuscles. While necrobiosis (karyorrhexis) is seen within the cells, true necrotic changes, as seen at the periphery, are not found in the body of the tumor. In many places large strands of fibrous connective tissue run through the tumor. These are dense in character, similar to the tissue present in the capsule. Here and there the connective tissue is infiltrated with round cells, while in other places it can be seen to have undergone more or less complete disintegration. The impression is thereby given that the connective tissue throughout the tumor was much more abundant and became secondarily destroyed and changed to sarcoma corpuscles.

"The periphery of the tumor showing degeneration to the naked eye was found to have undergone more or less complete necrosis, so much so that in many fields of the microscope only an indistinct, blurred granular mass is left. In other places the sarcoma corpuscles commence to disintegrate and become necrotic. Other degenerative changes are also present in the mass of necrosed tissue, notably thin plates of calcareous infiltration, but also some pigmentary degeneration. In some parts of this necrosed mass the connective tissue is still abundant and dense in character, while in other parts it is more or less completely destroyed. Taking all the features into consideration, it appears that cicatrization had set in, but had not become complete, so that while parts of the tumor had become destroyed and necrosed, others escaped destruction. These latter took on an active growth and partly again destroyed the cicatricial tissue."

This interesting report clearly showed how radium rays given for a long period acted upon tissues and confirmed the observations made upon superficial tissues where cicatrization with the formation of a white scar is the usual end-result of a massive radium dosage.

The results of treatment of a number of neoplasms by injections and local application of tubes and disks were read before the American Electro-Therapeutic Society in the fall of 1910 and published in full in the *Journal of Advanced Therapeutics*," June, 1911, under the title: "Radium, what it is; what it has accomplished and where it has failed." The report of the lesions treated included: Keloids, nevi, pigmented moles, angiomata, urethral caruncle, epitheliomata, fibromata, all of which were reported amenable to radium rays. To quote further from the above article: "Inoperable cancer of the breast: a number of cases were treated—we have three patients living after respectively, four, three, and two years—the rest of the patients were lost track of or are known to have died. Inoperable epithelioma of the oral cavity, including cancer of the lip and tongue; there have been ten cases, of whom six are living and four dead. Since the reading of this report this list has been added to largely with about the same percentage of successes and failures. Inoperable carcinoma of the neck we have had eight cases, of which two are living and six are dead. This percentage of successes and failures has also been retained in patients treated since 1910. The earlier the lesion is treated and the more prolonged and massive the dosage the better have been recent results. Inoperable carcinoma of the liver: injections were tried in four cases. All these patients died, although one patient after injection lived for eight months. Inoperable cancer of the spleen: there have been three cases—of the stomach, one case; of the bladder, two cases (1910)—all these patients died. Inoperable carcinoma of the rectum was treated in a number of cases; all of these patients died, with the exception of one, under supervision of Dr. C. H. Wintsch, Newark, N. J., who lived for three years, and the other apparently successful case is still living after six years. Sarcoma of the thigh, two cases, of which one case is living after two years—the other one died. In addition to the inoperable cases of cancer of the breast, a large number of recurrent cases have been treated with Roentgen ray and radium tubes and injection. Of these our records show a percentage of cure of one in three; the sooner these patients are received after recurrence is noted, the better the prognosis. Of primary operable cases, three patients have been treated. In all these cases the patients had refused operation, and they are alive after three, two and one and one-half years, respectively. In uterine cancer, inoperable and recurrent, our experience has been quite extensive. The final results in nearly all cases were negative. Several recurrent carcinomata involving the vaginal tissues were kept alive for two years, one case of recurrent carcinoma is still alive after five years and performs her duties as a professional nurse." This patient still remains well, three years later (1913).

Since instituting prolonged raying with radium, results have improved in uterine cancer and the apparent cures thus far secured have been added to.

The conclusions of the above paper were as follows: "It will be noted, therefore, that the use of radium in malignant conditions involving large areas leaves much to be desired; but judging from the excellent results secured in small areas we are justified in attempts made in inoperable cases to produce on a large scale what has many times been produced in small lesions. The injection method with diffusion of radium throughout the affected tissues offers hope for success and it remains for us to determine the dosage and repetition of the dose in order to secure fibrosis in the tissues we desire to render inert or destroy." The following deductions were drawn in above report: (1) Radium in sufficient dosage is a specific in small aberrant growths, including warts, moles, keloids, leucoplakia, nevi, angiomata, lupus, and epitheliomata. (2) It cannot cure any of above lesions if the dosage is insufficient or does not penetrate the entire substance of the tumor—hence its failures in cases of deep-seated epitheliomata. The combination of surgery and the removal of all involved tissues possible and immediate radium treatment offers hope for success in many cases otherwise considered inoperable. (3) Injections of radium or introductions of radium tubes or rods into large inoperable tumors have been successful in but a few cases of sarcoma and carcinoma thus far. If the technique of dosage, repetition of same and the activity of radium to be employed is further developed, there is reason to hope for increased success in this class of cases, for the same principle of cure secured in small lesions should theoretically be applicable in larger ones."

Since this paper was compiled, 1910, opportunity has not been wanting to follow out this line of procedure. The recital of a case of inoperable cancer of the bladder treated in 1911 and still alive, will illustrate the desirability of prolonged primary, massive dosage.

Case III.—F. C., aet. 69. This patient, on and off, had suffered from hematuria and had the misfortune to break his catheter in the deep urethra while performing his usual cystic lavage. Drs. Bukk G. Carleton and Sprague Carleton were called in consultation and with difficulty removed the broken tube. Some days subsequently hematuria set in very profusely and various treatments failing to check the bleeding, a suprapubic incision was made by Dr. Carleton and the bladder incised. Both physicians found a large fungoid mass almost filling the bladder cavity, and after deliberation concluded that operation was not feasible, the age and condition of the patient being considered. A prognosis of fatal termination of what both surgeons considered as inoperable carcinoma was made. With this prognosis before him the writer suggested the use of radium in the case, and with the aid of Dr. Carleton, No. III tube was placed in the end of a catheter and introduced into the bladder cavity with the intention of leaving it in place for some days, of removing it if symptoms demanded it. After *three full days* of radium exposure, hemorrhage ceased and the radium was removed. The patient, almost exsanguinated, soon showed signs of improvement, but after one week hemorrhage set in again. The process was now repeated and the same tube inserted for three days more (Dr. Carleton's notes have it four days) when bleeding ceased and has not recurred. Almost two years have elapsed since the treatment and the patient is living in apparent good health, although still voiding his urine suprapubically in a rubber container.

This, it is believed, is the first authentic report of malignant involvement of the bladder apparently cured through suprapublic cystotomy and massive radium radiation, and we desire it to be so noted. In October, 1912, another patient with malignant bladder was treated in conjunction with Dr. Walter G. Crump of New York and Dr. Stella Q. Root, Stamford, Conn. In this case a suprapublic incision was made by Dr. Crump and No. III tube applied over a small hemorrhagic area for three hours, being packed directly into the center of the mass. The patient has been reported free from hemorrhagic recurrence since that time.

In the treatment of inoperable or recurrent uterine, cervical, and vaginal carcinoma, the technique in the past few years has been to have the nurse prepare a gauze tampon into which are sewed tubes Nos. I, II, and V, in the form of a tripod, so as to reach as many surfaces as possible. The technique consists of introducing this tampon against the lesion and in small lesions have a 24-hours exposure. When hemorrhage is marked, 48-hour and 72-hour exposure is given. In all cases hemorrhage has been controlled, and in several cases no recurrences have been noted after two years, since the use of the prolonged massive dose. The foot of the bed is raised in these treatments in order to keep the tubes with the radium in place. Repetition has been given every two to four weeks, depending upon a return of active symptoms. This massive dosage is recommended to the profession most earnestly for the palliation and possible cure of this large class of otherwise hopeless cases. The limitations of combined surgery and radium treatment are difficult to define. A case illustrating this point will be cited:

Case IV.—The patient, aet. 59, presented a papillary epithelioma of the left labium (second recurrence) about the size of a large lemon, with involvement of the glands of both inguinal regions. This patient was treated in conjunction with Dr. E. Lothrop of Buffalo and Drs. W. G. Crump and A. E. Austin of New York. Dr. Lothrop, assisted by Dr. Crump, following preoperative radium treatment of the tumor and groins for several weeks, excised the tumor mass and inguinal glands and cauterized the open wound with actual cautery. This was followed by the implantation into the large incisions of tubes I, III, and V on one side, and discs II and IV on the other side, the radium being kept in the wounds for three days. The discs were subsequently shifted at three-hour intervals along the whole periphery of the incision of the labial, and inguinal tissues until the whole area was covered. The lesion has now, after almost one year, shown no recurrence and the patient is apparently well. The diagnosis by Dr. L. Heintzmann was villous carcinoma (papillary epithelioma) with involvement of lymph nodes of both groins. Studies made by Dr. Heitzmann upon the action of radium on the tumor mass show degeneration with fibrosis in the main mass of the tumor treated and deserve a separate report.

Whenever possible, pathological studies were made of tissues subjected to radium rays, and the following report is submitted as conclusive of the power of radium rays upon cellular development.

Case V.—Patient aet. 66, with epithelioma of the right thumb-distal phalanx. Radium was applied in this case, using discs II and IV for one hour, dosage once a week for three months, when a friend interfered and insisted upon surgical removal. The report of the pathological study of Dr. Heitzmann follows: "The tumor of the thumb which had been treated with radium proved to be an epithelioma with ulceration almost completely degenerated and partly necrosed. Nowhere throughout the entire tumor could any non-degenerated epithelial nests or alveoli be found and in only a few places in the center of the new formation was it at all possible to diagnose the original character of the tumor. The changes were more or less universal and consisted in hyaline degeneration, necrosis, hemorrhagic extravasation, pigmentation, and inflammation, with a thickening of the walls of the blood vessels and a partial or almost complete obliteration of many of the smaller blood vessels. In the diffused layers of epidermis where ulceration has not taken place, proliferation and inflammation with a partial necrobiosis of many epithelia could be seen. In many of the ulcerated portions of the epidermis a complete general degeneration or ulceration was visible. The connective tissue of the derma was considerably infiltrated with inflammatory corpuscles and here and there variously sized areas of hemorrhage with masses of pigment were present. The blood vessels were without exception hyperemic, many completely engorged with blood corpuscles, the walls of some had undergone hyaline degeneration and were considerably thickened. The sudoriparous glands showed inflammation and proliferation. The subcutaneous connective tissue was also infiltrated with inflammatory corpuscles, and in many parts of the muscle tissue inflammation and hyaline degeneration were present, extending in a few places almost to the bone. The tumor itself, throughout its entire extent had undergone inflammation with degenerative and necrotic changes, so much so that many of the cancer epithelia had become destroyed and broken down to illy defined granular masses. In a few places in the median and deep seated portions of the tumor a few distinct cancer nests and pearls were present, but even here commencing degeneration was found. Nowhere in any part of the specimen could any evidences of regeneration and new formation of connective tissue be discovered, the changes being only degenerative in character. The inflammation had extended down to the ball of the thumb, where no evidence of the presence of a tumor could be found, the tumor and the ulceration taking up the second and small part of the first phalanx."

Pathological reports on sarcoma, carcinoma, and epithelioma which had been subjected to radium treatment and subsequently excised, show conclusively that contrary to the reports of some observers, radium has *no selective action* on any particular kind of malignant cell. A massive dose will produce inflammatory degenerative changes in *any tissue*, to be followed in due time by fibrosis and a clean white scar on superficial tissues. If repetition of dosage is indulged in when not required, destruction of the newly formed scar tissue, with necrosis, will supervene.

The dosage and technique employed and gradually evolved during the past 11 years is as follows:

(1) In superficial lesions, adults, one to two hours' radiation with Nos. I, III, and V filtered through adhesive plaster and covered with several layers of ganze; Nos. II and IV filtered through ordinary tinfoil and covered with ganze, bringing the disks about ¼ inch distant from the lesion. The tubes and disks are fastened with adhesive straps and the patients are preferably placed in a recumbent position to prevent shifting of the applicators. In infants a shorter exposure, especially *in nevi*, is imperative, as an adult dose will produce necrosis. As a rule, one-half of the adult exposure is the correct dosage. Repetition of dose is best given in four weeks—if the lesion has been poorly covered it is best to risk overdosing and repeat within 10 to 14 days, rather than permit the further development of the neoplasm. The principle of dosage to be remembered in all cases is that *short exposures stimulate, large, massive doses inhibit cellular growth.* This has been demonstrated on seeds, ameba, and on living tissues and admits of no dispute.

(2) In deep-seated lesions in adults, from two to fours hours of Nos. I, III, and V filtered through adhesive plaster; Nos. II and IV filtered through tinfoil and eight to sixteen layers of ganze. Frequently it is necessary to introduce the tube directly into the tumor. The glass tubes are then enveloped with adhesive plaster and the ends sewed up with silk and forcibly introduced into the tumor mass, the silk threads being left out so as to control the position of the tube or tubes. In large fungating tumors these tubes have been kept in for 24 hours and weekly repetition of treatment has been given at other or distant portions of the growth.

(3) In uterine, cervical, and esophageal and rectal lesions much depends upon the size and involvement of the lesion. In inoperable uterine cancer a tampon, with two or three tubes, is kept in place for from one to three days (as already described), in rectal conditions a coated bougie, 25,000 activity, is kept in contact with the lesion for as many primary hours as possible, a maximum of 60 hours in one case having been required to check hemorrhage. Cocaine applications are often required to permit introduction of these bougies.

(4) The technique of burying tubes or disks depends largely upon the size and extent of the lesion to be treated. A minimum of 48 hours (in my judgment, based on failures with shorter exposures) is required for moderately large lesions where the tubes or disks can be introduced deeply and if no adverse symptoms (toxemia, myocardial irregularity) are noted, an extra day's treatment will be beneficial rather than harmful.

Complications and Sequelæ.—Complications and sequelæ are particularly to be guarded against when injections are employed. The direct absorption of the emanations of radium produce arrhythmia and stimulation is required to tide over the attack. When long exposures are given toxemia has been noted in many cases. The hot pack or prolonged warm baths (20 to 30 minutes at 98° to 100° F.) or the Murphy drip are then resorted to for eliminative purposes. Remedies will be given symptomatically depending upon each individual reaction.

In conclusion, the writer desires to express the conviction that the battle against malignant growths is not as confined and hopeless as is generally pictured. In many inoperable or advanced lesions the combination of surgery with radium radiation will prove successful.

1748 Broadway.

CHORIOEPITHELIOMA — WITH REPORT OF A FATAL CASE.*

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A CHORIOEPITHELIOMA may be defined as a neoplasm apparently due to an unrestrained proliferation of chorionic epithelium.

It is predisposed to during the child-bearing age in females. Frank has also reported twenty-two cases of testicular chorioepithelioma. The youngest case in females was that of a girl of 17 years reported by Ahlfeld, while the oldest, aged 52 years, is reported by Holleman.

Recent parturition, ectopic pregnancy, abortion especially if a hydatid mole has preceded, are among the exciting causes given. Ladinski reports in 128 cases: 51 followed hydatid mole; 42, abortion; 28,

FIG. 1.—From curettings, showing masses of giant and syncytial cells.

labor at term; 4, premature labor; 3, tubal pregnancy.

The time of onset was, after pregnancy, 5 weeks; after placenta mole, 8 weeks; after abortion, 7 weeks.

In Teacher's records of 188 cases, 73 followed uterine mole; 36, abortion; 49, labor at term; 7, from tubal origin.

Marchand considers nutritional and chemotactic influences at fault in the causation of the growth, and states that the earlier in pregnancy they develop the more malignant their course. Veit regards the maternal tissues as the starting point which he thinks begins before pregnancy. Softening of the uterine wall and the death of the fetus have been assigned as causes. Schmorl declares that generally a diseased placenta, probably hydatid, has preceded.

*Case reported to the Sloane Hospital Alumni Association, October, 1912. Paper read before the New Haven Medical Society, April, 1913.

Fortunately it occurs rarely. Of 27,000 patients treated at the Sloane Hospital, one case of chorioepithelioma had been admitted previously to that here reported. I found records in the literature of 350 cases.

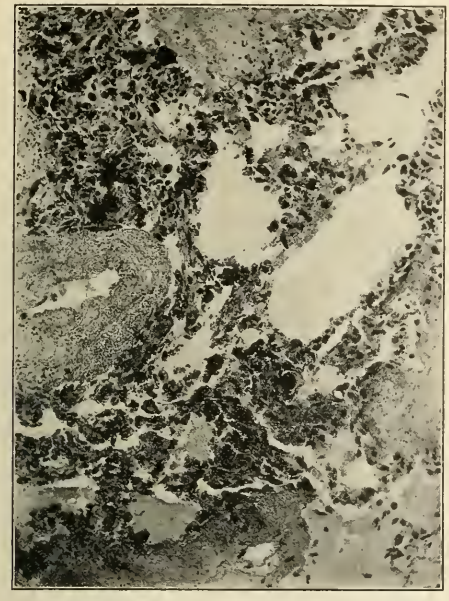

Fig. 2—From curettings, showing cells of the same character as in Fig. 1.

In 1889 Sänger first called attention to two unusual conditions following abortion. The tumor in these cases he called "Deciduoma metastica malignum." In 1892 he reported another case which he regarded as a sarcoma of the uterus; reddish tumors in the uterine wall with metastases in the lungs and elsewhere. This he termed a "Sarcoma deciduocellularis uteri." In 1877 Chiari had described a similar growth as a carcinoma. Pfannenstiel called the growth endothelioma. Marchand first insisted upon its fetal origin in the chorionic villi.

It will be remembered that the chorionic villi consist of a groundwork of connective tissue supporting the fetal blood-vessels. These villi are covered by two layers of cells. The inner layer consists of a single row of sharply defined polyhedral cells with oval nuclei; the cell bodies are clear and rich in glycogen, the Langhans cells. The outer layer consists of a homogeneous cellular mass studded with nuclei; for this reason it is called the syncytial layer. This layer throws off knobs which on cross-section resemble giant-cells. In addition, the chorionic epithelium also comprises so-called chorionic wandering cells which are probably derived from the syncytial layer and penetrate for longer or shorter distances the myometrium at the placenta site.

In an hydatid mole, which is often the precursor of a chorioepithelioma, these two layers reveal pronounced proliferation. The villi are enormous in size and are covered by masses of loose syncytial and Langhans layers. Whether this proliferation is primary and causes the hydropic swelling of the villi, or is secondary and due to the irritative influence within the villi, is still a matter of speculation. (Moschkowitz.)

Ewing groups chorioma, as he styles it, under several distinct classes: (1) Syncytioma; (2) chorioadenoma; (3) choriocarcinoma—(*a*) typical; (*b*) atypical; (4) transitional syncytioma.

1. Syncytioma—a neoplasm with more or less infiltration of the myometrium, or a tumor which does not tend to perforate the uterus or to form metastases. Large syncytial wandering cells may be found in the walls of the sinuses and also in the musculature. In the early stages the prognosis is good. Curettage generally cures.

2. Chorioadenoma. In this form, while metastases may occur, they sometimes undergo spontaneous regression. These polypoid tumors may distend the uterine cavity, perforate the organ and extend into the veins. There must be a curettement to determine their histological character, and where there is extensive involvement with metastases hysterectomy is indicated. Here the prognosis is not hopeless.

3. Choriocarcinoma, similar to the malignant *typical* chorioepithelioma of Marchand. They are characterized by the absence of villi, extensive proliferation, and pronounced metaplasia of Langhans and the syncytial cells. Here the prognosis is distinctly bad for the mtastases may invade the lungs, spleen, and other organs. He classifies it thus because of its (1) rapid and greater malignancy; (2) histological characteristics of carcinoma; (3) transmission by the lymph as well as by blood-vessels.

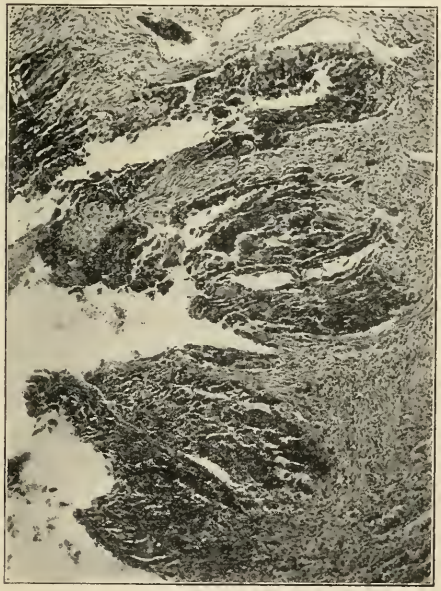

Fig. 3.—From curettings, showing an extension of the tumor cells into the uterine stroma.

Of the *atypical* chorioepithelioma described by Marchand, Ewing states that the uterus is much enlarged, there is extensive infiltration of the muscle and sinus walls with giant and mononuclear cells derived from the syncytium. There may be one

mass of several globular masses. Microscopically there are masses of giant and syncytial cells (wandering cells). Definite Langhans or villi are missing. There is involvement of the muscularis and walls of the sinuses with exudate and inflammatory cellular tissue. The prognosis is not unfavorable as there are no progressive metastases.

4. Transitional syncytioma, classified between these types. In this there is marked increase in the syncytial (wandering cells), with decrase in those of Langhans. Pick differentiates two forms: (1) Typical, in which the syncytial masses build a network in the meshes of which lie Langhans cells; (2) Atypical, the tumor substance is formed mostly of giant wandering chorionic cells.

Frank brings out the fact that all attempts to distinguish histologically between the malignant and the benign forms have been unsatisfactory. Gottschalk believed that chromatin changes in the nuclei enabled him to differentiate between non-malignant and malignant chorioepithelioma. Von Velits' theory of regressive changes and paucity of karyokinetic figures in Langhans cells as signs of non-malignancy has not been accepted. Most pathologists agreed with Marchand that the resistance of the maternal tissues alone influences the final result.

The growth is generally located in the region of the fundus of the uterus, corresponding to the placental site.

The most important symptoms following the development of chorioepithelioma are hemorrhage or constant sanguineous discharge, anemia, cachexia, and metastases in the vagina, lungs, and elsewhere. These grow with great rapidity; in one case observed by Dr. Frank Mathews it seemed that new metastases would appear in the vagina over night. Their presence in the lungs can be determined by an obstinate cough long before physical signs appear. Pick believes that malignant metastases may arise from benign moles and that the severe form may come from embolic normal cells while the uterus remains unaffected.

Ladinsky concludes that significant symptoms are, after a history of recent parturition or abortion, especially if a hydatid mole has preceded: (1) Profuse hemorrhage, irregular intervals with reoccurrence after curettage, sanguineous discharge between hemorrhages; (2) large, hyperplastic uterus and cervix with patulous os; (3) pain in the pelvis, anemia, and cachexia; (4) nodule in the uterus in the early stages; (5) metastases.

Diagnosis.—Microscopical examination of specimens obtained from curettage, or better, from direct section of the uterus, is the only positive way of making an early diagnosis.

Treatment.—Palliative or expectant treatment is indicated until the diagnosis has been established by the methods mentioned. After the diagnosis is made a complete hysterectomy should be done with resection of all vaginal metastases. Even after radical interference the prognosis is not hopeful.

Teacher reports in 99 cases in which hysterectomy had been performed:

		Deaths	Recoveries	%
Following	Hydatidiform mole	9	38	78.5
	Abortion	16	20	55.5
	Term	10	9	47.3
	Tubal	1	1	

In 36 deaths, 11 occurred within a few days after operation; 5 had intervals of several weeks of good health; 25 died after 6 months; 3 remained well one year.

Dorland and Metz report 70 cases with a mortality of 90 per cent. In 87 of Teacher's cases not operated upon, 83 died, 2 recovered, and 2 cases not accounted for.

Ladinski reports the mortality as being 59 per cent. Metastases were found in other organs in 47 cases. The causes of death were: Hemorrhage and exhaustion in 20 cases; perforation of the uterus in 4 cases; operation, shock, and sepsis in 2 cases.

Death—	After mole	After abortion	After labor at term
Shortest	3 days	2 weeks	4 weeks
Longest	2 years	18 months	9 months
Average	6 months	5 months	4 months

Fleischman has collected seven cases of recovery after probable metastases in the lungs. Schmauch reports thirteen cases of recovery after vaginal metastases. Von Velits, in 1904, reported eight cases of recovery after curettage, and several men have reported recovery after partial removal of the tumor.

Nineteen cases of primary ectopic chorioepithelioma have been collected, eleven of which were fatal, with general metastases and proliferating syncytium and Langhans cells.

I wish to report the following case:

Mrs. C., 29 years of age, was confined for the first time in May, 1910. Her family and personal history was negative, her pregnancy uneventful. The labor, a breech presentation, terminated by a breech extraction at the end of twenty hours. The child was a well developed and vigorous boy. Her second pregnancy began in March, 1911. Her history was negative up to that time. When seen in November she said that during the first week in October, while out of the city, she had been attacked by a severe pain extending across the abdomen and around the left hip. She attributed this, and a slight bloody discharge accompanying it, to overstrain. At this time she was in bed for one week.

Upon examination she appeared perfectly well, the fetal heart was strong, rate 160, heard loudest in the left lower quadrant of the abdomen, presentation vertex. On December 10 I saw her again and upon examination found that the position was apparently the same, heart distinctly heard in the left lower quadrant, rate 150. Repeated urinary examinations were negative.

Her labor began on the evening of December 20, pains fairly strong, membranes unruptured, dilatation two fingers. Fetal heart not heard; head well engaged. After the rupture of the membranes the mouth and chin could be easily felt, chin anterior and to the left. Labor progressed slowly, and finally the face was born with chin anterior. The fetus was macerated and the placenta upon its delivery showed what appeared to be large areas of fatty degeneration. Unfortunately it was not saved. The puerperium was normal in every way; the breasts were left without binders and caused very little discomfort. The patient was discharged in the third week, apparently in excellent condition. The cause of fetal death I could not explain, but ascribed it to the degeneration of the placenta and to the face presentation.

On January 16, three days after my last visit, the husband telephoned that his wife had had such a severe hemorrhage that she had fainted. Apparently she had lost a great deal of blood, as she was seriously prostrated, pale, mucous membranes anemic, pulse 120. Her temperature was normal. After rest in bed, sedatives, and ergot she appeared much better the next day. The night following she had another hemorrhage, which, while not as profuse as the first, was very alarming to the family. The uterus, which upon final examination had been well involuted, now could be felt above the symphysis, boggy and filled with soft clots. Realizing the necessity of an operation and the possibility of a serious pathological condition of the uterus, Dr. Wilbur Ward was called in consultation, the patient curetted, and the possibilities of malignant disease considered. The tissue was not examined pathologically as it so strongly resembled retained placenta. For several days after the curettage the patient flowed considerably, so

much so that I asked Dr. Ward to see her again. In the meantime a very obstinate cough had developed. When he examined the uterus he found it again soft and boggy, the fingers above the symphysis, filled with clots and débris. There was also a suspicious soft nodule on the right vaginal wall.

A second curettage was done and the specimen sent to the college for examination. Dr. William Clark reported it to be a chorioepithelioma and advised me to show the slide to Dr. Frank Mathews, who at once confirmed this diagnosis. That same afternoon he also saw the patient and found two soft nodules where one had been felt previously. He agreed with Dr. Ward that an immediate operation might possibly save the patient's life. She was accordingly transferred to Sloane Hospital and operated upon by Dr. Cragin, to whom I am indebted for the privilege of reporting the subsequent history of the case and for the use of the hospital records.

Admitted to Sloane Hospital February 10, 1912.—*Physical examination:* General condition poor, skin and mucous membranes anemic. Heart, rapid, sounds good quality, Clear. Lungs, slight dullness left apex, no adventitious sounds. Perineum, good condition. On the right lateral fornix a nodule size of a hickory nut found, not cystic, apparently not attached to the deeper structures. On the left lateral fornix there is a nodule smaller in size. Cervix, posterior, admits tip. Uterus, bulges into the anterior fornix, is about two or three fingers above symphyses, is boggy, freely movable. No thickening in the ligaments.

Operation by Dr. Cragin, February 10, 1912.—Panhysterectomy; salpingo-oophorectomy, double; transplantation of left ureter, intentionally resected for metastases which involved the ureter.

Pathological Report.—Diagnosis, chorioepithelioma of uterus with metastases. *Gross appearance:* Specimen consists of part of vagina, whole of uteurs, tubes, and ovaries. The uterus measures 10½ by 7 by 5 c.m. Each tube appears normal in size and 9 c.m. long. The ovaries are of normal size. On opening the uterus the wall shows several round tumors imbedded in it. They are red in color and moderately soft and spongy. There is a similar growth in the posterior wall of the vagina. There is a separate piece of tissue 2½ by 3 c.m. removed from the ureter. *Microscopical appearance:* Section shows a group of large multinuclear cells (syncytial masses) and smaller polyhedral cells with well stained oval nuclei invading the uterine stroma and blood vessels. There is considerable interstitial hemorrhage in the region of these cells. Section of the ureter mass shows syncytial cells lodged in an artery. There is increase of connective tissue with round cell infiltration. *Postoperative History:* February 11.—Fairly comfortable, some nausea. February 12.—Packing removed, codeine phosphate given. Calomel in small doses followed by magnesium sulphate and enema with slight result. February 14.—Abdominal wound dressed. Gauze found to be saturated with foul smelling discharge, considerable pus from wound. Cleansed with saline solution, dry sterile dressing. February 16.—Considerable drainage through vagina, foul, greenish, watery discharge. February 18.—Abdominal wound packed with antistreptococcus gauze. February 18.—Great deal of leakage from the bladder. February 22.—Has a slight cough, shows distinct signs of failing. February 23.—Examination of lungs shows throughout both sides fine subcrepitant rales, more pronounced on the left and posteriorly; no signs of consolidation. February 26.—Patient very much out of breath upon slight exertion. Signs in chest more pronounced. Rales are coarser, especially over the left side. February 27.—Coarse bubbling rales over both lungs. Respiration became progressively worse and more labored during the evening; although dyspnea was severe, there was no orthopnea. At 4:30 A. M. there were unmistakable signs of edema of the lungs. From then on the patient gradually sank, dying at 8 o'clock.

February 27, 1912.—Autopsy by Dr. Packard: Body of a well-nourished and developed young woman, moderate amount of adipose tissue. Skin pale and firm. Pupils in middilation. The left leg is slightly larger than the right and is edematous. No external markings upon the body. In the midline below umbilicus is a gaping incision 15 by 5 c.m. The muscles have united, leaving the skin ununited. The wound is fairly healthy. Peritoneum is normal. There are a few fairly firm adhesions around the wound. The uterus and adnexa have been removed. Pleuræ, free except for a few delicate fibrous adhesions posteriorly and on the sides in both cavities. Small amount of fluid in each cavity. Lungs, studded with nodules varying in size from 0.5 to 3 c.m. in diameter. These are of a red color and are moderately soft and friable. They show hemorrhages into their substance. On cutting the lung tissue the tumors are seen everywhere. The uninvolved lung tissue is soft and crepitates. The bronchial nodes are enlarged and deeply pigmented. Posterior to the root of the left lung is a dark red mass, easily torn and firmly adherent to the parietal pleura. Heart, normal size. Valves show no vegetations on their leaflets. There is considerable postmortem clot. Spleen, normal in size, color, and consistency. Kidneys, normal size, pale in color, markings fairly well preserved, cortex of normal thickness, capsule strips easily. Bladder, an opening 3 c.m. in diameter is seen in the bladder at the point of entrance of the left ureter. This opening leads into a large pelvic abscess occupying the site of the removed uterus. The end of the ureter is attached to the bladder by a suture. Pus and decrotic tissue are found about the rectum, and there is an opening admitting two fingers into the vagina. The vagina shows necrotic tissue within two inches of the external opening. No tumor growth is found in this region. Pancreas, hard and fibrous. Section shows a dense surface. Weight 100 gms. Liver, right lobe enlarged somewhat, surface coloring normal; no abnormal conditions found upon section. Gall-bladder, normal. Stomach, intestines, and suprarenals, normal. Head not examined. Left leg not examined.

Anatomical Diagnosis: Chorioepithelioma. Metastases of the lungs. Pelvic abscess.

Conclusions.—From this brief review of the recent literature upon this subject the following conclusions should be emphasized:

1. Chorioepithelioma is, as a rule, a highly malignant blastoma which usually follows pregnancy.

2. Inasmuch as it most commonly arises after hydatid degeneration of the placenta, patients afflicted with this malady should be carefully watched for a long period after the expulsion of the uterine contents.

3. Persistent bleeding following abortion or pregnancy should be regarded with suspicion. In such instances the curettings should be subjected to pathological examinations

4. Although chorioepithelioma is, as a rule, highly malignant, the prognosis is not hopeless; a few cases recover even after general metastatic involvement.

For a complete bibliography the reader is referred particularly to the articles by Ewing, Frank, Stone, Ladinski, Pick, Marchand, Teacher, and Risel, from which quotations have been made. I am especially indebted to Dr. Eli Moschcowitz for his valuable suggestions.

50 Central Park West.

ACUTE PHLEGMONOUS CHOLECYSTITIS:

REPORT OF A CASE WITH GANGRENOUS ENTERITIS.

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The extreme rarity of the conditions mentioned in the title, either alone, and more especially combined, prompts the recital of the facts of the case as we know them and the detailed findings at necropsy. We are inclined to regard the case as unique, especially in view of the fact that after a most careful perusal of the literature on these subjects we find only those references mentioned herein, and in these we fail to find any absolutely similar cases. The case history reads as follows:

Case 4373.—Howard Hospital, J. M., male, æt. 48, of Irish birth, admitted December 27, 1910, with diagnosis of myocarditis complicated with purpura hæmorrhagica and gastritis. Temperature on admission 100.4° F., pulse 88, respiration 24. Five hours later the temperature dropped to 98° with a corresponding drop in pulse and

respiratory rate. Two hours later it rose to 98.6°; three hours later it dropped to 98.2°, then rose for the next 9 hours to 99.6° when the patient involuntarily voided 8 ounces of urine and had 3 involuntary stools. He died within the succeeding two hours.

The nurse's notes record the fact that upon admission the patient's hands and feet, hips and back were covered with red and purple blotches. A bedsore was present on the back. The left side of the face was swollen and there were reddish spots on the inside of the mouth and also on the tip of the nose and ears. The patient was very emaciated and extremely restless and talkative. Fractional doses of calomel were administered followed by Epsom salts with the result that the patient had four stools. The first two stools were large and brown in color and liquid in character. The subsequent stools were small, yellowish, liquid, and composed of apparently undigested particles. The patient was seen by me only two hours before his death and in addition to the above symptoms general abdominal rigidity was noticed. No previous history was obtainable. There was nothing to indicate the real nature of the process within the bowels. Other medicine such as caffeine citrate, salol, strychnine, convallaria, and potassium citrate were given at intervals, but the patient was unable to retain any medicine after about four hours. The one specimen of urine obtained showed upon analysis, dark amber color, alkaline reaction, specific gravity 1016, no sugar, no albumin, thin blood casts, triple phosphates, oxalates, mucus, and epithelium.

The notes of the autopsy as performed by Dr. Norman Gwyn, pathologist to the hospital, read as follows: Body of emaciated man about 5 feet 10 inches in height. Blood oozing from the mouth and nose, eyes edematous. Purpuric splotches over the hands, knees, outside of thighs and feet, some fresh and some old. Over the great toes (2.5 cm. x 5 cm.) and over the knees the spots are more discreet, some small spots on head of penis. Distinct ulcerations on lobes of ears and tip of nose, destruction of tissue on the feet. Large purple spot size of a hand on outside of left thigh, probably due to hypodermic injection. Red patch in epigastrium due to some application. Rigor mortis and livido mortis distinct. Left eye shows evidence of edema and distinct ecchymosis, no jaundice. Ecchymosis scattered through omentum. On lifting the latter the small intestine falls into view, is greenish gray in color, partly distended and partly collapsed. Transverse colon is collapsed and of same color. Two small knuckles of bowel, not discolored, project from either iliac region. These dark coils extended deep into the pelvis and flanks, giving the appearance of bowel filled with blood. The darkened area ends at the iliocecal valve, above it extends to the duodenum. The stomach is markedly distended and of the same green color but lighter. In the large bowel discoloration begins again above the caput coli and extends across the transverse colon, is empty and contracted. Rectum and sigmoid flexure empty and free from discoloration. No marked adhesion at splenic flexure or gall-bladder flexure. No hemorrhage in appendix, no fluid in abdomen. On exploring the small intestine immediately below the duodenum it seems to be covered with fine lymph, but its glistening appearance suggests condition of acute gangrenous inflammation. Nodes slightly enlarged. On exposing gall-bladder, which lies free at right angles, it is seen to be a shriveled structure 2 inches long, red and covered with a grey necrotic membrane with little crypt-like ulcerated areas. A distention at its neck and just beyond is evidently due to a contained gall-stone the size of a bean. Beyond this duct is clear. Spleen moderately enlarged and not suggestive of an infection process outside. On section, save for slight enlargement in malphigian bodies, it seems normal. Blood of mesenteric arteries and veins flows freely, particularly in lower part. As one ascends bowel no blood oozes out. On separating bowel, blood does not exude and bowel wall is greatly thickened; the general blackened condition must be ascribed to acute inflammation and gangrene. Left pleura clear, right pleura has adhesion at posterior apex, with a firm small nodule of evident healed tuberculosis; base also adherent. Both lungs crepitate, considerable congestion. Section of right lung shows moderate size cavity containing caseous material but no nodules and no consolidation. Pulmonary artery clear on both sides. Much edema and congestion at base of right lung; left lung clear. Left kidney larger than right, strips with slight difficulty. Cortex slightly swollen and suggests early stage of cloudy swelling. Right kidney also large, swollen and pale, and capsule strips with difficulty; cuts with some difficulty and on section is pale, dull, and suggestive of cloudy swelling. Both adrenals normal on section—no hemorrhages. Pancreas—section from tail is firm and pale. No hemorrhagic area or suggestion of fat necrosis. Head of pancreas shows no lesion, ducts clear, fluid flows freely. Small enlarged glands about middle of bile duct. Liver larger than normal, pale, evident seat of fatty deposit; covered with numerous stellate scars, probably the remains of old lesion. One section pale, morbidly fatty. Some slight distention of the bile ducts. Considerable ulceration in the stomach, mucous membrane red-gray in color. Firm plaques of atheroma in aorta. Small ecchimosis behind heart in pericardium. Heart not enlarged, 2 c.c. fluid in pericardium. Small chicken fat clots in auricle, auricular appendix free. Right heart free, pulmonary artery clear, valves free in right heart. Mitral valve free, aortic valve clear. Sclerosis around coronary openings. Heart muscle a little pale, not glistening. Bacteriological report of bowel secretions showed streptococci and colon bacilli.

In the case of phlegmonous enteritis reported by Ungerman (*Virchow's Archiv*, 1908, CXCIII, No. 3) the notes read as follows:

February, 1907. The patient was an out-patient, 60 years of age. Russian by nativity. He was suddenly taken ill with severe abdominal pain and prostration attended with slight icterus. He became rapidly worse and passed into a state of coma, dying on the third day. The patient had repeated high rises of temperature. On account of the scarcity of clinical data, there was no suggestion as to the locality or the character of the illness. There seemed to be a certain connection between the illness and the ingestion of two salt herring, but no information could be elicited concerning the quality or condition of the fish. The symptoms and physical signs seemed to point to a heavy diffuse exudative peritonitis, following perforation. Autopsy showed no evidence of intestinal injury or surface change of any other abdominal organs. There was a somewhat heavy swelling in the region of the pancreas, suggesting a pancreatic tumor. A close examination of the gland showed that it was not primarily infected. The head of the pancreas showed a mass of edematous infiltration, the remainder was even more strongly defective. The retroperitoneal edema which encircled the pancreas was the cause of the tumor-like resisting mass present in this vicinity. The chief part of the mass had most likely been the duodenum itself, the weight and stiffness of which was quite apparent upon opening the abdomen. The other organs were considerably injected and enmeshed in fibrous tissue, but had retained their normal size and consistence, and normal thickness of their coats. The duodenum, however, could not be encircled by the hand with compression, its wall was thickly covered with a doughy consistency of a cloudy greyish red color. Upon pressure there exuded a large amount of edematous fluid. This edematous condition also affected the anterior portion of the liver, reaching on one side along the side of the aorta near the highly inflamed and thickly covered lymph gland, high up on the other side to the mesentery. No thrombus was found either in the aorta or the mesenteric arteries. The wall of the stomach was not apparently changed. The gall-bladder was somewhat enlarged; the liver reached over the edge of the ribs in the mammillary line two fingers. It was somewhat cracked, and pale yellow with anemic surface markings. The spleen was normal in size and soft in character, the pulp being somewhat liquid. The genitourinary organs were normal. On opening the intestines the large intestine showed a smooth, pale, shining mucosa. The ileum and a large part of the jejunum had only a slight injection of the mucosa; the other coats were unchanged. A few centimeters under the duodenojejunal flexure there was seen a sudden thickening of the walls of the intestines. Upon completely opening the intestinal wall the mucous membrane presented a conspicuous appearance. In the region of the pyloric end of the stomach the mucous membrane was changed into a transparent, greyish-yellow or greyish-red coloration, the folds of which were closely compressed, so that between them there was a deep compression about 1½ cm. from the incision. The mucous membrane was separated from the muscular coat. The pyloric end of the stomach could only be recognized by the stronger muscular fibers. The surface of the almost gall-like mucous membrane appeared dull, and nowhere was there to be seen any swelling. An elevation rising out of the highly swollen parts was the papillæ of Vater, indicated by an intense red surrounded with a mucous membrane with dark yellowish bile pigment, but otherwise normal. In the region of the descending part of the duodenum the swelling was decided; above and below it was less intense, diminishing as the jejunum was approached. The swelling of the mucous membrane ceased

at the pyloric end of the stomach. The remaining mucous membrane of the intestinal tract was slightly reddened but otherwise normal. Upon separation of the ducts of Wirsung and Choledochus, a blind pouch as large as a finger was directly under the papilla of Vater, the same running along almost parallel to the ductus choledochus. Running in the direction of the hepatico-duodenal ligament there was a heavily swollen mucous membrane containing at the bottom two pointed bone splinters on either side; the smaller of the two was almost 1 cm. long and lay transverse on the lower border of the cul-de-sac. The other one, 1½ cm. long, was perpendicular to its long axis. Neither of the two splinters had penetrated into the wall of the diverticulum; the mucous membrane did not show any great injury, and there was no laceration or bleeding. About 15 cm. underneath the first diverticulum there was seen another one, somewhat smaller, built similarly, laying in the same direction, also completely covered with mucous membrane; no foreign bodies were found in it. By the examination of the horizontal incision through the wall of the duodenum, one could see that the brunt of the lesion was borne by the submucous coat. It was about 1½ cm., and while of a dull grey in parts it also showed a prominent, pus-like, yellow network, upon pressing which very purulent and dropsical fluid exuded. From the submucosa there branched off more or less broad, dull yellowish grey stripes through the muscular coat to the subserosa, which was thicker than normal, and here and there small purulent yellow dots were to be seen. The chest organs showed only old points of fibrous induration; otherwise there was no apparent change. The examination of the peritoneal exudate showed microorganisms mostly arranged in short chains and seen exclusively in the cuts through the altered intestines (doubtless streptococci). The histological picture showed inflamed mucous membrane everywhere. Also in the most altered regions were seen strands where there was a sparsely nuclear stain which points to an evident secondary necrosis, but no macroscopic ulcerous defect could be found. Directly under the epithelium in the strongly constructed tunica propria of the mucous membrane and Brunner's gland there was seen the greatest part of the larger lymph stream, with multinuclear leucocytes, pushed out in a condensed manner, and outside of the lymph channel lay scattered round and pus cells between bands of connective tissue. The submucosa consisted of a braided and dilated band of connective tissue between which there stretched out large and free lumina, and an enormous quantity of gathered dropsical fluid. In moderately regular places the membrane was covered to almost 1 cm. in breadth with pus cells towards the lymph channels. More dense and more diffuse gatherings of pus cells also covered the muscularis. The lymph channel of the subserosa was covered with pus organisms. The subserosa with its many changes reminded one of the changes in the submucosa; it was very loosely affected with many empty channels pushed through it; the lymph-vessels here were prominent and covered with pus cells and showed on the cut surface the appearance of small abscesses. There was a diffuse collection of pus bodies. The serosa in its strong accumulation of pussy exudate showed an acute purulent inflammation. The above described changes were similarly seen in the upper cut of the duodenum. In the region of the pylorus the clear, edematous swelling of the submucosa stood out, in its place was seen a large exudate which was equally distributed in all the crevices of the wall and which did not adhere so much to the lymph channels. Further on there were not seen any more of the cell-like infiltration of the stomach-wall, so that in the region of the circular linear inflammation there might have been room in the tunica propria for round cells and normal mucous membrane. In the same way the same affection was pulled over toward normal conditions on the other side towards the jejunum. The large diverticula, previously referred to, which showed themselves at the beginning of the incision, were more towards the base, consisting of a small band of muscular fibers showing, in passing over in the normal stomach wound, the similar edematous, pussy infiltration. Incisions into the edematous head of the pancreas showed an ordinary pressure of lymph channels. There was in the liver many accumulations of round pus cells in the mesh work of Glisson's capsule and in the shape of small handfuls between the cells on the edge of the liver. There was not seen any microscopic thrombus masses in any part of the portal vein. The retroperitoneal lymph vessel showed the signs of an acute hyperplasia, pronounced distention of lymph sinus with proliferated endothelial cells and leucocytes.

The incision was examined bacteriologically with Loeffler's methylene blue and Gram-Weigert stain. In all portions of the affected bowel regions, in edematous retroperitoneal meshing, in the inflamed lymph channels, in parenchyma of liver, and also in the peritoneal exudate were found the following microorganisms: A Gram positive coccus arranged in short chains of 4 to 8 bodies, plainly showed cutting through the wall of the duodenum. In the further broadening in the intestines was the same overflowing of pus cells in the lymph channels through the muscularis into the subserosa. The streptococci were very plentiful in the papillæ of Vater, diminishing from here on both sides. In the stomach wound is very little pus. Nowhere was there seen any other organisms. Only on the surface of the mucosa between the folds were seen Gram negative short rods. In some depths were seen only the streptococci previously described.*

J. T. Eskridge's field of observation in gangrenous conditions of the intestinal tract includes another interesting case (Tr. Path. Soc., Phila., 1880, IX, 18 to 21).

In this instance the patient was a woman, 40 years of age, and was ill for a period of 40 days before she succumbed. On autopsy, the liver, kidneys, and pancreas were found to be healthy. The spleen was small and covered with vesicles its interior was intensely reddened and granular. Microscopic examination showed chronic inflammation. The gastric mucous membrane was congested. The mucous membrane of the duodenum was almost black, ending abruptly about 12 inches from the pyloric end of the stomach in almost healthy mucous membrane; its walls were very dark and easily torn, and surrounded by a localized peritonitis. The gall-bladder contained a large gallstone. The uterus was inflamed and enlarged and its appendages normal. In this case, if we assume that the presence of the gallstone produced cholecystitis we have a case resembling that of this paper.

A case of acute disease of the colon resembling commencing gangrene, with gallstones, recorded by Minot (*Boston M. and S. Jr.*, 1871, VII, 96), has very many features of interest in this connection.

The patient was a man 81 years of age, and was suddenly attacked with severe pain in the left flank, vomiting, tenderness over the crest of the ilium, and died within 36 hours. On autopsy, the colon showed evidences of obstruction to the intestines. The gall-bladder was everywhere adherent to the liver and contained several hundred calculi, of which five were as large as filberts, and the rest varied from the size of a pea to that of a small shot. The other organs were normal.

Ulceration being a molecular form of gangrene it may not be inappropriate to mention in passing the case of extensive ulceration of the large intestine associated with gallstones, observed by R. H. Salter (*Boston M. and S. Jr.*, 1856, LIV, 57-61). The patient was a woman 68 years of age, and while generally healthy, she had been subject to attacks of indigestion and palpitation of the heart. Her last illness extended over a period of fifteen days. Autopsy showed atheromatous processes distributed throughout the course of the aorta and upon the aortic and mitral valves. The liver was large and fawn-colored with vascular points. The gall-bladder was distended with yellowish-green viscid bile and contained two round, yellowish-brown gallstones. The kidneys and spleen were normal. The mucous membrane of the lower part of the small intestine showed evidences of inflammation, but in the large intestine there were several areas of frank ulceration, one of which had perforated. Two fibrous tumors of the uterus were also found.

In the course of typhoid fever, perforation of the gall-bladder has been observed. In Ashhurst's case (*American Jr. Med. Sciences*, April, 1908) the patient eventually recovered, but in the case referred to by C. H. Lanviner (*Jr. A. M. A.*, June 6, 1912) the condition developed in the third week of the typhoid, and the patient died shortly after. This is mentioned merely to call attention to the simultaneous occurrence of necrotic conditions in these structures, although here the typhoid bacillus in the blood was probably the cause of the gall-bladder complication.

While it is difficult to find records of cases exactly similar to the case herein reported, we are able to find cases allied

*Phlegmonous enteritis is a very rare disease of the intestinal tract, according to Ungerman. There are only 7 cases in the available German records up to the time of Ungerman's observations. These are contained in the following: P. Deutelmoser: "Entertitis Phlegmonosa Idiopathica," Greifswald, 1905. Bellfrage und Hedennis: "Enteritis Phlegmonosa," in Virchow-Hirsh Jahrbuch, 1876, Vol. II. Goldschmidt: *Archiv für klinische Medizin*, Vol. 40, 1887. Askansay: *Zentralblatt f. allg. Path.*, Vol. VI, 1896.

in one or more particulars. Thus, for instance, we may refer to the three cases of acute cholecystitis complicating typhoid fever reported by E. M. Price (*Jr. A. M. A.*, May 15, 1909). In one of these at operation a small necrotic area was found in the fundus of the gall-bladder through which the greatly altered bile was discharging into the peritoneum. There were no duodenal complications.

W. Osler (Tr. Assoc. American Physicians, Vol. XII, p. 390, 1897) gives an account of a case of phlegmonous cholecystitis occurring in the course of typhoid fever. The patient was a married woman 37 years of age, who had an attack of typhoid fever and was now going through a protracted convalescence. She was taken with sudden pain in the region of the gall-bladder, jaundice, and chills. On opening the abdomen at operation the liver was seen to be enlarged, the gall-bladder projected below the right margin, and on its anterior wall a rupture was seen through which bile and purulent matter were oozing. The adjacent wall of the gall-bladder was quite necrotic. The patient died about twelve days later.

Sloughing of the intestine has occurred in the course of obstruction of the mesenteric artery, as is shown in the case observed by Allen (*Australasian Medical Journal*, 1882, n. s., V, 118). The patient was an old woman who was the subject of leg ulcers, diarrhea, and severe intestinal hemorrhages. Allen traces the causation of the sloughing of the intestine to the varicose veins of the legs, the latter incidentally producing obstruction of the mesenteric artery, thus precipitating the intestinal trouble and the fatal termination.

Mesenteric thrombophlebitis with hemorrhagic infarction is a very unusual type of localized intestinal gangrene and has been made the subject of especial study by P. Manclaire and F. Jacoulet (*Archives générales de Chirurgie*, Paris, March, 1908). These observers reviewed the literature on the subject and found fifty cases, including one in their personal experience, in which there was hemorrhagic infarction of the intestine from obliteration of either the artery or vein.

R. W. Wakefield (*Jr. A. M. A.*, Oct. 14, 1911) observed a case of gangrene of the ileum due to thrombosis of the mesentery. The onset was very sudden with intense abdominal pain and colic. Operation was performed and the patient recovered.

In Allbutt and Rolleston's "System of Medicine" (1908, Vol. IV, p. 239, "Diseases of the Gall-Bladder" by A. W. Mayo Robson) there is the statement that acute phlegmonous inflammation of the gall-bladder was observed and described by Courvoisier in 1890 under the name of acute progressive empyema of the gall-bladder, and seven cases of the condition are recorded in his writings at that time. Another reference is made to Potain (*Journ. de méd. et chir.*, Nov., 1882) who described a variety of empyema of the gall-bladder which rapidly assumed a malignant character with peritonitis and death, but in which there was no perforation.

Perhaps the most interesting of Allbutt's quotations are those having to do with the case reported by L. W. Hotchkiss (*Annals of Surgery*, 1894, XIX, p. 197). The patient was a boy 19 years of age who was admitted to the hospital with acute peritonitis thought to be secondary to appendicitis. There was no history of gallstones. An exploratory operation was performed at which the gall-bladder was found to be gangrenous. The patient died within 34 hours after the onset of the attack.

L. G. Courvoisier (Casuistisch-Statistische Beiträge zur Pathologie und Chirurgie der Gallenwege, Leipzig, 1890, p. 76) in a very elaborate contribution on the pathology and surgery of the biliary passages gives an account of ten fatal cases of acute cholecystitis which were typhoidal in origin, two with gallstones and phlegmonous infiltration of the gall-bladder walls, and seven with seropurulent exudate with occasional ulcers and necrotic areas. (These cases are also quoted by A. L. Mason from Courvoisier's work, in Tr. Assoc. American Physicians, 1897, Vol. XII, p. 28.)

Osler in his more recent works ("Modern Medicine," 1908, Vol. X, p. 819) expresses his view that the types of acute cholecystitis should be considered as catarrhal, suppurative, phlegmonous, gangrenous, and membranous. He believes that the varying lesions are due not so much to different microorganisms as to variations in the virulence of the same organism and other attendant conditions. He further states that a more advanced and rare stage of phlegmonous cholecystitis is spoken of as gangrenous cholecystitis. The small foci of necrosis that occur in suppurative cholecystitis are sometimes spoken of as localized gangrene, but he thinks "ulcerative cholecystitis" the better term. When a large section of the gall-bladder becomes necrotic the term "gangrenous cholecystitis" should be applied. This results from very virulent infection or interference with the blood-supply due to gallstone impacted in the neck of the gall-bladder or in the cystic duct, or to infectious thrombosis of the nutrient artery. The lesions resemble those of advanced suppurative or phlegmonous cholecystitis, with the addition of complete necrosis or gangrene of a variable portion of the gall-bladder. Usually this process begins at or near the fundus and spreads toward the neck; in some cases it begins about a gallstone more or less firmly embedded in the wall of the gall-bladder.

The cases of gangrene of the gall-bladder recorded by Richardson (*American Journal of Medical Sciences*, 1898, I, p. 630 and p. 644) are especially interesting. The first case occurred in the person of a married woman, 62 years of age, and began with severe abdominal pain. There was a history of occasional attacks of alleged gallstone colic over a period of seven years. Operation was deemed necessary and when performed the gall-bladder was found acutely inflamed, distended, black, and gangrenous, adherent to the contiguous viscera, and surrounded by a thin, offensive exudate. The right upper quadrant of the abdomen was the seat of a spreading peritonitis. The gall-bladder contained hundreds of minute gallstones suspended in a dark, offensive fluid. The patient died eight hours after operation from the original peritonitis and the superadded operative shock.

In Richardson's second case the patient was a man, 28 years of age, and a glazier by occupation. The condition began with a sudden griping pain in both groins followed by vomiting on the succeeding day. Acute appendicitis was diagnosed and an operation performed at once. The appendix was found to be normal but the gall-bladder was tensely distended and everywhere adherent. It was dark in color and had the appearance of acute gangrene. Death followed on the fourth day. Autopsy showed a general septic peritonitis and a gangrenous gall-bladder. There were no gallstones. The hepatic flexures of the colon were covered with fibrin and the lumen nearly occluded by adhesions.

W. C. McCarty, Rochester, Minn. (*Annals of Surgery*, May, 1910), in an article on the pathology of the gall-bladder refers to a clinical and pathologic study of 365 out of 657 cholecystectomies performed by the Mayos, and concludes that the lesions in the gall-bladder are not definite entities but degrees in a process of reaction to irritation. There were 33 cases of cholecystitis purulenta necrotica in this study. He states that during any stage of inflammation of the gall-bladder, obstruction to the cystic duct may be so great, or the pyogenetic infection so virulent that disturbance of the circulation or multiple abscesses in the gall-bladder may occur. The specimens are usually distended, dark blue or black, the contents pus or blood and usually not bile stained. Pericholecystitis acuta and chronica must be considered a sequel of any of the above mentioned degrees of inflammation. Even in the earliest degree of cholecystitis catarrhalis acuta, the process may extend to the serosa through the lymphatics, and it is not infrequent to see adhesions, usually to the omentum and transverse colon in this stage. He further states that he considers the gall-bladder, liver, duodenum, pancreas, and stomach are embryologically, anatomically, physiologically, and pathologically closely related and should be regarded as a gastroduodeno-hepatico-pancreatic system.

H. A. Hare ("Practice of Medicine," 1907, p. 675) describes acute cholecystitis and states that it may occur in a phlegmonous form.

A. A. Stevens ("Manual of Practice of Medicine," 1911, p. 94) admits the possibility of gangrene of the gall-bladder in impacted stone but gives no account of primary gangrene of that structure.

J. M. French ("Practice of Medicine," 1905, p. 486) in referring to phlegmonous enteritis states that it is very rare as a primary affection, usually being observed as a termination of strangulation, intussusception, pyemia, or malignant disease. This view is concurred in by most of the prominent clinicians. He further attributes the primary cases to the colon bacillus and states that the condition sometimes accompanies phlegmonous gastritis. In discussing acute infectious cholecystitis he mentions a phlegmonous variety but shows no relationship between it and phlegmonous enteritis.

R. C. Kemp ("Diseases of the Stomach, Intestines, and Pancreas," 1912, p. 599) states that phlegmonous enteritis is rare as a primary process. It is probably due to streptococci infection, the jejunum being most frequently involved and the condition cannot be diagnosed until after operation. It may be secondary to intestinal ulceration, to intussusception, or strangulated hernia.

Osler ("Practice of Medicine," 1912, p. 566) in his remarks on acute infectious cholecystitis acknowledges that there is a phlegmonous variety of the condition and quotes Richardson (whose cases are also referred to in this contribution) for the symptomatology of the affection.

Else (*Surgery, Gynecology, and Obstetrics*, Chicago, Dec. 1909, Nov., 1910) in discussing the pathology of the bile ducts, and gall-bladder states that microorganisms reach the gall-bladder from the intestines by ascending the common and cystic ducts, and very rarely reach the gall-bladder from the intestines by way of the portal vein. When they do the liver is first affected.

E. Williams, Patterson, Louisiana (MEDICAL RECORD, Nov. 20, 1909) records a case of acute gangrenous cholecystitis with gallstones in the cystic duct and perforation of the gall-bladder.

M. A. Tate, Cincinnati, Ohio (*Journal of Obstetrics and Diseases of Children*, Feb., 1911), also reports a case of gangrene of the gall-bladder.

Tyson ("Practice of Medicine," 1898) mentions the occurrence of phlegmonous cholecystitis but only as a complication or termination of impacted gall-stones.

The case reported by J. T. Eskridge (Tr. Path. Soc. Phila., 1881-83-84, XI, pp. 36-45) bears a slight resemblance to the case which makes the subject of this article, but in his case there was abscess of the liver, not a cholecystitis, and the intestinal trouble consisted of gangrenous inflammation of the cecum and appendix. The patient in this case was a factory girl, 27 years of age, and was the subject of inflammatory rheumatism. Her final illness lasted about one month and had reference to heart trouble. The autopsy showed remote and recent pleurisy, multiple abscesses of the lungs and spleen, small area of pericarditis over the left ventricle, dilatation and hypertrophy of the left auricle and ventricle, diseased mitral valves, thickened aortic valves, abscess of the liver, gangerous cecum with sloughing of the appendix, and numerous small abscesses of the liver, in addition to the single large abscess just noted. This was a distinctly surgical case, although the early symptoms had reference to the heart.

Anders ("Practice of Medicine," 1911) acknowledges five varieties of cholecystitis, namely catarrhal, suppurative, phlegmonous, gangrenous, and membranous. He states that gangrenous cholecystitis is rare and fatal. Regarding phlegmonous enteritis he states that it is a suppurative inflammation of the submucous layer of the intestines. It may be diffuse or take the form of a circumscribed abscess. Rarely it occurs as a complicating condition in septicopyemia and in malignant types of the exanthemata, resulting in the formation of abscesses that usually have their seat in the duodenum. Phlegmonous entertitis may be secondary to strangulated hernia or intussusception.

Musser ("Medical Diagnosis," 1896, p. 654) refers to acute phlegmonous inflammation of the gall-bladder and gives its symptomatology, but does not supply any information of value in differential diagnosis or etiology.

J. C. Wilson ("Medical Diagnosis," 1909, p. 953) under the head of phlegmonous enteritis says there are no distinguishing features of the disease and recovery does not occur.

Wood and Fitz ("Practice of Medicine," 1897) state that when the mucous membrane of the intestine is infiltrated with pus the condition is known as phlegmonous enteritis. It is a rare occurrence and may be the result of a primary infection of the wall as in malignant pustule. More often it occurs in consequence of ulcer, intestinal obstruction, strangulated hernia, or fecal impaction. Gangrenous enteritis occurs when putrefaction of the necrotic mucous membrane takes place. It is most often present in dysentery and is indicated by the discharge of discolored sloughs of extremely offensive odor with considerable blood.

Pepper ("An American Text Book of the Theory and Practice of Medicine," Vol. II, 817) states that phlegmonous enteritis is a rare affection which cannot be differentiated during life. It is usually secondary to strangulated hernia, intussusception, typhoid fever, tuberculosis, dysentery, and carcinoma.

Frederick Taylor ("The Practice of Medicine," 1911, p. 796) in discussing cholecystitis admits the possibility of a gangrenous termination of an inflammation of the gall-bladder, especially if it contain gallstones and one or more become impacted in the cystic duct.

Reynold Webb Wilcox in a recent work ("The Treatment of Disease," 1908, p. 471) refers to the possibility of gangrene of the gall-bladder with perforation, occurring in the course of acute cholecystitis due to infection with some one or more of the pathogenic bacteria. As a termination, he mentions that the process may be shut off by adhesions and thus form a localized abscess-cavity or it may result in generalized peritonitis.

H. Crouse (*New Mexico Med. Jr.*, Las Cruces, May, 1911) reports three cases of gangrene of the gall-bladder.

H. Riese (*Deutsche medizinische Wochenschrift*, Berlin, Oct. 19, XXXVII, 42 pp. 1901-1911) gives an account of a case of gangrene of the gall-bladder incident to perforation of a gastric ulcer.

A. R. Edwards ("Principles and Practice of Medicine," 1907, p. 655) admits the great rarity of phlegmonous enteritis and considers it solely of anatomic interest. He refers to Maragliano, who described a form probably due to the colon bacillus in which multiple purulent foci are found in the intestinal wall, frequently resulting in perforation.

L. Cheinisse (*Semaine Médicale*, Paris, March 10, 1909, XXIX, No. 10, p. 109) in a paper on phelgmonous enteritis refers to the writings of a Russian clinician who reported five cases of this rare affection since 1899. Cheinisse's paper is very exhaustive and reviews the history of these cases and those mentioned in the other literature of the condition. From this digest of the cases it would appear that the disease shows a predilection for the duodenum and first part of the jejunum and he implies that he believes traumatism is a prominent etiologic factor. Streptococci were isolated in all cases and in one staphylococci were found in addition. A preceding acute catarrhal enteritis was observed in some cases, and in Moisecy's four cases, there was concomitant sore throat or gastritis. In none was there phlegmonous cholecystitis. In all cases the peritoneal reaction was so great that it masked the symptoms of the underlying condition.

C. P. Childe (*Practitioner*, March, 1909) in an article relating to resection of large lengths of the small intestine gives an account of a case with gangrene of that structure.

E. H. Binney (*Australasian Med. Gazette*, Jan., 1908) reported a case of gangrene of the ileum.

Acute diffuse phlegmonous gastritis due to streptococcic infection with fatal termination has been observed by Richard W. Westbrook (*Jr. A. M. A.*, Feb. 26, 1910). This is merely noted in passing to call attention to the possibility of the occurrence of phlegmonous inflammation in any part of the gastrointestinal tract as an independent condition.

In passing it might be well to refer to the cases of epidemic croupous enteritis reported by G. Baermann and O. Eckersdorff (*Münchener medizinische Wochenschrift*, June 8, 1909, LVI, No. 23, pp. 1162-1216) since from the course of this affection it is likely to be confused with phlegmonous enteritis. These cases were observed in Sumatra, and the condition consisted of an acute intestinal affection with tempestuous onset with fever, leucocytosis, rapid pulse, violent colic, blood-stained stools, tenesmus, and speedy fatal termination. Ten cases are reported with autopsy findings. Pseudomembranes were found in the large and small intestine. Streptococci were found in large numbers.

It is well worth noting a certain relationship between pressure in the common duct and the abdominal circulation, which has been demonstrated, especially in connection with this case, in which we are endeavoring to show a relationship between the two gangrenous structures. Thus Ransohoff (*Annals of Surgery*, Oct., 1908) showed by experimentation a marked fall of blood-pressure when the common duct is explored by introducing the finger in the foramen of Winslow. He concluded this was due to pressure on the portal vein. If his conclusions be correct the backing up of the portal circulation might be responsible for the precipitation of necrosis in the intestinal tract. From an academic standpoint this seems reasonable, although we have no means of confirming this supposition.

In a previous paper* upon gangrene we referred to the influence of heart disease, especially endocarditis, in the production of the affection. While it may be drawing some upon the imagination to attempt to connect gangrenous conditions of the abdominal viscera with heart conditions, yet we find that Robert Babcock (*Jr. A. M. A.*, June 12, 1909, p. 1904) has collected a series of cases and quoted all the available literature up to that date showing a relationship between chronic cholecystitis and myocardial incompetence. The point of this is that should there be a true relationship between the pathology of the two structures it is active in all affections of either, and in that event it would be possible to find in phlegmonous cholecystitis some etiological factor in the heart.

*Spontaneous Gangrene. With the report of a case illustrating the ordinary senile type, resulting in spontaneous amputation, and a case of spontaneous gangrene affecting the several extremities successively in the course of acute primary infectious endocarditis. By Albert E. Roussel, M.D. International Clinics, Vol. III, twenty-second series.

Conclusions.—In analyzing the case we have here recorded we find a sudden onset with symptoms of myocarditis, purpura hæmorrhagica, and gastritis with a very rapid course terminating within a few hours in death. In the other cases we have quoted, there were also sudden onset, rapid course, and fatal termination, except in a very few instances. No other case showed evidence of myocarditis although in Eskridge's first case pericarditis and endocarditis were present and in Salter's case endocarditis and symptoms of heart trouble were observed. Babcock showed a relationship between chronic cholecystitis and myocardial disease mentioning a definite case in his own experience, but his case was not of a phlegmonous or gangrenous character. The purpuric spots mentioned in the case in this paper were not observed in any of the other cases.

The autopsy findings were, briefly, emaciation, edema, purpuric spots, ulceration of the lobes of the ears and tip of the nose, extensive gangrene of small intestine, extensive discoloration of the stomach and colon, cholecystitis with ulcerated areas, gray necrotic membrane, and one gall-stone, few areas of fat necrosis in the pancreas, cloudy swelling of the kidneys, pericardial effusion, healed nodule of tuberculosis in the right pleura, congestion of both lungs, active tuberculosis of the right lung, and ulceration of the stomach.

The emaciation may be explained by the tuberculosis although emaciation is not mentioned in the other cases, probably because of the very acute onset of the affection. It can therefore be dismissed as being merely incidental to the abdominal condition.

The edema may be attributed to the heart and kidney conditions and probably existed prior to the gall-bladder and intestinal condition.

The purpuric spots are difficult of explanation, as are also the ulcerations on the lobes of the ears and tip of the nose.

The pericardial effusion, the cloudy swelling of the kidney, and pulmonary and pleural tuberculosis may possibly bear a relation one to the other, but certainly do not bear any definite relation to the intestinal and gall-bladder disease.

Nearly all the other cases have shown a relationship between gall-stones and the gangrenous cholecystitis but here we have one small stone which does not appear to be more than incidental.

In view of the extensive inflammation of the entire gastrointestinal tract beginning with gastritis and gastric ulcer, passing into gangrene in the small intestine, and terminating in inflammation and discoloration in the colon, it is reasonable to presume that it was due to streptococcic infection that extended into the gall-bladder producing similar changes in that structure. We are encouraged in this view by the records of Ungerman, Cheinisee, Westbrook, Baerman, and Eckersdorff, which observers found streptococci in their cases. It will be recalled that the bacterial examination in the case recorded in this paper also demonstrated the presence of streptococci. The cases of gangrenous cholecystitis in the course of typhoid fever further corroborate the view that the affection began in the gastrointestinal tract first and extended by way of the common and cystic duct, otherwise an abscess of the liver would have been observed, especially if the infection had reached the liver through the portal system.

Gangrenous cholecystitis usually results from gallstones, as has already been stated, and gangrenous enteritis most often follows obstruction, strangulation, or intussusception, but the intestinal condition may follow in the course of general pyemia. If we are inclined to concur in this it requires but a small effort of our speculative powers to presume a mixed infection in the tubercular right lung of our patient, which aided by the crippled heart permitted a generalized streptococcic infection of the gastrointestinal tract.

We must therefore conclude that gangrenous cholecystitis may occur independent of impacted gall-stones or typhoid fever and may be secondary to a similar process in the intestinal tract. Also, it must be admitted that gangrenous enteritis independent of obstruction, intussusception, or malignant disease may occur as the result of some virulent infection, probably streptococcic, and may extend into the gall-bladder by continuity of structure. Further, such infection may gain access to the gastrointestinal tract directly or indirectly from localized foci. That the several organs of the chest and abdomen must be below par for the culmination of this process must be acknowledged, since all of the cases enumerated showed more pronounced changes in the gall-bladder and intestines, the more disturbed were the other viscera. In the face of these facts the condition must be regarded as a fatal disease.

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RADIOGRAPHY IN PULMONARY GANGRENE.

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The following case is one of considerable interest inasmuch as it illustrates the importance of a radiographic examination in the diagnosis of pulmonary gangrene and the great value of the latter in enhancing and completing the information given by radioscopy.

Mr. F. T. had a crisis of dipsomania on October 15, 1912, and in the midst of this crisis developed a mouth infection which was soon followed by a troublesome bronchitis. This bronchitis persisted in spite of careful treatment and was accompanied by a more or less mucopurulent expectoration. Finally, in the second week of February, 1913, he began to have abrupt rises in temperature with a slight fetor of the breath and the expectoration of buff-colored sputum which became more pronounced as time went on. The oral condition was carefully treated, inhalations given, and antiseptic intratracheal injections administered. In spite of the treatment the patient continued to emaciate, lose weight, and become distinctly weaker. He was in poor general condition, with sallow complexion and weak heart.

Physical examination at that time was practically negative and it is very interesting to note that about three weeks before the radioscopic examination was made the patient had hallucinations in which he claimed that he had been shot and that the bullet lodged just outside the apex beat. It was to convince him of the fallacy of this belief that he was subjected to *x*-ray examination.

Just before this examination a single sign was apparent; when the patient coughed a distinct and markedly blowing sound, almost like amphoric breathing but more acute and whistling in character, could be heard just outside and above the apex beat. This was heard only during cough, was distinctly gurgling, and confined to one spot.

Radioscopy was then performed by Dr. Beclere and he demonstrated a small lesion or opacity just above and outside the apex beat at the exact point which the patient indicated in his hallucinations. The following day another screen examination was made by Dr. Beclere and the

topography of the lesion seen on the previous day was confirmed, with the exception that in place of the opacity seen on the previous day was a central transparent zone about the size of a silver half-dollar as seen in the screen surrounded by an irregular opacity with the general contour presented on previous examination. No other lesion was visible at that time and auscultation revealed exactly similar conditions. Examination of the sputum revealed bloody mucopurulent sputum, no tubercle bacilli, many gram-positive diplococci and streptococci, many polymorphonuclears and altered red cells, no fibrous or elastic fibers; urine negative.

It was decided that operation was imperative and Dr. Beclere was emphatic as to the necessity of intervention, although Professor Gilbert, who was called in consultation, was less so.

Operation was performed by Dr. Du Bouchet under chloroform anesthesia. The 4th, 5th and 6th ribs were resected, and the lung was plainly visible while the two layers of the pleura were found adherent. An incision was made through the indurated portion which corresponded to the shadow on the plate—and this incision an inch and one-half long was made one inch from the anterior border of the lung right into the induration. After a gush of blood the foul odor observed on the breath was apparent and the gangrenous cavity was opened. The cavity, which was about the size of a hazelnut, was of a peculiar greenish color such as is seen in gangrenous bronchopneumonia. Adhesions were observed between the pleura and pericardium. Finally gauze impregnated with hydrogen peroxide was inserted into the cavity for its antiseptic and styptic effect.

The patient rallied somewhat after the operation and improved temporarily. A foul gangrenous odor came from the wound and the packing was of a dirty greenish brown color such as is seen in gangrenous appendicitis. After operation the sputum changed in character and was more abundant and distinctly blood tinged.

The circulation continued to be very poor and the second day after operation consolidation of the lower left lobe was detected. The patient's condition was such as to require almost constant use of strong stimulants, and despite everything he died several days after operation.

An autopsy was performed several hours later and the entire left lobe was seen to be in a state of red hepatization. The pleuræ were entirely adherent and a large infiltrating gangrenous cavity was found communicating with a bronchus. Connected with it were two other irregular cavities which had passed unseen in the midst of the hepatized lung. There were therefore multiple foci instead of one cavity. The pericardium was intact and in each chamber of the heart was a large preagonal clot which must have existed in part for at least twenty-four hours, absolutely white and containing only white cells, while the red agonal clot was present around it.

The interesting fact is that after each radioscopic examination radiographs were taken to record the appearances presented and while the first photograph corresponds exactly to the image seen on the screen, the second, which was not received until the day after death, shows not only the cavity and infiltrated tissue seen on the screen, but also delicately traced an exact shadow of the cavities or multiple gangrenous foci seen at autopsy. The knowledge of this fact would have interdicted operation.

The importance of the *x*-ray examination of the lung in cases of suspected gangrene cannot be overestimated and although circumstances which demanded it in this case were peculiar its value was self-evident. Radioscopic examination is capable of rendering the greatest service, but this case is but another evidence that the finer structural delineations which are unseen by radioscopy can be revealed very often by a good radiograph.

Since then a case has been reported by Dr. Beclere at the Société de Radiologie Médicale de Paris (*Bull. et Mem.* 39, 1912) in which a focus of pulmonary gangrene was revealed radioscopically and a small cavity suggesting pus with gas above was found. On shaking the patient the phenomenon of Hippocratic succussion was elicited and by various maneuvers before the screen it was possible to determine the approximate depth of the lesion—finally under radioscopic and radiographic guidance the operation was completely successful and the cavity drained.

This case is of interest therefore because it demonstrated (1) The direct connection with mouth infection and poor general condition and the absence of all physical signs until the cavity formed; (2) The value of radioscopy in accurately locating and showing the early infiltration and cavity formation; (3) The value of the radiograph in demonstrating the multiple foci of pulmonary gangrene which could not be perceived by radioscopic examination.

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Pineal Gland Extract in Obstetrical Country Practice.—Wolf tested this preparation in fifty-four cases. Strange to relate he does not state whose extract he employed. In fifteen cases he did not reach his patients until the third stage of labor, when he witnessed an excellent effect in retained placenta and hemorrhage. However, lest the results be temporary only, he followed with an ergot preparation. Aside from this series his results were also excellent in the remaining thirty-nine, apparently not inferior to those obtained by hypophysis extracts, although he admits that in eleven of these cases he was eventually compelled to use forceps.—*Deutsche medizinische Wochenschrift.*

Case of Myelitis Treated with Gymnastic Exercises.—F. Sylvan reports the case of a man, aged 36, who in January, 1910, got a bad cold and had severe pains in the posterior and lower thoracic region. After three weeks his legs began to drag and he gradually lost the use of both legs and had to stay in bed. He went into the Middlesex Hospital where he was treated for myelitis during six months. Soon after he went to the National Hospital and was treated as an in-patient for three months and as an out-patient for eighteen months, and he improved a little. In May, 1912, he started gymnastic treatment. The adductor muscles were contracted to such a degree that he could not get his knees apart, and could walk only with great difficulty. He often had a painful cramp in the left foot. On March 5, 1913, he could walk without difficulty, had no pain and no cramps and could separate his knees quite easily.—*Proceedings of the Royal Society of Medicine.*

Lichen Planus of the Tongue and Lips.—A. Whitfield reports the case of a young man who first noticed a small gray patch on his tongue at Christmas, 1912. This spread until the whole surface of the tongue was involved, and two months later he developed "eczema" of the arms and legs. When shown, the tongue was evenly gray in color to the naked eye, but with a lens this grayness could be seen to be formed by fine white stippling. The insides of the cheeks showed the common white "embroidery" of lichen planus and there was a similar condition of the dry mucous membrane of the lips. On the flexures of the elbows, the groins, the outer sides of the trochanter and the body of the penis (not the glans) there were numerous typical domed papules of lichen. Some, but not all of these, were circumpilar in origin and their grouping was rather unusual in character, being distinctly corymbose in arrangement. The author states that lichen on the mucous membrane of the cheeks is very common, but he thinks such extensive involvement of the tongue and the dry part of the lips is unusual. The rash is not very irritable and undergoes involution after a three weeks' arsenical treatment.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE EXPERIMENTAL INVESTIGATION OF INTESTINAL INTOXICATIONS.

A GREAT deal has been said and written within recent years about intestinal intoxication and toxemia, but comparatively little has been learned regarding the actual substances that bring about the systemic poisoning. A phase of this subject has recently been investigated by H. Eppinger and J. Gutmann (*Zeitschrift für klinische Medizin*, Vol. 78, Nos. 5 and 6), who set out to determine whether there are substances produced in the intestines which act like hormones on the vegetative nervous system. They note that Eppinger and Hiss have clearly defined one among the many so-called intestinal neuroses, namely, vagotonia, whose clinical manifestations result from a stimulation of the vagus center by certain toxic substances produced in the intestine. The severest forms of general vagus stimulation are seen in cases of meat and sausage poisoning, in which there may develop bradycardia, low blood pressure, diarrhea, vomiting, sweating, salivation, eosinophilia, and spasm of the ciliary muscle with miosis. These symptoms, which closely resemble those produced by pilocarpine poisoning, may also arise, though not to as pronounced a degree, in cases of endogenous intestinal intoxication. Particularly in spastic constipation may one frequently observe an analogous syndrome, in which hyperacidity, hypermotility, gastrospasm, bradycardia, and even extrasystole form the chief elements.

Barger and Dale have succeeded in isolating from ergotoxin one of the ergot derivatives, a substance, β-imidazolylethylamine, which is apparently identical with the decomposition product of histidin, which in turn results from protein disintegration. Histamine, which is another name given to β-imidazolylethylamine, produces when injected intravenously into most animals the typical symptoms of stimulation of the autonymous nervous system, namely, a lowering of blood pressure, with a simultaneous rise of pressure in the pulmonary artery, spasm of the bronchial musculature, bradycardia, uterine contractions, and diminution in the salivary and lacrymal secretions. Barger and Dale isolated a second base from ergotoxin, namely, p-oxyphenylethylamine, which may also be obtained by the decomposition of tyrosin, and is, therefore, named tyramine. This substance resembles suprarenal extract, both in its chemical and in its physiological properties. The above investigators also succeeded in isolating histamine from the normal intestinal mucosa, and suggested that it might be identical with secretin. Other bases have been detected in the human feces, for example, putrescin and cadaverin, both of which are protein decomposition products. Eppinger and Gutmann analyzed the feces of normal individuals and of patients suffering from various intestinal diseases, such as enteritis, proctitis, spastic constipation, paratyphus infection, etc., with respect to the amount of basic nitrogen excreted, and found that there is a marked increase in this excretion in the various pathological conditions of the bowel. The average increase is 100 per cent.

An interesting method of detecting minute quantities of β-imidazolylethylamine was evolved by the above investigators. They found that one or two drops of a 1 to 1,000 solution of the above substance, if rubbed into a superficial scratch on the skin of a human being produces in the course of five minutes a typical urticarial wheal. Histamine was the only one in a large series of bases tested that produced this cutaneous reaction. The next step was to determine whether the feces of patients suffering from chronic urticaria showed an excess in the amount of histamine present. Two typical cases of urticaria showed no such excess. The recent work of Mellanby and Twost is alluded to. These investigators isolated from the intestine a bacillus that converts histidin into imidazolylethylamine. This discovery tends to support the hypothesis that intestinal intoxication is primarily of bacterial origin.

There is another aspect of this subject, however, upon which Eppinger and Gutmann place special emphasis. Histamine has been shown to be an antagonist of suprarenal extract. May not the former, as well as its associated bases, act as a hormone on the vegetative nervous system? If so, the intestinal mucosa would exercise the function of an organ of internal secretion. The question cannot as yet be definitely answered, but is proposed as a fertile suggestion for future research.

ETHER-OIL RECTAL ANESTHESIA.

RECENTLY considerable interest has been manifested in this method of administering ether, and it seems necessary to sound a note of warning against the more or less indiscriminate use of the procedure by those who are not expert anesthetists. The idea of giving ether per rectum is not new. It is only the ether-oil combination which is the new development. During the past few months several anesthetists of this city have been using the ether-oil rectal anesthesia in selected cases, but they are not agreed as to the best kind of oil for admixture or the proper proportion of oil to ether, or as to the proper dosage of ether necessary to induce safe and sufficient anesthesia. Of the various oils, olive oil and liquid albolene have been used most extensively, and in proportions of two or three

parts of ether to one of oil. The dosage of ether has been adjusted in accordance with the weight of the patient, some allowing one ounce of ether to each 30 pounds, and others one ounce to each 20 pounds of body weight. The patient's age and general condition do not seem to have received consideration in determining the dosage, but one ounce of ether has been given arbitrarily for each 20 or 30 pounds of body weight. In practically all cases a preliminary hypodermic injection of morphine and atropine has been given.

It has been claimed that by this method anesthesia to surgical degree is quietly induced in from 15 to 45 minutes; that while some reflexes are not abolished (*e.g.* conjunctival), the abdominal wall is particularly well relaxed; that by withdrawing the remaining mixture shortly before the completion of the operation and injecting a pint to a quart of cold water into the rectum the patient can be restored to consciousness within 45 minutes; that there is less nausea and vomiting; that the method is particularly valuable in operations during the course of a bronchitis or in presence of chronic pulmonary lesions or when the patient is very obese; and finally that when properly administered the method is safe. These claims do not seem to have been substantiated by the experiences of other observers. The rectal anesthesia frequently has to be assisted by the administration of gas or ether or both by the inhalation method; while in many other instances the anesthesia has become alarmingly profound, either while the patient was on the operating table or after he had been returned to bed.

During the last few minutes of the operation it has been the custom to withdraw whatever remained in the rectum and thus, theoretically, prevent further absorption. LeWald and others have shown, however, that after the rectal injection of mixtures containing bismuth it is often possible to demonstrate, by means of the *x*-ray, that a considerable amount of the material has reached, or even passed, the ileocecal valve. As is well known, absorption takes place much more rapidly in the upper than in the lower portions of the large intestine. This is, of course, likely to happen when the ether-oil mixture is injected, particularly if the case be one requiring the Trendelenburg posture for a considerable time. Under these circumstances it would be impossible to withdraw all the remaining mixture and the patient would continue to absorb ether so long as any was present in the upper portions of the bowel. This may account for some of the cases in which the anesthesia has been reported as being prolonged for 24 to 36 hours, or even longer in a few instances. There have already been a few deaths following the use of this method of inducing anesthesia, although they may not have been due solely to an overdose of the anesthetic. In several cases, however, dangerously deep anesthesia has been induced, while in at least one case, where the patient barely escaped death, there is practically no room for doubt that an overdose of the anesthetic was the only factor concerned in the production of collapse.

This method is still in the experimental stage and should, for the present at least, be left strictly in the hands of expert anesthetists. The addition of oil seems to have removed the danger of necrosis of the rectal wall and consequent peritonitis, but no certain means of stopping absorption of the anesthetic immediately upon development of danger signals has as yet been devised. In view of the comparative safety of anesthetization by inhalation of gas and oxygen, or gas and ether, it would seem hardly necessary to return to the rectal method which has had two seasons of trial within the last thirty years and has been twice abandoned as dangerous to life.

POLITICS AND SANITATION IN THE PHILIPPINES.

We publish in another column a letter from Dr. Keen in reference to the report, emanating from an interview with Mr. Dean C. Worcester, that the new Governor-General of the Philippines contemplated the removal of Dr. Heiser from his post of Director of Health in the Islands. Dr. Keen deserves the thanks of the profession for his watchful care of its interests and of the interests of the public health, which are the same thing, and it is gratifying to note the fact, which his letter to the President elicited, that even Mr. Francis Burton Harrison is not entirely indifferent to medical opinion. We do not, however, feel altogether reassured by this gentleman's diplomatic denial of intent to demand Dr. Heiser's resignation. There are more ways of getting rid of an official than by actual dismissal. The proposed changes in the sanitary laws, of which our Manila correspondent makes mention in the letter published elsewhere in this issue, even if not so intended, will certainly result in vexatious hampering of the Director of Health, in depriving him of necessary authority, and in rendering much of his work ineffective.

The Governor-General is, we fear, a sanitarian of the same type as Mr. Poultney Bigelow, who some years ago derided Col. Gorgas for thinking he could keep off yellow fever and malaria by oiling stagnant water, screening doors and windows, or other such like superstitious practices. But, unfortunately, while Mr. Bigelow could only make himself ridiculous, Mr. Harrison has it in his power to undo all the incalculable good that has been accomplished by way of sanitation in the Philippines. The world rings with praise of Col. Gorgas, who richly deserves it; but work of the same kind has been done equally well and under great difficulties by Dr. Heiser, only he is on the other side of the world and the miracle he has accomplished is therefore less well known. What he has done will become apparent, however, if he is forced out or if his hands are tied by ignorant and unsympathetic associates; for once the sanitary measures now in force in that pest-threatened region are relaxed, there will surely some day be an extensive outbreak of cholera or the plague in Manila. In that event one would hardly envy the Governor-General if he had really played politics to the peril of the health of a dependent and helpless people.

Unusual Fertility in Women.

The record instance of human fecundity is that reported by Beer in 1808, in the case of a Viennese who, in the course of eleven labors, gave birth to thirty-two children. Similar, though not as pronounced examples of fertility have been so frequently observed as no longer to excite comment. Fr. von Neugebauer, writing in the *Zentralblatt für Gynäkologie*, July 19, 1913, believes that multiple pregnancy is much more common than the statistics seem to indicate. She alludes to the theory advanced by King of Melbourne, that all mammals have as many offspring as they have nipples, provided that they live under favorable conditions. It would seem to follow that woman with two breasts would normally have twins. As regards multiple births there appears to be operative a numerical law known as the "lex Hellin": twins occur once in eighty labors; triplets once in eighty times eighty labors; quadruplets once in eighty times eighty times eighty labors, and so on. Fr. v. Neugebauer maintains that twin pregnancies are much more common than generally recognized. Many twin pregnancies are overlooked in practice. Upon the birth of a child there may pass unnoticed a rudimentary or blighted twin *in utero*. If every placenta were carefully inspected one would frequently discover a fetus papyraceus, a fetus amorphus, an acormus, etc., or there may be present a rudimentary second egg sac with a rudimentary fetus. As an instance of unusual fecundity occurring in her own practice, the author reports the case of a woman forty years old who, married for twenty years, gave birth normally to five children, and was then infected with syphilis by her spouse during her sixth pregnancy. She aborted, and did likewise in her seventh, eighth, and ninth pregnancies. Following a course of antisyphilitic treatment she carried out her tenth pregnancy to term and gave birth to a living child. The eleventh, twelfth, thirteenth, and fourteenth pregnancies terminated in an abortion. Following another course of inunctions she gave birth to a living child, but the succeeding five pregnancies ended in abortions. Active antisyphilitic treatment was again instituted, and the twenty-first and twenty-second pregnancies terminated in the birth of living children. A number of abortions had occurred, in addition to those above mentioned, but were not observed by the medical attendant. The twenty-third pregnancy resulted in extrauterine gestation and a dead eight-month fetus was removed from the tube. The summary of this patient's reproductive history is as follows: Twenty-two uterine pregnancies, including nine living children of whom eight were nursed, and thirteen abortions; and one extrauterine pregnancy.

Some Results of Historical Research.

Throughout the entire globe there seems to be a concerted attempt at obtaining historical data which must come up to a certain standard of trustworthiness. Naturally in uncivilized countries the work is done by Europeans; but even in the old culture countries documentary and other proofs are revolutionizing our hackneyed concepts of disease in earlier times. Much good work has been done lately through the Section for the History of Medicine and Science of the Society of German Naturalists and Physicians (*Muenchener medizinische Wochenschrift*, October 21), which met last September. Hübotter presented an original Chinese anatomy which could be traced back in part to 3,000 years before Christ. Naturally this work had received many additions like all prehistoric works on science. Despite the distance in time and space a close correspondence with the Greeks and Galen is often apparent, as if their doctrines came originally from China. Neuberger shows that "Hannibal's vinegar" is a myth, because there were no rocks in his pathway over the Alps which were solvent to acids. Houorka showed that women practitioners (not midwives) flourished in old Rome. Ebstein traces the acetic acid test of urine for albumin back to Dekker, in 1674. The urine was also boiled. These tests lay fallow for one and a half centuries and then appeared in various shapes at different hands. "Sweet urine" was recognized by the taste in Hindustan before the Christian era. Water was purified for armies by Arnold de Villanova and others by filtration, the addition of a little vitriol, etc. Fischer traced antisepsis back to Plencicz of Vienna in 1705. The latter had practised medicine in Vienna for over 50 years, and seems to have had the correct ideas as to specific germs, their multiplication, etc. He distinguished between virulent germs and saprophytes and understood autoinfection. Plencicz's work passed absolutely unnoticed by his contemporaries. According to Sudhoff, the city of Basle in 1350 recognized eight infectious diseases. The same list is to be found elsewhere: it includes plague, leprosy, malignant pustule, scabies, trachoma, erysipelas, epilepsy (!) and lung diseases (phthisis?).

News of the Week.

City Death Rate.—For the week ending November 29, the death rate in New York was 12.51 per thousand, representing a total of 1,288 deaths, as compared with a rate of 12.62 and a total of 1,251 deaths for the corresponding week of 1912. The increase in the number of deaths was not proportionately as great as the increase in population. The death rate for the first forty-eight weeks of 1913 was 13.77 per thousand, as against 14.08 for the same part of last year.

Camden Hospital.—In honor of Dr. Simon Baruch of New York, his son, Bernard M. Baruch, has presented to the city of Camden, S. C., Dr. Baruch's birthplace, a hospital building with a capacity of thirty beds. The maintenance of the hospital is provided for by an endowment fund of $80,000 which was a gift from a resident of Camden, and the furnishings have been largely the gifts of Northern men interested in the town. At the dedication exercises on December 1, Dr. Baruch made an address and on behalf of his son presented the deed for the land and the keys of the building to the citizens of Camden. Both white and colored patients will be received, but the two services will be kept entirely separate.

Dental College Dedicated.—The new building of the College of Dental and Oral Surgery on East Thirty-fifth street, New York, was formally dedicated on December 3, exercises being held at the College. Among the speakers were Dr. John H. Finley, State Commissioner of Education, Borough President McAneny, and Dr. John Winters Brannan, representing the Board of Directors of Bellevue and Allied Hospitals.

New Montefiore Home.—On November 30, the

new buildings of the Montefiore Home for Chronic Invalids at Gun Hill Road and 210th street, New York, were opened for inspection and formally dedicated, the occasion being also the twenty-ninth annual meeting of the directors of the home. The plant consists of nine buildings: an administration building, a service building, a synagogue, a dormitory, four pavilions, and the Medical Director's home. They are built in colonial style of reinforced concrete, with tapestry brick and white limestone trimmings. All are of fireproof construction. The site comprises eight acres of land, surrounded by a 60-foot parkway. The annual report of the president, Mr. Jacob Schiff, made at the time of the meeting, states that during the past year 1,083 patients were treated at the Home and at the Country Sanitarium, Bedford Hills, of whom 472 were under treatment at the end of the year. All but 43 of these were free patients. The number of those discharged during the year was 490, classed as improved, 245; cured or well, 5; apparently cured or disease arrested, 121; unimproved, 119.

Washington Heights Hospital.—A campaign to raise $150,000 for a new building for the Washington Heights Hospital, New York, was begun on December 3. Volunteer workers to the number of 400 have been enrolled as collectors, and it is planned that they shall visit every house in that section of the city between December 8 and 18. By the latter date it is expected that the entire amount will have been raised.

Hospital Needs.—The Hospital Saturday and Sunday Association of New York in a recent report states that the cost of running the forty-seven hospitals in the association during the last year was $4,932,309.45, an increase of $382,441.79 over the preceding year. The income from operation during that time was $2,160,957.09, and from endowment $1,023,158.94, leaving $1,749,193.42 to be secured from voluntary gifts. The income of the forty-seven hospitals last year was $18,706.62 less in payments from patients, $25,657.03 less from the city, and $21,890.98 less from endowment. In spite of this decrease, however, the hospitals gave 134,272 days of hospital service, making a total of 2,084,442 days of treatment, of which 1,291,442 days, or 62 per cent., were entirely free.

Personals.—Dr. Paul Haertl of Germany, who came to this country for the purpose of making an inspection of Saratoga Springs and of giving suggestions for the development of the town, sailed for home last week.

Dr. Carl Herschmann also sailed for home last week after having made a study of American athletic training methods, for which purpose he was sent here by the Austrian Government.

Dr. John W. Brannan has removed to No. 48 West 51st Street.

Dr. A. J. Ranney, for twelve years superintendent of Lakeside Hospital, Cleveland, has recently resigned his office because of ill health, and Dr. A. R. Warner, assistant superintendent, has been named as acting head of the institution and will probably be named permanently at the meeting of the directors of the hospital on January 1.

The trustees of the Wesson Memorial Hospital of Springfield, Mass., have placed in the hospital a bronze tablet in memory of Dr. J. H. Carmichael, the first surgeon-in-chief of the institution.

New Paterson Hospital.—Ex-Mayor Nathan Barnert of Paterson, N. J., who has maintained the Barnert Hospital in that city for some years, has offered to give a new building to take the place of the present institution. He has transferred to the city an entire block consisting of sixteen lots, and, if his offer is accepted, will erect thereon in memory of his wife a hospital at an estimated cost of $250,000.

Charitable Bequests.—One thousand dollars for the support of a bed was bequeathed to the French Hospital, New York, by the will of Mrs. J. H. Bacigalupo, who died on November 26.

By the will of the late William Scholle of this city, the Montefiore Home receives a bequest of $4,500, and the Mount Sinai Hospital one of $2,500.

By the will of the late Henry Untermeyer of New York, the sum of $2,500 is bequeathed to the Mount Sinai Hospital Training School for Nurses, the income to be used as a prize to be awarded at the commencement exercises of the school to the student who shall have the best record for kindness and proficiency in the practical duties of bedside nursing during the preceding year.

Measles in Alaska.—A dispatch from Alaska states that measles is epidemic on the islands of Kodiak and Afognak, and that up to November 27 over 100 deaths had occurred in the infected region. Most of the sufferers are natives. The revenue cutter Tahoma was sent from Seattle on November 13 with physicians and medical supplies for the relief of the islanders.

School Inspection in Newark.—The Board of Education of Newark, N. J., has recently reorganized the system of medical inspection in the public schools and has dropped thirty physicians who have been acting as inspectors, leaving a staff of only eight. The staff of nurses is to be increased. The change goes into effect on January 1.

Medical Society Elections.—Southern Medical Association: Annual meeting at Lexington, Ky., on November 19 and 20. Officers elected: *President,* Stuart McGuire, Richmond, Va.; *First Vice-President,* J. W. Jervey, Greenville, S. C.: *Second Vice-President,* F. H. Clarke, Lexington, Ky.; *Secretary and Treasurer,* Seale Harris, Mobile, Ala. Dr. Harris was also re-elected editor of the *Southern Medical Journal.*

Southeastern Iowa Medical Association: Annual meeting at Burlington, Ia., on November 20. Officers elected: *President,* Dr. C. R. Armentrout, Keokuk; *First Vice-President,* Dr. J. S. Gaumer, Fairfield; *Second Vice-President,* Dr. J. N. Patterson, Burlington; *Secretary-Treasurer,* Dr. E. F. La Force, Burlington; *Board of Censors,* Dr. W. A. Sternberg, Mt. Pleasant; Dr. C. S. James, Centerville, and Dr. J. F. Herrick, Ottumwa.

El Paso-Big Springs (Tex.) Medical Association: Annual meeting at Abilene on November 18. Officers elected: *President,* Dr. Granville T. Hall, Big Spring; *Vice-President,* Dr. Samuel R. Cates, Abilene; *Secretary,* Dr. W. R. Smith, Colorado.

Interurban Academy of Medicine: The annual meeting, attended by members from Superior, Wis., and Duluth, Minn., was held at Superior on November 19, when the following officers were elected: *President,* Dr. Charles Delbitt Conkey, Superior; *Vice-President,* Dr. Charles F. McComb, Duluth; *Secretary-Treasurer,* Dr. Andres G. Hoyde, Superior; *Censor,* Dr. Homer Collins, Duluth.

Black Hills District (S. D.) Medical Society: Annual meeting at Deadwood on November 17. Officers elected: *President,* Dr. Felix E. Ashcroft, Deadwood; *Vice-President,* Dr. Thomas W.

Moffit, Deadwood; *Treasurer*, Dr. Frederick W. Minty, Rapid City; *Censor*, Dr. Carlyle Hare, Spearfish.

Eleventh District (Ga.) Medical Association: Annual meeting at Valdosta on November 18. Officers elected: *President*, Dr. Charles W. Roberts, Douglas; *Vice-President*, Dr. James M. Smith, Valdosta; *Secretary*, Dr. John W. Simmons, Brunswick.

Trinity County (Tex.) Medical Society: Annual meeting at Trinity on November 20. Officers elected: *President*, Dr. Charles Horace Bradley, Groveton; *Vice-President*, Dr. George R. Barnes, Trinity; *Secretary-Treasurer*, Dr. William Harris Pope, Trinity.

Tristate Medical Association: Annual meeting at Memphis, Tenn., on November 13. Officers elected: *President*, Dr. John Darrington, Yazoo City, Miss.; *Vice-Presidents*, Dr. William D. McCalip, Yazoo City, Dr. Edward C. McDaniel, Tyronza, Ark., and Dr. H. B. Everett, Binghampton, Tenn; *Secretary*, Dr. James L. Andrews, Memphis, Tenn.; *Treasurer*, Dr. James A. Vaughan, Memphis.

The Association of Southern Medical Women, an auxiliary to the Southern Medical Association, organized at Lexington, Ky., on November 18, with the election of the following officers: *President*, Dr. Lillian H. South, Bowling Green, Ky.; *Secretary-Treasurer*, Dr. L. Rosa H. Gantt, Spartanburg, S. C. The association will hold annual meetings in conjunction with the Southern Medical Association.

St. Charles County (Mo.) Medical Society: Annual meeting at St. Charles on November 12. Officers elected: *President*, Dr. Joseph M. Jenkins, St. Peters; *Vice-President*, Dr. Henry N. Corley, St. Paul; *Secretary-Treasurer*, Dr. Thomas Lee Hardin, St. Charles.

Obituary Notes.—Dr. John Howe Clark, Rear Admiral United States Navy, retired, died at his home in Amherst, N. H., from paralysis, on November 30, aged 76 years. Dr. Clark was graduated from the Harvard Medical School, Boston, in 1862, and thereafter served as a surgeon in the United States Navy during the Civil War. From 1883 to 1886 he was Fleet Surgeon of the Pacific Squadron, and from 1893 until his retirement in 1899 was Medical Director and President of the Naval Examining Board at Washington, with the rank of Rear Admiral. .

Dr. John Guerrant Trevilian of Richmond, Va., a graduate of the Medical College of Virginia, Richmond, in 1861, for many years chief surgeon to the Richmond City Home, and a member of the American Medical Association, the Medical Society of Virginia, the Church Hill District Medical Society, and the Richmond Academy of Medicine and Surgery, died at his home after a long illness on November 24, aged 73 years.

Dr. Charles DeWitt Rawson, Jr., of Otley, Ia., a graduate of the Drake University College of Medicine, Des Moines, in 1905, died at his home on November 19, at the age of 31 years, from injuries received in an automobile accident several days before.

Dr. William Kendall Newcomb of Champaign, Ill., a graduate of Rush Medical College, Chicago, in 1882, and a member of the American Medical Association and the Illinois State and Champaign County Medical Societies, died at his home on November 25, aged 56 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ANNUAL MEETING OF R. C. S.—FEMININITY AND INTERNAL SECRETIONS—LEPROSY—ADDITIONS TO HUNTERIAN MUSEUM—SCARLATINA—INSURANCE ITEMS—OBITUARY.

London, November 21, 1913.

The annual meeting of the Royal College of Surgeons was held yesterday, and some few members attended to make their usual demand for representation on the council. Mr. Makins, vice-president, took the chair, in the absence of the president, who is in the United States. The report showed a satisfactory state of the finances, in spite of a great depreciation of securities held by the college. Mr. Sidney Lawrence, honorary secretary of the Society of Members, wanted to know why the council did not address them by the courtesy title of doctor. The chairman said if any member expressed a desire to be so addressed they would comply with his wish. The resolution embodying the members' demand for votes was then brought forward and carried by the few assembled for the purpose. The mover said the question had been agitated for nearly thirty years, and ought to be settled in democratic fashion. He and his supporters seem to think the blessed word democratic is synonymous with right. But what are called the rights in this case are settled by the charter of the college, and one gentleman said he had been studying that document and found to his indignation that the members were impotent as regards the government of the college and what was wanted was a reform of the charter.

The truth seems to be that although called members they are in fact only licentiates and form no part of the body corporate. Their right is to practise surgery. This they obtain from the college, which grants it under the royal charter. It is granted on passing an examination. For this they pay a fee—the price of the license. That is the only money they pay, and it is disingenuous to talk as they constantly do of contributing more of the income of the college. An urgent whip failed to secure much of a meeting, for when a resolution about the regulations was about to be put a count-out closed the proceedings, only twenty-nine persons being present and thirty being necessary to form a quorum.

The special discussion arranged for the Gynecological Section(R. S. M.), this session on the "Relation of the Internal Secretions to the Female Characteristics and Functions in Health and Disease," was duly opened on the 6th inst. by Dr. Blair Bell in an elaborate paper which had been thoughtfully put in type in advance, and was distributed to the audience as it will appear in the "Proceedings" of the society. Looking at the question from a broad standpoint, Dr. Bell regarded femininity as entirely dependent on the internal secretions. Moreover, to these same secretions he attributed the production of the female characteristics, both primary and secondary; by them, also, directly and through the general metabolism, the changes at puberty were initiated. The internal secretions were then concerned in the maintenance of the characteristics and functions they had produced. These secretions act collectively as well as individually. The removal of one organ producing

them brings about changes in the others and also in the general metabolism. The pathology of many obscure conditions connected with sex characteristics and development is explained by these considerations. So, too, may be traced the influence of the internal secretions on the psychology of women, on menstruation, and the metabolism of pregnancy. Irregular primary and secondary development of the organs and functions were then considered and afterwards derangements of the fully established female characteristics and functions. The results of partial and complete removal of different ductless glands from animals were shown in a series of tables and microphotographs.

The second paper was contributed by Miss L. McKroy, M.D., who had been invited to continue the debate. Her paper will also appear in the "Proceedings." She dwelt on the importance of collaboration between laboratory and clinical workers and thought more exact comparisons were required of the variations between different species of animals and mankind. In her view the secretions modified sex development, but not secondary characteristics which probably were due to cell development at a very early period of embryonic life. Clinical records were needed as to the effect of oophorectomy at different periods and as to when hysterectomy combined with it. The clinical aspects of ovarian transplantation and the influence of ovarian secretion on metabolism and the other internal organs of secretion and these in turn on those of menstruation were considered. The treatment of disorders of this function at puberty, and at the early menopause were specially mentioned, and the use of glandular extracts said to give encouraging results. A number of invited speakers took part in the discussion.

Dr. H. Bayon has been giving some demonstrations on leprosy. On Wednesday he gave a lantern lecture and yesterday afternoon discussed the subject at the Tropical Medical Society. He declared infection only occurred in about 2 per cent. of persons living under the same roof, and it is not known how contagion takes place. About 2 per cent. of cases improved when left untreated, but in selected cases 5 out of 10 might be gotten to improve, so that good was being done. The bacillus of leprosy was so slightly toxic that it was necessary to concentrate the extract in order to treat the disease by injections. The toxins of the bacilli were soluble in water. The method was not of value for diagnosis as early cases did not react. Dr. Bayon showed on the screen early cases in which the symptoms had disappeared, but said it would not do to talk about cure until 5 to 10 years had passed. The treatment by the soluble toxins was quite useless in advanced cases, but he thought the outlook at present was more than it had ever been. Different rules and regulations had been made respecting lepers in various countries, but in India, the Sudan and other parts arrangements were not yet completed. In Basutoland, 25 years ago, only about 300 lepers were living; the government declined to interfere, and now there were 800, and the cost of dealing with them would run up to about £50,000. In South Africa about one-half the lepers were segregated. In the Philippines the Americans had reduced the number by 90 per cent., and the sooner we followed their example the less would be the cost. Segregation with the cooperation of the patients is the ideal plan.

Dr. P. Abraham spoke of the proposal to establish a leper institute in London, and argued that it should be for all diseases of the skin. Dr. Sandwith hoped that a potent drug would be discovered for leprosy such as salvarsan proved in other cases, and he was glad that Dr. Bayon could speak well of intramuscular injections of chaulmugra oil. There was once much leprosy in England and segregation should be resorted to in case it should return.

A party of members of the Catford Natural History Society, led by their president, Dr. Percy Ames, paid a visit to the Royal College of Surgeons, where they were received by the conservator of the Hunterian Museum, Prof. A. Keith, who pointed out some of the most interesting and recent additions. Among these were some casts of skulls which showed the boldness of surgeons in the Neolithic period—say 4,000 or 5,000 years ago. In one of them half the roof of one side of the cranium had been cut away by some sharp instrument—probably of flint. The edges of the wound had evidently completed the process of healing, so it was quite certain the patient had survived this formidable treatment. Prof. Keith said that trephining was often done by French surgeons of that period, but only rarely by the English, for so far he had met with only one specimen, although it was known that Cornish miners trephined until comparatively recent times. The museum had of late acquired a number of skulls of native people, showing that they had been trephined by natives. Dr. W. E. Redman had presented a native practitioner's outfit and examples of his work. Mr. Donald Atkinson, who explored an ancient burial place in England, found a skeleton with weapons showing he had lived and probably fought at the early time of the Saxon invasion. He was an old man and the bones deformed by rheumatic disease. Dr. Keith pointed out how the skull was deformed by earth pressure, which always destroyed its symmetry, though it was possible by exact methods to restore the original shape with some approach to accuracy. Another skeleton was of a boy of about 16, found by Mr. Moir, with fragments of a vase, which Mr. Reginald Smith considered to belong to the neolithic or beginning of the Bronze period. This afforded an opportunity of studying the physique of an English lad who had been dead 5,000 years or more, and which Prof. Keith found did not differ in any way from modern boys of his age.

The Hospitals Committee of the Asylums Board reported on Saturday that during the autumn it had been at times impossible to admit immediately every case of scarlatina, on account of deficiency in the supply of the nursing staff. The officers of health were notified of this and asked to furnish lists of the most urgent cases. A large number of institutional nurses had been engaged, and the P. M. O. requested to report on the terms and conditions of employment of the staffs at the Board's hospitals for infectious diseases and state any views he may have as to making the service more attractive. In reply to a question the chairman of the committee was glad to state that no longer was any case waiting for admission, and he thought they were now able to deal with any case applying. The only difficulty had really been a lack of nurses for a time.

Mr. Kingsley Wood, who is on the Insurance Advisory Committee, speaking at an Approved Society on Saturday corrected some misleading accounts that had been circulated about the surplus fund. It now amounted, he said, to £1.40,000, because 400,-

000 persons had not chosen their panel doctor. It was not only a London matter, and there must be an unallotted surplus of above a million. The London committee had been advised by eminent counsel that they could not divide among panel doctors their accumulated sum. He thought it would have to come before the law courts. Possibly some might be distributed among panel doctors. It is difficult to see any equitable reason for such a course. He suggested establishing a great nursing scheme for London, for which no provision had been made, and which would alleviate much suffering, especially among women of the industrial classes.

Contemporaneously with the foregoing, a meeting of the Medical Guild was being held in the Edinburgh College of Physicians at which a resolution was adopted to carry on an uncompromising opposition to the methods of administration of the act. It was said that it had been compelled by circumstances to join the panel, but felt it a hateful system, which deprived them of their rights as citizens. One member called it blackmail, and said had it been charitable the profession would have supported it. Another said Mr. Lloyd George appealed to cupidity —the lowest sentiment. Above 100 practitioners, I hear, were present and unanimous.

On the same day there was a conference of West of England and S. Wales Provident Societies, which resolved that the present system was cumbersome and costly, and demanded a State medical service.

Last week the *Lancet* came out in new type—new, but old, for the larger size now adopted, or readopted, is almost precisely that in which the first number was printed in 1823. I congratulate the proprietors, for the journal is improved in appearance and much easier to read—almost as easy as the MEDICAL RECORD.

Dr. R. L. Bowles, J.P., consulting physician to the Folkestone Hospital and the St. Andrews Convalescent Home, died on the 15th of November, aged 79. He took M.D. at St. Andrews and was made F.R.C.P. in 1882. He contributed freely to the journals and societies on a variety of subjects.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

PATHOGENIC CYCLE OF THE CHOLERA BACILLUS—UNEXPLAINED CASES OF CHOLERA—APPARENT CASE OF LEPROSY—ABSENCE OF PLAGUE CASES—CHANGES IN THE BUREAU OF HEALTH—PERSONAL.

MANILA, October 31, 1913.

MUCH additional evidence is coming to light to support the hypothesis that the organism of cholera undergoes a definite cycle during certain stages of which it becomes virulent and probably at other stages it is nonpathogenic. During the past two years cholera has not occurred in the Philippines in recognizable form and faithful investigation fails to trace the infection to having been introduced from a foreign country. Stool examinations are made of all steerage passengers and during the past year no cases of cholera or cholera vibrio carriers have been found at the quarantine inspection which is conducted of all foreign vessels by the United States Public Health Service. It is held that there is no good reason why cholera should not be constantly present in endemic form in the Philippines as well as in India or other countries. The climate and the habits of the people are much the same. Among the Manila cases up to October 20, 66 contact groups or a total of 960 persons were examined and among these 40 showed some type of vibrio and 29, or 3 per cent, harbored the true cholera vibrio. In order to make a further test of this matter, a group of 25 persons was chosen in a slum block in which no cholera had yet occurred, and in one of these groups a cholera vibrio carrier was found. For test purposes a stool examination has been begun of the inmates of the San Lazaro Insane Hospital in Manila and the first person examined has proved to be, according to the Bureau of Science, a true cholera vibrio carrier. On the other hand, 220 prisoners confined at Bilibid Prison were examined for cholera vibrios with negative results.

From the foregoing it appears possible that cholera organisms in some form may be constantly present in some human intestines and when the stage of their cycle is reached during which they are pathogenic for another individual, and if the conditions for their transfer to a susceptible individual are favorable, an outbreak of cholera may be started. After the first cases of cholera, the spread of the disease perhaps depends on contact infections, and the thoroughness with which the disposal of human excrement is carried out probably largely determines whether a cholera becomes epidemic or is promptly eradicated. In a place like Manila, the proper disposal of all human excrement has not yet been accomplished. Many of the poorer sections of the city are only tidal flats. The residents are too poor to provide themselves with a sewer connection and the public closets are often so far removed that pollution of the ground surfaces under and near the houses in these sections undoubtedly takes place. As children play around such premises and flies, roaches, and other insects possibly may transmit infection from such ground surfaces to the food of the people, it will be understood how readily the cholera may spread when it makes its appearance in a section of this kind. There also seems to be a close relationship between vaults and privies and cholera. At 57 houses from which cholera cases were taken 10, or only 17 per cent., were found to have a water closet system for the disposal of human excrement and in almost all of these instances a vault or privy was in the immediate vicinity.

Many cases of cholera continue to occur in which the origin of the infection cannot be traced. For instance, on October 15 there appeared a case of cholera in a child nine years of age in the town of Novaliches, which is located in an isolated region about ten miles from Manila. Upon inquiry it was learned that the only foods which were introduced into the household that came into the town from the outside were rice and fish and that both of these were cooked before being eaten. On account of the fact that cholera occurred in no other house in Novaliches, it would seem safe to infer that at least no general food infection could have taken place. Water was obtained from the town well.

Another case of cholera occurred on the steamship *Muncaster Castle* in one of the members of the Indian crew. This vessel arrived in Manila six days out from Singapore on October 14 and anchored in the bay until October 18. None of the crew went ashore. Stevedores, however, from shore went aboard for the purpose of discharging cargo during this period. On October 18 one of the Indian members of the crew became suddenly ill and at San Lazaro Hospital the diagnosis of cholera

was confirmed. In this case no food or water for the crew was taken aboard at Manila. The food used was ship's stores which were secured at Singapore and had been on board for more than two weeks at the time that the Indian became ill. It is assumed that in this instance a cholera carrier among the stevedores must have carried the infection on board, perhaps to a toilet, and that the Indian became infected in that manner.

A girl who was admitted to the San Lazaro Hospital on January 5, 1911, and was clinically and microscopically diagnosed upon admission as a leper, was released on October 30, 1913, on probation, after having been negative for leprosy for a period of two years. This patient received the chaulmoogra oil by the hypodermic method under the same circumstances as did the two previous lepers who were reported as having been discharged, apparently cured, during June.

With the exception of the case of human plague which occurred in Manila on September 19 and the rat infections, the last of which took place on September 11, no plague of any kind has been present in Manila since June, 1913, from which it would appear that the measures which were taken to destroy the plague infection have been successful.

Since the advent of the Democratic administration in the Philippine Islands, which began on October 6, 1913, a number of projects have been presented to the Legislature for changing existing sanitary laws under which the Bureau of Health is at the present time administered. For instance, it is proposed to appoint a Council of Hygiene to consist of seven members. This Council is to have absolute control of all medical and sanitary matters in the Islands. Instead of having matters under one head, as at present, it is proposed to make the Director of Health the executive officer of the Council, thus virtually returning to the old form of board administration which was abandoned in 1905. It is also proposed to transfer the Philippine General Hospital, which is now a division of the Bureau of Health, to the University of the Philippines. It is understood that instructions have also been given that in future no American medical men are to be appointed. All vacancies are to be filled by Filipinos. The abolishment of the Bureau of Science as a separate entity is also proposed and hereafter it is to form a division of the University of the Philippines. In addition to the foregoing, instructions have been issued that owing to the low state of the Insular Treasury, reductions in the amounts heretofore allowed for maintaining the Bureau of Health must be made. Just to what point these reductions are to go has not yet been definitely determined.

Dr. S. C. Gurney of the Constabulary, Dr. B. C. Crowell of the College of Medicine and Surgery, and Mr. E. L. Walker of the Bureau of Science have gone to Saigon as delegates of the Philippine Government to attend the Third Biennial Meeting of the Far Eastern Association of Tropical Medicine. Dr. Butler went as the representative of the U. S. Navy. The Congress will hold sessions from November 8 to November 15.

THE HEALTH OFFICER IN THE PHILIPPINES.

To the Editor of The Medical Record:

Sir:—Not long since you published an editorial relating to the alleged demand by Mr. Francis Burton Harrison, the new Governor-General of the Philippines, for the resignation of Dr. Victor G. Heiser, the Director of Health.

I was so distressed by this report that I wrote to President Wilson an earnest letter in reference to it. I have just received from Brigadier-General McIntyre, Chief of the Bureau of Insular Affairs of the War Department, a letter, of which I enclose for you a copy, by which you will see that this report was entirely incorrect.

Inasmuch as your editorial gave great prominence to this matter, it would be only just to Mr. Harrison and the President that equal prominence should be given to the correction of this unintentional mistake.

W. W. Keen.

Philadelphia, December 5.

WAR DEPARTMENT,
Bureau of Insular Affairs,
Washington.

December 1, 1913.

Dr. W. W. Keen,
1729 Chestnut Street,
Philadelphia, Pa.

My dear Dr. Keen:—Your letter of November 21st to the President with reference to the newspaper report that Mr. Francis Burton Harrison had demanded the resignation of several Chiefs of Bureaus in the Philippine Islands, among them being that of Dr. Victor G. Heiser, the Director of Health, was, after acknowledgment, sent to this Department.

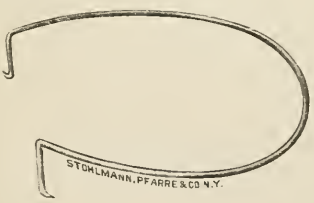
While we had no information which would lead us to believe that the newspaper report was accurate, we made the matter the subject of inquiry and we are advised in a cablegram from the Governor-General that he had not and did not contemplate the removal of Dr. Victor G. Heiser; that his invaluable experience and rare professional qualifications were fully appreciated. This view of Dr. Heiser's service conforms fully to the view which the War Department takes. Very sincerely,

Frank McIntyre,
Brigadier General, U. S. Army,
Chief of Bureau.

A PERINEORRHAPHY RETRACTOR.

To the Editor of the Medical Record:

Sir:—Dr. A. Reich, in a recent number of the Medical Record described and illustrated a self-holding spring retractor which he has designed for use in perineorrhaphy and other gynecological operations. The instrument in its essentials so nearly duplicates one which I presented to the profession over ten years ago that I am constrained to request an opportunity in your columns to claim priority.



The instrument which I devised has been continuously on sale by Tiemann & Co. and although they at first insisted upon using spring steel in its manufacture, they later consented to make it of phosphor bronze or, as I much prefer, of German silver wire. This preference is based upon the fact that the latter metal possesses sufficient flexibility to make any amount of desired retraction and at the same time

is capable of being weakened or strengthened at will by the operator to suit the needs of any case. My instrument is as useful in a perineorrhaphy as in an incised wound. The shape of this sharp self-holding retractor obviates the necessity of a guard near the point, which was doubtless added in Dr. Reich's instrument in order to prevent the points from piercing the tissues too deeply. I also devised a form of blunt retractor on the same general principle. A large-sized retractor of this type may be used in the vagina in place of the usual bivalve speculum.

The second illustration in Dr. Reich's article shows the wire bent at its middle into a spiral spring. I found by experiment that such a spiral bend neither strengthens nor in any way improves the instrument. It only complicates matters and was hence omitted in my retractor.

The original instrument was presented before the surgical section of the Academy of Medicine on February 9th, 1903, and the article describing it was published in the *Journal of the American Medical Association* in April of that year. In that paper attention was called to the fact that the principal field of utility of the retractor is in general emergency operations or those in the doctor's office work where the desired number of assistants are not available. Even where the usual number of assistants are at hand the use of this instrument may permit them to help the operator in other ways.

In ordinary surgical work it is easily applied and quickly shifted and by reason of its shape will lie flat upon the surface of the body, out of the way and stay where it is put. Where the field of operation is large it is convenient to use two of the retractors with their openings facing each other. Three sizes with their diameters respectively two, three, and four inches, with wires of calibers to correspond, make a useful working assortment. Time has proved the worth of this form of retractor in other hands than my own.

WILLIAM S. THOMAS, M.D.

240 WEST SEVENTY-FIRST STREET.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 27, 1913.

1. The Clinical Value of the Wassermann Reaction. A. Post.
2. Comparative Psychology in Relation to Medicine. R. M. Yerkes.
3. Note on Some Problems of the Adolescent as Seen in the Psychopathic Hospital Out-Patient Department, Boston, Massachusetts. W. P. Lucas.
4. Transfusion by Means of Glass Cylinders. A. R. Kimpton.
5. The Use of Bacterial Vaccines in Acute Septic Conditions of the Oral Cavity Met with by the Dentist. L. S. Medalia.
6. Cancer Control. J. C. Bloodgood.
7. The Effect of Nitrogenous Waste Products in the Blood in Chronic Interstitial Nephritis. M. Seymour.
8. The Terminology of Medicine in Relation to Its Original Sources. S. Delano.

1. Clinical Value of the Wassermann Reaction.—A. Post states that the Wassermann reaction is of use for two different purposes: first, for diagnosis, and second, as a measure of the effect of treatment. As a measure of treatment, it is taken before treatment is begun, at intervals during treatment, and after treatment has been omitted for a length of time. When found positive before treatment and negative after treatment, it shows that treatment has had an effect on the disease. Sometimes there is a gradual reduction in the strength of the reaction in successive tests. It may be reported +++ before treatment, ++ after treatment has been begun, + a little later and negative a little later still. When the reaction is thus extinguished, there is always room for hope that the disease is absolutely cured. Unfortunately, the reaction is known to return to positive in some cases. The reaction may be rendered negative by treatment when the disease is not cured, exactly as other symptoms may be made to disappear.

4. Transfusion by Means of Glass Cylinders.—A. R. Kimpton describes this method which he has devised in conjunction with J. H. Brown. It consists in the use of glass tubes having a capacity of 150 or 250 c.c. These are corked at one end, below which there is a side tube. The other end tapers to form a cannula. The tubes are sterilized and coated on the inside with a mixture of stearin, paraffin, and vaseline, in the proportions of 1, 2, and 2. The technique of using these tubes is as follows: A tourniquet is placed on the donor's arm tight enough to give venous congestion and still allow arterial blood to flow in. With novocaine a vein just below the elbow is exposed cleanly, through an incision about one and one-half inches long. This vein is tied off proximally and a ligature placed around it distally, but *not* tied. This ligature is raised by an assistant, thus acting as a clamp. The vein is now transfixed by a cataract knife and a slit made. A similar vein of the recipient's arm (without a tourniquet) is prepared in a like manner, except it is tied distally. The cannula of a tube is now inserted into the vein of the donor and held upright until filled by venous pressure. This usually takes not over two to three minutes for a 250 c.c. tube. If not filling well, this usually means that the tourniquet is too tight. While filling, the donor is instructed to open and shut his hand. This perhaps hastens the inflow. Being filled, the tube is withdrawn and held on its side with the side piece uppermost to prevent the blood from running out. The cannula is now inserted into the vein of the recipient and held in an upright position. An actual cautery bulb pump is attached to the side tube and by a little pressure the tube is emptied, the cannula being withdrawn while still a little blood is left in it. Several tubes may be filled and emptied at one operation.

6. Cancer Control.—By J. C. Bloodgood. (See MEDICAL RECORD, November 22, 1913, page 962.)

New York Medical Journal.

November 29, 1913.

1. The Cure of Ataxia. W. J. M. A. Maloney.
2. The Diagnosis of Arteriosclerosis. L. F. Bishop.
3. The Medical Treatment of Surgical Cases. J. H. Jopson.
4. Infections of the Hand. I. S. Haynes.
5. The Criminal's Place in Psychiatry. H. M. Friedman.
6. Surgical Aspects of Graves's Disease. R. E. Davison.
7. A Study of the Action of Oxygen, Hydrogen Dioxide, and Ozone Gas Upon the Growth of Certain Bacteria. S. E. Finch.
8. Report of a Case of Carcinoma of the Face. E. S. Maxson.
9. Acute Pelagra or Dermatitis Exfoliativa? W. H. Spurgin.

1. The Treatment of Ataxia.—W. J. M. A. Maloney begins the treatment of ataxics who are not bed or chair ridden by utilizing simple mechanical aids to minimize ataxia when walking. A high shoe or boot, specially strengthened with leather on the outer side of the ankle, increases the support at the ankle and prevents the foot turning in. The heel is low, wedge shaped, the base of the wedge being on the ground, and is continued along the outer side of the shoe. A welt as broad as the patient will permit (usually about one-quarter inch projects) surrounds the sole. A steel plate is (in the beginning in severe cases) placed in the sole to prevent bending. The shoe should be as light as is consistent with maintaining its shape. When the shoe is on the ground it rests with its whole bearing surface. The patient gets support from every part of this broadened surface simultaneously. The occasional sudden "giving" at the knees and ankles has a very demoralizing effect upon ataxics. The patient is made to lie down, blindfolded. He is enjoined to dismiss all thoughts of extraneous affairs, to allow his mind to tranquilize, and to attend strictly to what he is told. The room is maintained as quiet as possible to avoid dis-

tracting him. He is then ordered to relax the muscles first of his face, then of his neck, then of his trunk, and then of his limbs. Each order is repeated and restated, first alone, and then linked with the preceding order. The whole process is conducted slowly and with suitable pauses. From these relaxation exercises, practised blindfolded, three results are attained: First, ineffective, often useless, and sometimes completely disconcerting muscular contractions which have been acquired in attempts to balance, are got rid of so that the coordinating exercises can be begun on an unconstrained musculature and not superimposed upon existing habit contractions. Secondly, active relaxation confers a great training in attending to muscular sense impressions. Thirdly, the patient becomes less fearful and more receptive because, in so far as fear is maintained by its motor expressions in his attitude, it is diminished. Next movements are begun. Passive flexion and extensions of the ankle are first practised. Then the knee and the hip of the same limb are similarly exercised. The trunk muscles are coordinated by relaxation and movement. The head and neck muscles are similarly treated. Creeping movements are then taught. Finally walking is taught. Relaxation should be as zealously practised as are movements.

2. **Diagnosis of Arteriosclerosis.**—L. F. Bishop points out a distinction between arteriosclerosis, which he characterizes as a degenerative disease of the body in which the heart and blood-vessels take the most prominent part; and endarteritis, which is essentially a disease of the blood-vessels. These conditions are frequently confounded with each other. The author believes that the general disease is due to sensitization of the cells to particular proteins either of food or of bacterial origin, the continuous action of which leads to progressive damage to the cells. The therapeutic test is a valuable aid in diagnosis. If an individual, with a blood pressure in the neighborhood of 200 mm. Hg., precordial pain on exertion, albumin and casts in a urine of low specific gravity, profound depression of spirits, high hemoglobin and some numbness of one-half of the body or slight aphasia, who is put upon a low protein diet, subjected to a phlebotomy, compelled to exercise, deprived of his salines, and given suitable treatment of the intestines, does not make a comparative recovery, the author is inclined to believe that he is suffering primarily from endarteritis, disease of the kidneys, or other localized organic disease. But if such a subject does make a comparative recovery, in that his blood pressure falls to his *optimum* pressure, he recovers from his depression and cardiac pain, and he is able to resume his normal occupation, the author believes that he is suffering from a degenerative disease of the whole body, of metabolic origin and, under suitable supervision, no account need be taken in the diagnosis of the bugbear of progressive sclerosis.

3. **Medical Treatment of Surgical Cases.**—J. H. Jopson believes that in practically all surgical cases there are certain fixed indications for medical treatment, less in some and greater in others, and that while such indications can be reduced in number, they cannot be done away with entirely. In some instances they are acute, and in others complicated and demanding great therapeutic knowledge and skill to successfully cope with them; moreover, that their proper treatment is modified to some extent by the surgical conditions present, and by operative as well as nonoperative surgical methods of treatment. In a thorough organization of hospital staffs which provides for cooperation of physician and surgeon in the line of treatment at all times, there are opportunities for improvement which only such association affords. Something more than a haphazard cooperation at critical times is needed to insure success in all cases, and in all plans for hospital reorganization and reform some provision must be made in this direction. If the physician on duty, with his assistants, could pay weekly or semi-weekly visits to the surgical wards in company with the surgical staff, and go over the medical treatment of cases with the surgeon, there would be afforded the opportunity for the medical man to familiarize himself with the needs of surgical patients, and for the physician and surgeon together to foster methods of preoperative and post-operative treatment that not only would add greatly to the comfort of the patient, but would in time greatly increase our therapeutic knowledge and open new fields of medical research.

Journal of the American Medical Association.

November 29, 1913.

1. The Production of Ulcer of the Stomach by the Injection of Streptococci. E. C. Rosenow.
2. Military Tuberculosis of the Placenta with Incipient Pulmonary Tuberculosis of the Mother Becoming Latent After Birth of Child. A. S. Warthin.
3. Abdominal Adhesions. R. C. Coffey.
4. A Comparison Ocular. D. J. Healy.
5. Myotonia Atrophica. F. Kennedy.
6. Polyposis Gastrica (Polyadenoma). J. S. Myer.
7. Growth and Efficiency of Hospitals. H. B. Howard
8. The Selection of Hospital Employees Under Civil Service Rules. L. F. Fuld.
9. Factors Influencing Hospital Cost. S. Howell.
10. The Psychopathic Hospital Idea. E. E. Southard.
11. Hospital and Asylum Workshops. Some Possibilities of Handicapped Labor. H. J. Hall.
12. Municipal Hospitals and Their Relation to the Community. R. Norton.
13. Arteriovenous Aneurysm of the Superficial Femoral Vessels. A. B. Eisenbrey.
14. Echinococcus Cyst of the Pancreas; Removal and Recovery. C. E. Phillips.
15. A New Operative Treatment for Spastic Paralysis. A Preliminary Report. W. Sharpe and B. P. Farrell.
16. Improved Technique for Blood-Counts; Rapid Method for Securing Exact Amount of Suspension. A. Eustis.

1. **Experimental Production of Gastric Ulcer.**—E. C. Rosenow notes that the intravenous injection of streptococci of the proper grade of virulence may be followed by ulcer of stomach and duodenum. The ulceration is due to a localized infection and secondary digestion. The ulcers are usually single and deep with marked tendency to hemorrhage and perforation, and resemble the human gastric ulcer in many respects. When we take into consideration this close resemblance, that injection of streptococci which have grown in tonsils produce the lesions, and that the virulence of the germs when the affinity for the stomach is greatest is of such character that a general infection does not occur, it appears altogether reasonable to suppose that in man gastric ulcer may be caused by streptococci also. The supposed relation between infected tonsils or gums and gastric ulcer may be due not to the swallowing of bacteria, but to the entrance into the blood of streptococci of the proper kind of virulence to produce a local infection in the wall of the stomach. Many other observations might be cited such as associated infections of the gall-bladder and appendix, which suggest that gastric ulcer may be due to streptococci.

6. **Polyposis Gastrica.**—J. S. Myer reports a case of multiple adenoma of the gastric mucosa diagnosed during life and operated on. The operation was followed by death twelve hours later, permitting a thorough autopsy and examination which revealed little besides the stomach conditions. The diagnosis was made from the presence of a small polyp obtained by lavage and a large one in the feces. The author thinks it possible that much help could be obtained in future cases by roentgenoscopy and that achylia with unusual mucus production should be considered suspicious, and in severe gastric hemorrhage in a patient with achylia gastrica, with normal or increased motility, polyposis is more that probable. Invagination of the pylorus by a polyp could hardy be mistaken for any other condition after one has experienced the peculiar palpatory findings met with in polyposis gastrica.

9. **Hospital Costs.**—T. Howell discusses the problem of hospital costs and the causes of their variations. These costs include only the operating expenses, and as com-

puted by hospitals are only about 60 per cent. of the true cost. The hospital with an operating cost of $1 a day and the other of $3 represent the two extremes. The first represents the so-called city hospital operated in connection with almshouses and restricted by small appropriations. The other represents a restricted class of wealthy hospitals where economy is not so essential. Neither of these represents the average and they are not discussed here. Taking representative hospitals, city and private, we have costs from $1.25 to $2 per diem per patient, while another class, mostly private ones, have costs from $2 to $2.75. These are the two typical classes, and their equipment and buildings are very similar or identical. The initial cost of the $2.50 a day hospital is probably somewhat greater than that of the other. The actual factors affecting hospital costs are first, location; second, amount of scientific work done; third, number of employees and salaries paid; fourth, medical school connection; fifth, proportion of private room to ward patients. The hospital in the large city where standards are high will cost more to maintain than one in a small city for the same reasons that the cost of a family varies likewise. Hospitals located in the South, other things being equal, should have lower costs than those in the North, the question of fuel accounting for this one thing. The author believes that it will be found that the payrolls are the most influential factor in determining the average cost per patient. In the low-cost institutions the proportion of employees to patients is about two to three, and this is reversed in the high-cost hospitals. Municipal hospitals outside of the large cities are apt to be controlled by an economical city government which keeps their cost down. Another factor is that certain city officials and their clerks do the work for them that private hospitals must pay for. Hospitals which do high-lass, scientific and educational work are bound to be more expensive than those which do merely routine clinical work, and they are likely to have a more exacting and important class of cases. He has no statistics of American hospitals connected with medical schools, but in London such are more expensive. The larger the proportion of private room to ward patients the larger will be the average cost per patient. Contrary to the general belief, larger institutions have higher per capita costs than small ones, owing to the broader lines on which they work and their more varied activities. The author does not believe that it will be possible to standardize hospital costs on account of the varying conditions that exist. Each institution, according to its own peculiar conditions and the demands made on it, is a law unto itself.

The Lancet.

November 22, 1913.

1. The Origin and Growth of the Royal College of Surgeons of England. Sir Rickman J. Godlee.
2. Some Requirements for Modern Clinical Teaching. Sir Dyce Duckworth.
3. The Treatment of Neurasthenia. J. S. Risien Russell.
4. Notes on Four Cases of Ureteral Calculus in one of which a Complete Cast of the Ureter Was Present. H. Collinson.
5. The Primary Cause of Rheumatoid Arthritis. H. W. Crowe.
6. A Case of Tumor of the Pituitary Body. A. L. Taylor.

2. Some Requirements for Modern Clinical Teaching.—Sir Dyce Duckworth does not accept the pronouncement that modern medicine is gradually becoming a branch of experimental science. Medicine is an art guided increasingly by the disclosures of scientific researches. The physiologist's standpoint is not that of the physician. The former is not a bedside artist and has little knowledge of the inward human elements in the ailing individual. A rational empiricism is a fine part of the art of medicine. The doctrine of the diatheses should be taught. Human beings are not so many ninepins turned off from a lathe out of a block of wood. In the arthritic habit or diathesis, we find a specific readiness for infection by the peccant bacteriological elements which induce rheumatic fever in the earlier decades of life. Later on we find in this class a marked tendency to the perverse metabolisms which engender gout and the protean phases of that specific malady. The strumous habit of body, with its two varieties of refined and coarse physiognomies, presents us with a soil which is the most favorable of all for the cultivation of the bacilli of tuberculosis, and for most of the vicious microbes we have knowledge of. A close study of these two distinct habits of body indicates that there is a remarkable antagonism between them. The arthritic diathesis provides the worst possible soil for the tubercle bacillus, which can hardly lodge or develop in it. The scrofulous soil is little friendly to rheumatic infection, and rarely disposed to the morbid metabolisms issuing in gout. The inherent vitality of the patient is a great element to be reckoned with. Disregard of this factor probably accounts for more gloomy prognoses than are justifiable, the vital resistance of the patient not having been appreciated. The author does not perceive any special advantages in clinical teachers being debarred from private practice. He also admires the methods pursued in the Parisian school, for there we find the art of medicine bound up with the best scientific side of it. The great clinicians there have the benefit of the fuller experience of private practice and consulting work, and they certainly devote themselves assiduously to their duties in the wards. A clinical teacher has great responsibilities. Before all things he must be human and sympathetic, never forgetting that he is dealing with patients who have souls as well as bodies, and not with mere "cases." He has to illustrate and teach good manners as well as medicine. He must believe in his art, for a sceptic in therapeutics can teach nothing. He should not pursue many novelties, for novelty-hunters have not been well instructed in the principles of medicine in their early career. To these requirements the author would add, lastly, a large measure of tact and common sense, no small amount of geniality and humility, and a due degree of such dignity as rightly belongs to men charged with serious duties to their country and their fellow creatures.

3. Neurasthenia and Its Treatment.—J. S. Risien Russell states that the cases of neurasthenia fall conveniently into one of three main groups: cerebral, spinal, and cerebrospinal, and that the first group may be further conveniently subdivided in view of the fact that in some of the patients the symptoms are physical, whereas in others they are purely psychical, although in many both physical and psychical symptoms obtain. The headache, vertigo, and other purely physical symptoms that belong to one variety of the cerebral type, and the phobias, obsessions, and other mental symptoms that belong to the other; the feeling of physical exhaustion, pains in the back, weakness of the legs, and other similar symptoms belong to the spinal type; and in the cases that constitute the cerebrospinal type cerebral and spinal symptoms obtain in the same individual. In the large majority of cases there is no other method of treatment that offers the same chances of success as the so-called "rest cure," provided it is conducted in a home given up to treatment of the kind. Personality plays so important a part in the treatment of neurasthenia that it is highly necessary to secure people who, while sympathetic, have nevertheless sufficient force of character to inspire confidence in the patient. In some cases of neurasthenia suggestion is a valuable adjunct in the treatment. Massage and the application of faradic electricity form part of the usual routine in the ordinary rest cure, but there are patients who are not helped by massage, as it proves too irritating to them, aggravating all of their symptoms and increasing their insomnia when this happens to be a symptom. Massage should be employed only in these patients if an adequate amount of rest can be secured during the course of treatment, as other-

wise it is calculated to do harm in the majority of cases. Of hydropathic methods the pack and warm baths find a place, especially in the treatment of insomnia; while the needle bath and spinal douche, which are useful in many cases of neurasthenia, are especially so in the sexual and in the spinal forms of the affection. Arsenic is one of the most useful tonics that can be employed in the treatment of these patients. The glycerophosphates, lecithin, and allied substances, and in some cases iron, all find a place among the useful remedies in neurasthenia.

5. The Primary Cause of Rheumatoid Arthritis.—H. W. Crowe brings further evidence in support of his belief that rheumatoid arthritis is caused by an organism which he has isolated from the urine in a large proportion of patients suffering from this disease. This germ is identical with the *Micrococcus epidermidis* described by Welch, and is given the name *Micrococcus deformans.*

British Medical Journal.

November 22, 1913.

1. The Treatment of Syphilis in Its Earlier Stages. T. W. Gibbard and L. W. Harrison.
2. The Treatment of Syphilis at the Royal Naval Hospital, Chatham; Results During the Last Two and a Half Years, and the Inferences to Be Drawn from Them. G. B. Scott.
3. "Standard" Opaque Meal for Radiographic Examinations. A. C. Jordan.
4. Some Acute Abdominal Cases. G. F. Aldous.

1. Treatment of Syphilis in the Early Stages.—T. W. Gibbard and L. W. Harrison lay down the following rules for this treatment: Commence treatment in the early primary stage whenever possible. Destroy the primary sore whenever possible and insist on the patient receiving not less than three salvarsan and ten mercurial injections in the manner described. On no account neglect subsequent observation, and prescribe a definite course which is just as strenuous as in the first instance if the patient shows the least sign, clinical or Wassermann, that his disease has not been eradicated. Be cautious about pronouncing a patient cured in any case, but certainly do so till he has continued free from all signs, clinical or Wassermann, for at least a year after suspension of treatment in primary cases, and two years in secondary cases. The price of salvarsan and the amount of special work which such a scheme entails make it inapplicable under present conditions to patients in poor circumstances, but it is hardly necessary to say that the control of syphilis in its earlier stages affects the lives and happiness of a sufficiently large percentage of the population, present and future, to make it of national importance.

4. The Acute Abdomen.—G. F. Aldous draws the following distinction between the acute abdomen and those cases presenting acute abdominal symptoms: In the former there is general peritonitis, due to some cause such as rupture of the stomach or intestine either by disease or trauma, rupture of abscess, etc. In the latter there is no general peritonitis, and the acute symptoms are caused by some form of internal strangulation of gut, cyst with twisted pedicle, ectopic gestation, intussusception, etc. In either group of cases the word "acute" means no delay. The difficulty of diagnosis is usually great and is often made more difficult by delay and by the administration of some form of opiate.

Berliner klinische Wochenschrift.

November 17, 1913

Certain Research Into the Physiology of Digestion and Metabolism.—Zuntz discusses the fermentations of human food in the cecum and colon. The values are given in part from the gases set free, which do not escape by the rectum but enter the blood directly and escape from the lungs. These volatile gases are inflammable. Studies of digestion in animals which digest cellulose show in regard to carbohydrates that 99.7 gms. could be digested, but since 40 gm. escape per rectum, about 60 gm. are actually digested in overfeeding with carbohydrates. There is also a definite relationship between carbohydrates ingested and carbonic acid set free. The determination of amount of gas set free from nutriment is 10 per cent. by weight of the amount of solids fermented in an hour. These values are checked up by the results of other methods. The entire subject, involving as it does the application of new standards to digestion and utilization of food in the entire animal kingdom, is not yet in shape for a familiar presentation.

Therapy of Diabetic Coma.—Blum gives the management of this condition in an article which first considers the essence of the latter. Since opinions as to the latter vary, much the same want of harmony is found under treatment. Only in the negative sense do we find a consensus of opinion. Circulatory stimulants have been condemned, as well as diuretics. The indication for alkalies in some form is duly recognized. The author believes in exhibition *per os*, as in the form of effervescent citrate of magnesia. The rule for giving alkalies is simple—they should be pushed until the urine gives the alkaline reaction. By some sodium is pushed almost *ad libitum*. However, there is no indication for the constant exhibition of alkalies. The author would not even push sodium until the urine is temporarily alkaline because when this reaction appears the appetite usually vanishes and quite severe digestive disturbances occur. The author is warmly in favor of purgation and colonic lavage, despite the fact that these measures often show no direct improvement.

Diathermy for Leprosy.—Leprosy seemed from the very onset a disease well adapted to diathermic currents. Unna, Jr., has given the matter a careful study. The results were not what might have been imagined, *i.e.*, a bactericidal activity against the exciters of the disease with resulting subsidence of the latter. On the other hand, the author may lay claim to the use of diathermy as an accessory antileprotic, which softens up the nervous structures and makes them accessible to oil treatment. During this anesthesia it is possible to extirpate radically many leprous tissues, superficial and deep.

Alimentary Fatty Heart.—This article by Professor Wegelin, which will be continued, opens as follows: This condition is equivalent to the fatty infiltration of the normal heart. Some authors attach no clinical significance to this phenomenon. The heart, fatty or not, can go ahead up to the point of death without functional insufficiency. Nevertheless no one regards such a heart as normal, although the fetal heart regularly passes through this cycle. Deposit of fat in the myocardium is a physiological phenomenon.

Münchener medizinische Wochenschrift.

November 11, 1913

Must the Prognosis of Cardiac and Vascular Diseases Remain on the Dead Point?—Grassmann states that the vast increase today in this class of diseases requires a much more intensive study of the subject. Greater pains must be taken to obtain publicity. The significance of diseases of the organs of the circulation for the morbidity and mortality has not yet been sufficiently emphasized. But improvement in the prognosis of these diseases is no longer an individual medical subject for it now implies a social obligation. Early diagnosis is impossible without repeated examination. But early treatment is possible when the diagnosis has been made. At least there may be effected a change in occupation, which allows the full application of treatment. The old empirical treatment must be reinforced by all rational methods, which is possible only when these resources are centralized.

Abderhalden's Dialysis Procedure in Scarlatina.—This reaction seems destined to throw much light on auto-intoxication of all kinds, and in general the relations which subsist between the organs. However, it is not entirely intelligible how one organ can be connected with a great variety of affections which possess nothing in common. Scarlet fever we naturally associate with the lymphnodes, which are believed to contain its specific virus. Hence gland substance was prepared from many sources, and the blood serum dialysed against them. The results were as follows: From the fifth to the thirty-second day of the fever the presence of the defensive ferments was demonstrable by Abderhalden's process, if lymphnode tissue was used. These ferments are specific only towards lymphnodes *per se*, not to those altered by scarlet virus.

Freudian Interpretation of Dreams.—Bleuler apparantly keeps close tabs on his own dreams in respect to Freudian interpretations and also naturally on the dreams of others. He also contrasts dreams with the hallucinations of the insane. The Freudian method is extremely complicated, and a dream is the result of the interaction of many experiences, recent and ancient. Given a dream in which a number of objects figure—shapes, colors, actions, etc., it should be possible to discover the precise source of these from previous experiences. The jumbling, the absurdity, all lend themselves to a rational explanation. Certain features characterize dreams and hallucinations alike, for example, conflagration. In the impulsive state known as pyromania, an impulse to burn may be first presented in a dream state! This has been proved in the case of young children who set small fires after dreams. It is true, however, that another conception appears which makes the act of fire not one of wanton destruction, but conservative in character. A boy for example has a vision of fire, a waking impulse to burn something, yet all the while he has a lucid reason for his conduct, or as the author puts it "an eminently practical motive." The author expresses his belief that for the disentanglement of the dream conditions, Freudian analysis alone is effective. As in ordinary phychoanalysis the sexual element, the self repression, etc., are all important. The relationship to schizophrenia, the dementia precox of others to dream states is too close for coincidence.

Deutsche medizinische Wochenschrift.

November 13, 1913

Prevention of the Dangers of Transfusion.—Ottenberg and Kalisky referring to modern transfusion as inaugurated by Crile in 1905 sum up their paper as follows: Accidents which result from hemolysis or agglutination may be prevented entirely by a preliminary test. This the authors have demonstrated in 125 patients in the Mt. Sinai Hospital during the past five years. The relationship between hemolysis in vivo and in vitro is a very close one, and hemolysis in vitro doubtless implies intravascular hemolysis. Agglutination is not an absolute contra-indication to transfusion, but non-agglutinative donors should be chosen when possible. Phagocytosis of the red blood cells by the leucocytes is doubtless the result of interagglutination of the two bloods. It happened twice to the authors that the blood of the patient agglutinated that of the donor. In 35 cases of agglutinative transfusion this phenomenon did not occur. Of the negative cases two developed a high degree of urticaria and one a high temperature after transfusion. In cases in which the serum of the donor was agglutinative to the cells of the patient there was no phagocytosis in the blood. In selection of donors in respect to agglutination, it is of greater importance to avoid agglutination of the cells of the donor by the serum of the patient than to do the contrary. Febrile reaction, urticaria or other eruption occur in about 10 per cent. of transfusion without regard to hemolysis or agglutination and no results follow transfusion of the fibrin ferment and disintegration of blood plates.

Retrograde Incarceration of the Intestine.—Merkens says of this condition that it presupposes the existence of at least two intestinal loops in the hernial sac. It occurs as a rule because the mesentery of the connecting sling must pass twice through the constricting ring. In rare cases the cause is a pull on the mesentery, kinking of the same, or rotation of the sling upon its axis. In diagnosis the demonstration of Wahl's symptom with simultaneous existence of an incarcerated hernia is of great importance. Although a correct diagnosis can very seldom be made, whenever we operate on a large incarcerated hernia, especially on the right side, we must always keep in mind the possibility of this complication. If we overlook retrograde incarceration we may see gangrene develop within a few hours.

Abortive Treatment of Syphilis.—Lier states that in every case of primary syphilis, as well with negative as with more or less positive Wassermann, a combined salvarsan Hg. cure should be instituted, this preceding the excision or radical destruction of the sclerosis. Treatment should be continued unremittingly until the WaR becomes negative and all clinical manifestations have disappeared. Buschke's hostility toward the radical treatment of primary syphilis, based as it is upon theoretical considerations, should carry no weight in the face of our positive results. Repeated observations of the cerebrospinal fluid of one's cases complete the status of terminal finds and remove the scruples of sceptics.

Acute Lichen Planus Treated by Lumbar Puncture.—G. Pernet reports the case of a woman, aged 52, who presented herself at the West London Hospital on June 24 with an acute lichen planus which had been present three weeks. It was spreading very quickly and the pruritus and irritation were extreme. She was admitted and lumbar puncture was performed the next morning, 7½ c.c. of cerebrospinal fluid being withdrawn. From that time the pruritus began to yield, and by 4 o'clock the same day it had practically ceased. No other treatment was given. The condition was now involuting. The cerebrospinal fluid did not show lymphocytosis, but, as is usual, it reduced Febling. Two years before the author had had a similar acute case in a male patient. The result of lumbar puncture was good. In this case the cerebrospinal fluid did not reduce Fehling's solution. In a case in which the puncture was done and the patient allowed to go home very severe headache ensued and lasted five or six days; it was far better to have the patient under observation. The sooner the puncture was done for acute lichen planus the better the result *qua* pruritus. Ravaut, of Paris, had worked at this subject for three years, and his published writings should be consulted for further details.—*Proceedings of the Royal Society of Medicine.*

Symmetrical Swellings on Arytenoids.—H. Tilley reports the case of a male, aged 30, who complained that his throat got dry after using his voice for a few minutes. There were no other symptoms. On the anterior and median aspect of each arytenoid and above the level of the vocal process a small, pale, raised prominence could be seen. These came into contact on phonation, but did not interfere with the free movement of the arytenoids and the voice was not affected. The patient had syphilis and had been treated for the disease, but without any effect on the above appearances, which might have been of the nature of pachydermia. Possibly the symptoms had nothing to do with the laryngeal appearances.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

Under What Circumstances Are Syphilitics to Be Accepted as Insurance Risks?—Lenzmann asks permission of the reader to unfold his private convictions upon a subject which is especially important and just now highly practical for insurance companies. The author cites three points for discussion. 1. The risk of one syphilitically infected is far greater than that of a healthy subject. 2. In no department of medical science has there been made such fundamental progress, during the past few years, as in the domain of lues research. These advances have an eminently practical value for life insurance. 3. Thus far life insurance companies have not utilized these advances for the improvement of their risks. The author's conclusions regarding the improvement of syphilitic risks are as follows: A subject suffering from florid syphilis should be advised to undergo radical treatment until a negative Wassermann reaction is reached. He may then be accepted and remain for three years (in more advanced cases two years) under control.

Should an applicant confess syphilis—not of florid type—he is to be studied with the Wassermann. Should this be negative the risk may be unconditionally accepted, provided a "cure" has preceded the reaction. Such a period of treatment is variable. If infected six years ago the period of treatment should be three years at least; if four years ago, two years, etc. If the term of treatment falls short of these limitations the deficit should be made up before the subject is accepted. The author advises more supervision, not further treatment, unless new symptoms appear, or the Wassermann is positive. Treatment is then pursued until it becomes negative. In applicants for insurance who are suspected of having been infected at some time with syphilis, the Wassermann must be used, even in ignorance by the suspect of a syphilitic infection. If the reaction is positive we must postpone the case for one or two years—in accordance with the suspected date of infection—the applicant being closely controlled. Any insured who withdraws from control is excluded from further insurance, besides being liable to certain costs.

The author confesses that his views are not accepted with open arms, and that many scruples have been raised against them. These vary much in character. Not a few claim that with the great increase in our knowledge of syphilis and its treatment the original hazard has so diminished that syphilis *per se* does not add to the ordinary risk. The author retorts that this conception takes no account of postponed affections of the nervous centers and blood-vessels; it must be borne in mind that these very structures are naturally predisposed to disease with the advance of civilization.—*Blätter für Vertrauensärzte der Lebensversicherung,* Nos. 4 and 5, 1913.

Notes on Life Assurance in Egypt.—The spread of European institutions and the establishment of local assurance offices in Egypt offering terms as favorable as those in Europe have greatly increased the popularity of life assurance in that country. Dr. Harold B. Day, M. R. C. P., divides the proposers into four main classes: (1) The Western European—British, French, or German. Since the two latter generally insure in an office of their own nationality, this class is composed almost exclusively of British residents. (2) The natives of Southern Europe, including Italians, Maltese, Greeks, and other inhabitants of Southeastern Europe. Many of these are of mixed origin and born out of the country of their nationality. (3) The Eastern races, chiefly Syrians and Armenians. (4) The native Egyptian. The first class is composed of men, born and bred in Western Europe, who have come to reside in Egypt. Many of these are Englishmen in the Egyptian Government Service, who are under middle age and have been required to pass as first-class lives before appointment. The men in private business are not so carefully selected, but their financial circumstances are usually favorable enough to permit of marriage and frequent change of climate, making them good risks. The second class, composed of foreigners of mixed nationality, make up the greater number of proposers. Such persons are readily acclimated, but are less careful of their health than the average Englishman. The members of this class are mostly hard-working business men, of sedentary habits and as their means and method of living vary considerably, each case must be judged on its own merits. Useful information is often conveyed by the general nature of their surroundings. The next class, comprising the Oriental type, such as the Syrian, may be classed as intermediate between the foregoing and the native Egyptian. Histories are hard to obtain and the services of an interpreter are often necessary. The last class is formed of the native Egyptian, and while the smallest, it is increasing in the proportion of those seeking life assurance. The difficulty of accepting these lives in the past has been considerable and most offices will not offer whole-life policies. At the outset, the proposer may be ignorant of his real age, or may be unable to offer any proof of it. This difficulty may be solved by offering insurance for a limited term. Family history, even when obtained, is often unreliable. Alcoholic intemperance is rare among all classes of Egyptians—Christians as well as Moslems. As a set-off, however, sexual excess and immoderate cigarette smoking are common, although not so prevalent as formerly. Provided then, that the medical interrogation and examination have been satisfactory, the question arises: Are the prospects of longevity the same for the native Egyptian as for the average European? It may be conceded that the innate vitality of the average man is the same whatever his race or social position may be. Since circumstances prejudicial to health make their influence felt most acutely during early life, a high rate of infant mortality is the best indicator of defective hygiene. Judged by this standard, all Eastern countries, including Egypt, fall much below the British standard. Ignorance and superstition not only levy a heavy toll on infant life, but are prejudicial to the health and longevity of adults. Illness is so often mismanaged that effective treatment is difficult. A great change is already apparent in the habits and health of the upper classes of the native population, due to the spread of European ideas. Education and sanitation are rapidly extending their influence from the pupil to the home. We may take the infant mortality in the proposer's family as a useful index of individual health. A proposer in good health, whose children are successfully reared, may be accepted for a whole life on European terms. On the other hand, a man of Eastern race, whose life does not conform to the European standard of hygiene is best offered a fixed term.—Life Assurance Medical Officers Association, May, 1913.

Book Reviews.

The Practitioner's Visiting List for 1914. Price $1.25. Philadelphia and New York: Lea & Febiger.

The new edition of this visiting list maintains the high standard which it has achieved as a handsomely bound book for the recording of professional calls and other data. In addition to the ruled blank pages there is a section of text containing a scheme of dentition, tables of weights and measures, and comparative scales; instructions for examining the urine, table of doses, incompatibles, poisons and antidotes, etc.

Ueber Cystitis. Von Privatdozent Dr. R. Hottinger. Zurich. Price, 1 mark. Halle a. S.: Carl Marhold, 1913.

This is a concise and complete review of cystitis. Cystoscopic appearances of the various types of the disease form the bulk of the monograph. Orthodox treatment is advised.

Etudes sur le Séro-Diagnostic et le Traitement de la Syphilis. Strategie et Tactique. Par le Dr. Leredde. Paris: A. Maloine, 1913.

The author studies variations of Wassermann's reaction in syphilis, the different methods of diagnosis based on use of fresh serum, the effects of salvarsan and neosalvarsan, and their efficiency in the cure of tabes. He cites fifty-four cases of syphilis observed personally and concludes that grave cases are not those of syphilis with evident stigmata, but the veiled cases; that treatment must be adapted to individual needs and should be stopped only when any serum reaction shall have disappeared permanently. The author insists on the necessity of verifying practical cures by examination of the blood serum as in examination of the urine to determine the cure of albuminuria or diabetes.

Geschichte der Ohrenheilkunde, 2ter Band, 1850-1911. By Prof. Adam Politzer, Emeritus Professor of Otology University of Vienna; Emeritus Royal Privy Counsellor of the University Otological Clinic in Vienna. Price 24 marks. Stuttgart: Ferdinand Ente. 1913.

The second and last volume of the History of Otology by Politzer follows the first by about one a half years. It embraces a most scientific and comprehensive lapse of time beginning in 1851 with a description of the anatomy and physiology of the labyrinth under the initial hand of Marchese Corti. Corti devoted himself with persevering enthusiasm in Hyrtle's School of Anatomy in the Vienna University, chiefly to the labyrinth and vestibule of the internal ear, and was the first to give fundamental knowledge as to the course and anatomical endings of the thousands of filaments of the acoustic nerve. The so-called "organ of Corti" refers distinctly to the inner and outer rods, lamina, spiralis membranacea, the membrana basilaris, tectoria, etc. There were over 10,000 filamentary nerve-endings traced in Waldeyer's work in Stricker's laboratory later. Corti's four works were published in 1851 under the chapter "Recherches sur l'organe de l'ouie des mammifères." He was followed within ten years by such successful workers as Voltolini, Schultze, Reissner, Böttcher, Deiters, Kölliker, Henson, Rüdinger, Pritchard, and so many others as to give the probable source of the present day basis of anatomy. Politzer and Rüdinger gave artistic interest and incentive by their well-known lithographs, and plastic moulds to the anatomy of the middle and inner ears. This reference to the work of 1850 to 1870 is made in lengthy detail because our knowledge of the functional anatomy of the labyrinth, vestibule, and semicircular canals is one of the unremitting and devoted labors of these workers. Chapters most condensed and instructive follow in rapid succession on the description of the eighth nerve, physiology of the vestibule, cochlea, and semicircular canals. The basic sources of to-day's surgical work on the labyrinth and vestibule date from the laboratory work of these men. Helmholtz, in 1856, and later König developed the scientific value of musical tones and gave an astounding impetus to experimentation in this line of research. In so limited a presentment of this great review of otology by the celebrated Politzer, now in his seventy-fourth year, one can only mention the chief surgical diseases and measures, which were brought out in and since 1860: catheterism of the Eustachian tube, auditory tests, intracranial otitic complications, sinus phlebitis, cochlear and labyrinthine diseases of a degenerative type, neuroses, etc. The last 260 pages are devoted to the development of otology in individual countries from 1850 to 1911. The first nation is England, where, as is well known, Joseph Toynbee, William Wilde, and James Hinton were the pioneers. North America—or the United States—has 35 pages at the hands of Blake of Boston. The first clinic was the New York Eye and Ear Infirmary, founded by Dr. Edward Delafield in 1820. In Philadelphia the Institution for Diseases of the Eye and Ear followed in 1822; in Boston the Massachusetts Charitable Eye and Ear Infirmary, etc., etc. A list of otological journals and of college chairs of otology, with their incumbents, and an all too brief personal sketch of workers in otology in the United States follows. The earliest otologists were Roosa, Agnew, Knapp, Noyes, Pomeroy, Sexton, and Buck, to be followed by a long list of men of the present in New York, Brooklyn, Boston, etc.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc. Edited by Henry W. Cattell, A.M., M.D. Volume III. Twenty-third Series, 1913. Price, $2.00. Philadelphia and London: J. B. Lippincott Company.

This volume of the well-known quarterly contains twenty-one articles on diagnosis, treatment, medicine, surgery, legal medicine, and electrotherapeutics. The best of these articles is probably that of Craig on the prophylaxis and treatment of malarial infections. It is marked by thoroughness and restraint and is an excellent one in many ways. Ashford's paper on uncinariasis and Bainbridge's on electrotherapeutics in the treatment of cancer are also to be recommended. This volume measures well up to the standard set by the series.

A Practical Treatise on the Causes, Symptoms, and Treatment of Sexual Impotence and other Disorders in Men and Women. By William J. Robinson, M.D., Chief of the Department of Genitourinary Diseases and Dermatology, Bronx Hospital and Dispensary; Editor *The American Journal of Urology, Venereal and Sexual Diseases;* Editor and Founder of *The Critic and Guide;* Author of "Sexual Problems of Today"; "Never Told Tales"; "Practical Eugenics," etc. President of the American Society of Medical Sociology; President of the Northern Medical Society; Ex-President of the Berlin Anglo-American Medical Society; Fellow of the New York Acadamy of Medicine; Member of American Medical Editors' Association, American Medical Association, New York State Medical Society, Medical Society of the County of New York, American Urological Association, Harlem Medical Association, Society for Moral and Sanitary Prophylaxis, etc., etc. Price $3. New York: Critic and Guide Co., 1913.

Sexual impotence is one of the most important maladies which confront physicians in general, and urologists in particular. The paucity of writings on this topic leads one to zealously investigate such as are presented. In this book Dr. Robinson has produced a unique mixture of good, bad, and indifferent. It is divided into nine sections with the following headings, which fairly well indicate their contents: Masturbation, Pollutions and Spermatorrhea, Sexual Impotence in the Male, Sexual Neurasthenia, Sterility, Sexual Disorders in Women, Priapism, Miscellaneous topics, and Prescriptions. The first of these sections is especially full and detailed. Herein, the author expresses the opinion that locomotor ataxia may occasionally be caused by excessive masturbation. The treatment in general is that advocated by other writers. However, it may be assumed that the two or three patients who underwent the "little rather brutal procedure" of applying "rapidly a red hot wire to the child's genitals" seemed to possess vigorous and pugnacious fathers. In the third section appears the following statement: "I am fairly convinced that continual sexual abstinence from any sexual gratification may result in partial or complete, temporary or permanent impotence." Without prejudice to this statement, it must be remembered that it is diametrically opposed to the holdings of some of the greatest authorities in our profession; authorities that are accepted without question. Overmuch space is given to case reports. If an equal amount of time and labor had been given to the pathology of the lesions and detailed descriptions of technique, the work would have greater scientific value. The therapeusis is in general good, the chapter on prescriptions containing many good formulæ and combinations. It is questionable, however, whether or not these ready-made prescriptions will ever aid any physician to think for himself. In the section on miscellaneous topics the author gives full sway to his philosophy, propounds many vital questions, and provides pabulum for every student of sexology. The literary style occasionally approaches the academic, but as a rule the prefatory promise is kept, to use language that is personal, clear, straightforward, conversational.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, Held at New Orleans, La. October 23, 24, and 25, 1913.

THE PRESIDENT, DR. ALBERT E. STERNE, INDIANAPOLIS, INDIANA, IN THE CHAIR.

(*Concluded from page* 1009.)

Some New Points in Round-Ligament Surgery.—Dr. CHANNING W. BARRETT of Chicago showed slides demonstrating points in different round ligament operations and the importance of several points connected therewith. First, that the infrequency of adhesions of the sigmoid, cecum, appendix, omentum, bladder or small bowel, as well as other intraabdominal complications, were of such frequency as to render any round ligament shortening not only incomplete but oftentimes hazardous. Slides also demonstrated that the retroperitoneal grasping of the round ligament produced an immediate potential hernia, which was avoided by puncturing the peritoneum at the internal ring, a method of combined shortening from the abdominal incision on one side and through a hernial incision on the other for cases with inguinal hernia. Through this inguinal hernial incision the author had corrected a femoral hernia at its proper end. A method of reaching the round ligaments at the internal ring by means of a skin puncture, after intraabdominal conditions had been corrected and the ligaments secured through a medium incision was also shown; likewise a method of reaching them through a transverse skin incision, the ends of which brought one near the internal ring. The distinctive features of all these procedures corresponded to the method proposed ten years ago and was still used in the vast majority of cases, namely, that they picked up the round ligament in the abdomen where it was easy to find and had it running normally to the internal ring with normal relations in the abdomen. This operation, as far as known, had given no mortality, no interference with pregnancy, no failure to hold the uterus in position after pregnancy, and less than one-tenth of one per cent. known of returns at any time. Such results warranted the further use of this operation.

Consideration of Results in the Treatment of Hip Disease.—Dr. JOHN RIDLON of Chicago said the mechanical treatment of hip disease aimed to do for longer or shorter periods in most cases three things, namely, to immobilize the joint, to remove the weight of the patient from the joint in standing and walking, and to exert traction on the limb. A hip might be immobilized by a plaster of Paris spica as efficiently and as comfortable as in any way. The patient's weight could be removed from the joint by putting him in bed; this more efficiently than any other way. Traction could be exerted by the use of weight and pulley, either with adhesive plasters applied to the limb after the manner of Buck or of Taylor. The author showed pictures of braces and numerous lantern slides of hip disease cases showing the condition before treatment and the results after treatment. The cases reported illustrated a fact which all observing orthopedic surgeons knew, namely, that some cases would attain very good results without any treatment whatsoever; some attain very bad results under the most prolonged and best of treatments; but the orthopedic surgeon also knew that by treatment he lessened pain, shortened the duration of the disease, prevented a great deal of the deformity that would otherwise occur, and saved life.

Classification of the Gastrointestinal Diseases of Infancy.—Dr. ISAAC A. ABT of Chicago said the digestive disturbances through constitutional anomalies depended on some inherited defect in the structure of tissues and organs. Thus the far-famed exudative diathesis did not depend upon the feeding but upon a congenital vice. In such infants eczema, lymphatic enlargements, bronchitis and bronchial asthma, and eosinophilia manifested themselves to a greater or less extent despite the quantity or quality of food. As to the classification of Finkelstein, he divided the subject as follows: (1) Weight disturbances characterized by a diminished tolerance for milk, especially milk fat. The infant did not thrive. The weight was stationary as a rule. The bowel movements were hard, dry and formed. (2) Dyspepsia was a more severe disease manifestation than the foregoing. It was characterized by a diminished tolerance not only for fat, but also for carbohydrates. Such children did not gain in weight even if the diet was increased, constituting the so-called paradox action. (3) Decomposition; a condition characterized by marked loss in weight, low temperature, and slow pulse. The loss in weight continued even when considerable food was administered. The child was easily infected, or infection took place readily. A marked intolerance for fat and carbohydrates was present. These infants were subject to secondary infectious processes, as furuncles, abscesses, etc. (4) The next clinical group was alimentary intoxication, characterized by fever, disturbances of consciousness, albuminuria, rapid superficial breathing, great intolerance for food, particularly for sugar and other whey constituents. In considering the disturbances produced by breast milk, Finkelstein referred to underfeeding as well as the dyspepsia produced by overfeeding. Disturbances of nutrition on account of congenital perversions of the constitution received attention For instance, he discussed the neuropathic constitution, the exudative diathesis and errors in development as factors influencing digestion and nutrition. He also considered the effect in quantitative changes in food which referred to overfeeding and underfeeding. Passing to the next qualitative changes, he paid particular attention to the injuries produced by starch. Infants suffered infection because food tolerance had been lowered by the disturbances of nutrition, the lowered resistance which resulted in consequence making infection possible. Parenteral infections were more frequent than genuine gastrointestinal infection. Knowledge of the gastroenteritis of infants, so far as bacteriological facts were concerned, was only slightly developed, and consequently present views were subject to considerable changes in the future. In order to interpret cases at the bedside, teach and describe this disease group, a working hypothesis based upon some classified arrangement was an absolute necessity. Uniformity was much to be desired, and this much-desired end could only be reached when unanimity was born of knowledge.

The Feeding of the Sick Infant.—Dr. FRANK C. NEFF of Kansas City, Missouri, stated that one should regard constipation as an evidence usually of an intestinal indigestion. The constipated new-born baby fed entirely on the breast was with difficulty relieved through the diet. Correction of the mother's diet, digestion, and mode of living might be tried, but often met with little effect upon the child. He had never attempted to administer fruit juices to infants less than three months old, but older infants would often tolerate from teaspoonful to tablespoonful quantities of orange, grape, pineapple, or prune juice with good results. Supplemental feedings of cow's milk with the addition of a malted gruel, such as the so-called malt soup, showed a beneficial effect upon the gray, dry, soapy stools. The effect of malt sugar was laxative, and of more benefit than any of the laxative drugs. Following a disturbance in balance which was not corrected there was a decided intestinal disturbance with numerous watery, mucous stools, vomiting, and an elevated temperature. Fats, sugars, and flours must here be reduced, and in severe cases also the whey contents of the food. Breast milk was preferable to any artificial feeding. Next comes Finkelstein's albumin milk. Finally, skim or buttermilk in case the other foods were not obtainable. These should be given in small quantities at first. The feeding of infants suffering from systemic poisoning resulting from improperly digested and assimilated food and also from infections must provide for elimination through the kidneys and stool. The feeding of infants with pylorospasm had as yet shown little advance. Lapage advised regulating the feeding, using easily digested food that left no residue and had the greatest chance of passing the pylorus. It was advisable to give small amounts, even as little as a teaspoonful, frequently, until the child improved and the vomiting ceased. Sometimes a change of food alone would lead to temporary improvement. Feeding through a tube without much dilution of the food was advisable, after washing the stomach. Nutritive enemata were of doubtful value.

Pyloric Stenosis in Infancy: An Analysis of Twenty Cases Personally Operated Upon.—Dr. H. M. RICHTER of Chicago reported twenty cases. Of these eighteen were of the type described as hypertrophic pyloric stenosis; two were of the type known as spasmodic. In all of the eighteen a definite, firm olive-shaped tumor was demonstrated at operation; in seventeen of the eighteen it was palpated and recognized through the abdominal wall before the operation. In one case in which it was not palpable before operation, the clinical findings were so clear that the diagnosis was made without reserve. The tumor consisted of a firm olive-shaped body, roughly one-half to three-quarters of an inch in length. It was covered by smooth, glistening peritoneum that had the ap-

pearance of being stretched over the mass. There was no external evidence of inflammatory reaction; no attempt at fixation. The mass was as freely movable as a mass at the pylorus so commonly was when found in the adult, and this mobility was recognized clinically and was probably the cause of the frequency with which clinicians had failed to demonstrate it. The tumor had the firmness of cartilage; it was not soft or pliable in any case; there was no case in which its consistency made the finding questionable; no case in which a graduation could be made out between the tumor mass and the adjacent stomach and duodenum; it was sharply defined. In two cases in which a pyloroplasty was done, and in one case that came to autopsy, a section of the pylorus showed the mucosa to be relatively redundant, so that it bulged out of the incision when relieved of the compression by the tumor. The histological picture had been perfectly worked out by others; in one case of his series that came to autopsy the finding agrees with the universal report, viz.: a simple hyperplasia of the circular muscle fibers, with no change in any structure of the pylorus. The stomach, when it had not been emptied before opening the abdomen by the passage of a tube, was always found distended to a marked degree of tension; the duodenum was always empty and collapsed. It was perfectly evident that the tumor formed a complete obstruction of the canal. In the earlier cases where the operation was continued without emptying the stomach with a tube, the various manipulations never forced the air in the stomach through the tumor into the bowel. The bowel remained collapsed and ribbonlike up to the moment of removing the clamps, when it would balloon out, and the advancing column of air could easily be followed as far as the jejunum was exposed. No hydrostatic test could more clearly prove the existence of a complete block, though the degree of tension was not determined. In none of the eighteen cases was there any accompanying congenital malformation, though in one a particularly short mesocolon made it impossible to do a retrocolic gastrojejunostomy. Other obsersvers had reported accompanying congenital malformations. In presenting this series of twenty cases, which was the largest heretofore published in America, he wished to bring out the facts, first, that the mortality had been reduced below that claimed by any method of nonsurgical treatment, and second, and of equal importance, that the ultimate condition of the patient was that of a normal individual.

Some Points in the Treatment of Acute Ileocolitis.—Dr. J. Ross Snyder of Birmingham, Alabama, in discussing the treatment of acute colitis in the child insisted that to be rational the treatment must be individual. There were, however, certain principles of treatment applicable to all cases. With the onset of the disease, it was imperative that the intestinal tract be cleaned out. His personal preferences for this purpose was castor oil by mouth and normal saline solution for irrigation of the bowels. If there was troublesome or persistent vomiting, the stomach should be washed, the washing to be followed by the administration of broken doses of calomel until one-half to one grain was given, and still later followed by oil. Although the initial purgation and irrigation were essential, he protested against the practice of giving a daily dose of oil and of continuing frequent irrigations. This practice was not only useless, but it was absolutely contraindicated in that it destroyed all possibility of rest to the inflamed and ulcerated bowel. If toxemia of grave nature accompanied the onset, a hypodermocylsis of salt solution should be given without delay. Given early in the attack, salt solution was often an excellent and sometimes necessary measure, but he was convinced that after the heart had been weakened by the ravages of this disease, the subcutaneous injections of salt solution was not only futile but that it was capable of producing disastrous results by overcrowding the heart. By stopping all food, by clearing out the intestinal tract and, if necessary, by the use of salt solution subcutaneously, the toxema in the majority of colitis cases promptly subsided and the disease became a purely local one, demanding for restoration to normal nothing so much as rest. If peristalsis continued, irritable and excited, the author used opium more and more freely. This drug has been subjected to so much abuse, so much had been written about its dangers when used in the particular condition under discussion that for a number of years he fought shy of it. To-day, without its use in acute colitis, the disease was often unnnecessarily prolonged and its dangers were frequently augmented. There was no truth in the statement that children suffering from colitis did not bear opiates well. They bore them a great deal better than they did the wear and tear and the strain accompanying the irritable peristalsis. Once the intestinal tract had been relieved of toxic decomposing and irritating food residue, opiates should be called into quick service and they should be given in amount sufficient for the purpose intended. Rest was not only to be assured by withholding further purgation, by withholding food, and by the use of opiates, but the environments of the child should be made peaceful and quiet. Many of these children were of such age as to be susceptible to the depressing influence of anxious faces, tears, and morbid and thoughtless remarks, which were too often seen and heard over the sick bed. The child with colitis should be kept in bed in the recumbent position.

The Treatment of Goiter.—Dr. John H. Johnson of Coffeyville, Kansas, said the treatment of goiter should depend on each individual case. Operative measure should never be looked upon as routine, but whatever method of treatment was used the patient should be kept under constant observation to note the benefit derived from that treatment. Complete rest, physical, mental and emotional, was essential in all methods of treatment for periods of weeks, if possible. A sanitarium environment, where the patient was away from the home surroundings, giving a change of scene at an altitude of 2,000 to 4,000 feet, was by far the most effectual measure in the majority of cases. The seashore was never good in these cases. Kocher says that, "an altitude from 3,000 to 5,000 feet, with a mild hydrotherapy in the form of cold sponging and baths, regulations of the diet to reduce the proportion of albumin or fats, and a rest cure, interrupted by a regular systematic increase of muscular exercises against resistance, with phosphorus, arsenic or iron internally, makes the best internal treatment." The removal of constipation should be seen to. This treatment alone had immediatcly and markedly aided in diminishing goiter. Two bases were reported by Dr. Cantieri, of Milano, Italy, which had been successfully treated with the thyroidectomized milk of goats. The recovery had been continuous, and permanent in one since 1908. In the second case he combined the thyroidectomized milk with electric treatments applied locally to the gland which resulted in a cure.

Essentials of Modern Artificial Feeding of Infants.—Dr. Robert A. Strong of New Orleans said the commonly used sugars in infant feeding were lactose or milk sugar, maltose or malt sugar, and saccharose or cane sugar. Malt sugar, on account of being very expensive, was used in combination with dextrin. Maltose was more rapidly converted and absorbed, hence was less liable to cause fermentation. Maltose was the most desirable, yet the literature showed that the opinion was not unanimous on the use of any particular sugar. In Germany malt sugar preparations were used almost exclusively in milk modification. The present status of starches was about the same as it had been for the past five years. The addition of cereals was still desirable, but not before the fourth or fifth month. The routine use of lime water continued with many, while others contended that its use was unnecessary in normal infants. He had adhered to the routine practice of using it with the belief that the excess of alkali might meet the demand of the infant organism in an impending and obscure acidosis, and besides, its use had never been demonstrated to be harmful. He had used albumin milk in cases of decomposition in his services at the Charity Hospital, and the results had been sufficient to warrant his belief in its efficiency as a temporary measure. As to the methods of feeding, he had been using whole milk mixtures almost exclusively for the past four years, and had been teaching it for the past three years, and he was firmly convinced that it was the logical procedure in the average case.

The Relation of Sinus Diseases to General Systemic Infections.—Dr. Richard J. Tivnen of Chicago said that both clinical experience and analogous infections had clearly demonstrated that infection could be, and was, transmitted from the accessory sinuses to neighboring and distant structures. The frequency of sinus infection, as reported by different observers, varied from 22 to 43 per cent. Sinus infections were not uncommon in association with influenza, croupous pneumonia, diphtheria, erysipelas, scarlet fever, measles, small-pox, tuberculosis, typhoid fever, and cerebro-spinal meningitis. A number of these cases had often associated with them many other infections, such as joint infections, etc. Possibly, the susceptibility of the sinuses to these diseases and these later joint complications might have a closer relationship than was usually assumed. Instances of infections of neighboring organs, as the eye, orbit, and brain, due primarily to sinus infections, were numerous. After referring to the association of erysipilis with sinus infection he concluded that the primary infection of this disease was, in many instances, to be found in the accessory sinuses. Reference

was also made to gastric disturbances common to accessory sinus infections, such as nausea, vomiting, and loss of appetite, these disturbances being probably inaugurated by the constant swallowing of the purulent secretion with reabsorption of ptomaines. Referring to the joint infections as secondary in connection with a primary sinus infection, such an association was exceedingly probable. While the sinuses had not been so specifically associated with joint infections as had other structures of the upper respiratory tract, in his opinion a systematic and consistent investigation of sinus involvements would not infrequently establish a casual relationship between diseases of these cavities and joint infections. His conclusions were that the nasal accessory sinuses did not occupy the position of prominence as factors in systemic infections to which they were entitled; and while he disclaimed any desire to assign to these cavities unmerited prominence as etiological factors, he nevertheless emphasized his belief that in all obscure general systemic infections a thorough investigation of the nasal accessory sinuses and their appendages should be carried out as a routine measure.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. D'Orsay Hecht, Chicago; *First Vice-President*, Dr. W. W. Butterworth, New Orleans; *Second Vice-President*, Dr. Willard J. Stone, Toledo, Ohio; *Secretary*, Dr. Henry Enos Tuley, Louisville, Kentucky (reelected); *Treasurer*, Dr. Samuel C. Stanton, Chicago, Illinois (reelected).

Cincinnati, Ohio, was selected as the place for holding the next meeting.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held November 7, 1913.

Dr. L. W. Hotchkiss in the Chair.

Diverticulitis of the Sigmoid.—Dr. Anthony Hart Harrigan presented a patient, 65 years of age. The family and previous histories were negative. She had had four full term pregnancies. The menopause occurred 25 years ago. She had had an umbilical hernia for eighteen years. She was always constipated. The day before admission to the hospital she returned from Europe. She had been very seasick during the entire journey. She had no pain. At 4 o'clock in the afternoon of August 8, 1913, the day of her arrival, she had severe pains in the lower abdomen; they were severe, persistent, and did not radiate from the suprapubic region. She had no chills, fever, sweats, or headache. She was admitted to the Fordham Hospital August 9, 1913. Examination showed a markedly distended abdomen; also a small reducible hernia at the umbilicus. There was no redness, swelling, or tenderness of this hernia. There was rigidity of both recti muscles, more marked in the lower quadrants. There was tenderness in the lower right quadrant but no mass was felt. The rectal and vaginal examinations were negative. The temperature was 103° F., pulse 98. The leucocytes numbered 17,000 and there were 85 per cent. polymorphonuclears. It was thought that the patient was suffering from a spreading peritonitis due either to an affection of the appendix or gall bladder. On opening the abdomen the small intestine covered with plastic lymph presented. The condition of the appendix was found to be negative, as was the condition of the gall bladder. The hand in the peritoneal cavity felt a hernia consisting solely of omentum. In the pelvis a mass was felt lying above the right broad ligament. It was about the size of a baseball, round, movable, and the surface was nodular. This mass was easily delivered and consisted of a loop of intestine; it was identified as the large intestine by the presence of a longitudinal band. The convex surface presented at least 25 small elevations ranging from 1/3 to ½ inch in diameter and from 1/3 to ¼ inch in height. The surfaces of these elevations were covered with the normal peritoneal coat of the intestine. At one point a small elevation showed a minute opening through which intestinal contents could be easily expressed. The appendices epiploicæ were swollen, inflamed, and the mesentery was markedly inflamed. The body was identified as the sigmoid by a study of its position and relations. The perforation was closed with interrupted sutures of linen. The loop was returned to the pelvis and a long cigarette drain inserted. There was a slow convalescence with considerable suppuration. The patient was discharged on October 12, 1913, with complete closure of the wound.

Resection of the Cecum, Ascending Colon, and the Terminal Portion of the Ileum, Pericolic Membrane.—Dr. Anthony Hart Harrigan presented a woman, 31 years old, who was admitted to the hospital August 7, 1913. Her family and previous histories were negative. Her present illness began at 2 A.M. with severe cutting pain in the right side of the abdomen. At 7 A.M. the pain shifted to the left side. Vomiting began at 3 A.M. and persisted. A physician was called in and he gave her an enema which was unsuccessful. After the administration of morphine she was brought to the hospital in an ambulance. No history could be obtained from her because she was under the influence of morphine. A mass was seen and felt in the right iliac region; this was dull on percussion. There was rigidity of both recti muscles. The temperature was 99.4° F. and the pulse 80. An exploratory operation was performed at 10 A.M. under ether narcosis. On opening the abdomen a cystic mass was found occupying the right iliac region and upper part of the pelvis. The first impression was that they had to deal with an ovarian cyst with a twisted pedicle. Further investigation, however, when the mass was delivered, showed that it consisted of the cecum, ascending colon, and terminal ileum intimately bound together and rotated in its longitudinal axis. In other words a partial volvulus. On closer examination it was found that the ascending colon was covered or enclosed by a membrane which passed downward over the cecum, covering or enclosing the appendix. This membrane also passed downward and inward over the terminal ileum. The latter was acutely angulated into four or five kinks. An attempt was made to straighten out the ileum by dissecting the binding adhesions. This was soon given up because of fear of wounding the intestine. It was then decided to short circuit in order to relieve the intestinal obstruction. The ileum immediately above the site of kinking was divided. The peripheral end was closed with four layers of sutures, one of catgut and three of linen. A lateral anastomosis was made at the beginning of the transverse colon with the aid of clamps. The ileum was easily brought to the colon with no tension or dragging. The anastomosis was antiperistaltic. The distended end of the divided ileum was closed and sutured to the peritoneum. The incision was closed in layer fashion up to the point of the attachment of the distal end of the ileum. A smooth convalescence followed. The bowels moved spontaneously. The sutures were removed on the eighth day. A second operation was performed on August 21. The distal end of the ileum was liberated from the parietal peritoneum. Separation of recent adhesions was done and the patient was discharged on September 22 and referred to a convalescent hospital. An exact pathological diagnosis was not made at the primary operation. Three conditions were suspected in this case, tuberculosis of the cecum, pericolic membrane and Mechel's diverticulum disturbance. The specimen presented showed no evidence of tuberculosis, carcinoma, or Mechel's diverticulum. The diagnosis of pericolic membrane was made from the study of the gross specimen. The question arose whether in addition to the pericolic membrane they had to deal with an intensified type of Lane's kink.

Dr. Edwin Beer said that in the literature of the last ten years there had been no new developments along the line of diagnosis of diverticulitis. Recently at the Mayos' clinic in Rochester it was shown that they had been able to see something with the aid of bismuth. Dr. Beer thought that the case presented was a good one to try out with the x-ray and made the suggestion that this be tried.

Dr. Harrigan said that he would suggest this to Dr. Stewart and report upon this at a later meeting.

Adenocarcinoma of the Ileum.—Dr. Edward W. Peterson presented a patient, 51 years of age, who was admitted to the hospital July 24, 1913, with symptoms of intestinal obstruction. Her family history was negative. Her personal history was that a small tumor had been removed from the parotid region about five years ago. She had always been more or less delicate. She possibly had malaria eighteen years ago and had been very anemic during the past five years. During the past six weeks she had lost fifteen pounds in weight. During the past two years she had suffered with a feeling of distress and fulness in the gastric region. This seemed to have no relation to meals, posture, or to any special time. She had belching of gas; this became very frequent, but there was no vomiting and no constipation. During the past six weeks she complained of severe pain which came on suddenly and then would be absent for several days. The patient was very thin and emaciated. The abdomen was distended and there was a visible peristalsis. Operation was advised and a resection of the intestine performed as well as an appendectomy. A lateral anastomosis was done with the result that the patient now was in good condition, had a good appetite, her bowels were acting well. The specimen removed was an adenocarcinoma of the ileum.

Splenectomy for Stab Wound of the Spleen.—Dr. Joseph Pierre Huguet presented this patient and specimen. The accident happened September 29, 1913. The injury was one and a half inches above the last rib on the left side and he was in considerable shock. The pulse was 120. The hole was large enough to admit a finger and blood clots came from it. On opening the abdomen the peritoneal cavity was found to be filled with blood clots. He finally was able to deliver the spleen which he found to be fairly adherent and came up with difficulty. Dr. Huguet showed the specimen removed. The opening in the spleen caused by the stab he tried to sew, but the sutures came out and the only resource left was to do a splenectomy, which was done. The patient after the operation never had a temperature over 100.5° F. or a pulse over 100. Dr. George Ben Johnson had collected 178 cases of splenectomies and 150 of them were traumatic. Of the 150, seven were stab wounds and six gunshot wounds. In the case of the patient just reported the blood count showed 4,100,000, hemoglobin 85 per cent., and the white cells numbered 14,000.

Some Points on Technique of Skin Grafting with Use of Aluminum Leaf.—Dr. F. M. Foote said that hitherto skin grafting had been an uncertain procedure. He used the aluminum leaf which was stiffer than the silver leaf. When it was sterilized it did not go to pieces. The top of the granulations were merely shaved and the grafts applied and they took in 100 per cent. of the cases. He presented two patients which showed perfect results.

Dr. Walter M. Brickner could not see what particular advantage the aluminum or the silver grafts had over the rubber tissue.

Dr. Foote replied that with the use of the rubber tissue there was produced more or less moisture and this necessitated a frequent changing of the dressings. The aluminum leaf dressing was absolutely dry; many of the skin grafts did not require changing for one or two weeks; when removed the parts underneath would be found to be dry. He emphasized the fact that the grafts should never be soaked in saline solution before being applied. The entire surface was covered.

Esophagoplasty after Intrathoracic Resection of the Esophagus for Carcinoma.—Dr. Willy Meyer presented this communication which he illustrated with lantern slides. He said that if the tumor in the esophagus was to be extirpated the whole operation, including the making of the gastric fistula, should be planned with a view to reconstruction of the esophagus. A tube should be made which would enable the patient to swallow his food and pass it down into the stomach. Patients with malignant esophageal stricture complained of their inability to swallow and their principal desire was to have the ability to swallow restored to them. Dr. Meyer asked why not, then, if on thoracotomy a case was found to be inoperable, divide the esophagus proximal to the tumor and invert the distal end. Then transpose the oral stump under the skin of the neck and chest and if not long enough unite it with the opening of the Jianu tube. If it proved too short a connecting rubber tube would reestablish swallowing of liquid and semiliquid food. If this should prove unsatisfactory a skin plasty would have to be made to bridge the defect and thus complete the extra thoracic esophagoplasty.

The Pathogenesis and Treatment of Hernia of the Linea Alba.—Dr. Alexis V. Moschcowitz read this paper. He said that all herniæ that occurred in the midline of the abdomen, with the exception of those that occurred at the umbilicus, were grouped collectively under the name "hernia of the linea alba." Whey were more frequent above the umbilicus than below. Longitudinal bulgings of the linea alba were occasionally called herniæ, but they were not herniæ in the true sense of the word, because there was no defect in the transversealis fascia. Because of their greater frequency above the umbilicus, these herniæ had also been called epigastric herniæ. They varied greatly in size, but the greater majority of them were very small. After considering the surgical anatomy of the linea alba which enabled him to explain certain peculiarities of an epigastric hernia, especially a hole in the transversalis fascia through which a vessel passed to the surface, he described the following simple surgical procedure. A small vertical incision was made over the center of the so-called hernia. The skin and subcutaneous fat were divided and retracted, thereby exposing a lump of fat. Search was then made for the blood vessel and it was usually found upon the left side of the protrusion; this vessel was ligated. The fat was teased apart; the shreds of fat were ligated to obviate a secondary hemorrhage. The ligatures were placed close to the bottom of the hole in the transversalis fascia. The stumps were then pushed back into the hole, and the latter closed with one or two stitches. The sutures which closed up the hole grasped all of the component parts of the linea alba at that particular point, namely, linea alba plus transversalis fascia. Strangulation was exceptionally rare in epigastric herniæ, but that it could occur was proven by the case reported by Dr. Hotchkiss in *Annals of Surgery*, LIV, p. 78.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Alabama State Board of Medical Examiners.

July 8, 9, 10, and 11, 1913.

(*Continued from page 1012.*)

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS.

1. Give the etiology of mucous colitis.
2. Give the etiology of scurvy.
3. Give the pathology of endocarditis.
4. Give the pathology of abscess of liver.
5. Give the symptomatology of erysipelas.
6. Give the symptomatology of heat-stroke.
7. Give the diagnostic symptoms of pellagra.
8. Name one variety of pernicious malarial fever and give its diagnosis.
9. Give the diagnosis of diabetes mellitus.
10. Give the differential diagnosis between appendicitis and ovaritis.

PHYSICAL DIAGNOSIS.

1. Name points for observation in the inspection of the thorax.
2. Name points for observation in the inspection of the abdomen.
3. Give the varieties or kinds of respiratory (breath) sounds and the explanation of each (adventitious sounds not asked for, such as râles, for example).
4. Give the varieties or kinds of voice sounds and the explanation of each.
5. Give the physical signs of bronchial asthma and their explanation.
6. Give the differential physical signs between a thoroughly compensating cardiac hypertrophy caused by mitral stenosis and one caused by aortic insufficiency, and the reasons for same.
7. Give the physical signs of pericarditis with considerable effusion and their explanation.
8. Give the physical signs of arteriosclerosis.
9. Give the method for the physical examination of the spleen.
10. Give the physical signs of a bladder distended with fluid.

(Optional, to be answered or not, as the applicant prefers): Make a diagnosis in the following hypothetical case: Right side—Absent movement; bulging intercostal spaces; absent fremitus lower three-fourths, increased upper fourth; flatness lower one-third; tympany middle and part of upper third, dullness remaining upper third; absent respiratory and vocal sound lower third; amphoric breathing and egophony middle and part of upper third; bronchial breathing and bronchophony remaining upper third; succussion positive. Left side—Exaggerated movement and respiratory sound and apex of heart to left of mammary line.

OBSTETRICS.

1. What changes take place in the circulatory apparatus of the fetus after birth?
2. What conditions may be mistaken for pregnancy?
3. How would you diagnose the death of the fetus *in utero?*
4. What are the results of retroflexion of the gravid uterus with incarceration?
5. What are the premonitory symptoms of eclampsia?
6. What precaution should be taken in the management of face presentations?
7. What precautions should be taken against septic infection during labor and in the puerperal state?
8. Describe the internal method of performing podalic version and what are the dangers to the fetus?
9. (a) Give the diagnostic points of value in breech presentation prior to rupture of the membranes. (b) Name and describe positions of breech presentation.
10. Describe briefly the operation of cesarean section.

GYNECOLOGY.

1. Give the etiology of metrorrhagia.
2. Give the effects of öophorectomy.
3. Give the names of the two most important muscles of female perineum.
4. What is meant by fibrosis of the uterus?
5. Describe the endometrium.
6. Name the conditions that cause sterility in the female.
7. What pathological conditions are caused by posterior displacement of the uterus?
8. Classify tumors of the uterus.
9. Describe one operation for procidentia uteri.
10. Give the contraindications for curettage.

ANSWERS.

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS.

1. *Etiology of mucous colitis:* Dysentery, diseases of the liver or heart, tuberculosis, nephritis, exhausting diseases, and indigestion.

2. *Etiology of scurvy:* Improper diet, the absence of fresh vegetables with the salts normally contained in them.

3. *"Acute simple endocarditis* may be prenatal as well as postnatal. In the former class of cases, the right side of the heart is usually involved, while in those instances observed after birth, the disease is most often limited to the left side. While the disease may attack the entire lining membrane of the heart it is especially marked at the valvular portions of the endocardium. The earliest change is that of hyperemia of the membrane rendering it red and swollen. As the inflammatory exudate is thrown out the surface of the valves become roughened and warty excrescences are formed. These verrucose formations are to be found on the auricular surface of the mitral valve and on the ventricular surface of the aortic valve at the line of contact of their leaflets, usually from 1 to 2 mm. from their free margin. These vegetations are produced by a proliferation of the cells of the adventitia and of the external connective tissue; fibrin from the blood is deposited on the formations, thus serving to increase their size. The excrescences are friable and may be easily detached or broken off and carried in the blood stream as emboli, to various parts of the body, particularly the left side of the brain, the kidneys, and the spleen. If retained in position, fibrous tissue is eventually formed; the valves become thickened and contracted, producing chronic endocarditis. The leaflets may then become the seats of various infiltrations." (Hughes' *Practice of Medicine.*)

4. *Pathology of abscess of the liver.* "The liver is enlarged, swollen, and opaque, and presents the ordinary evidences of parenchymatous degeneration or cloudy swelling. In addition, in the cases of so-called multiple pyemic abscesses it exhibits a number of variously sized abscesses —usually small, but often coalescing to form larger, sometimes many-chambered cavities, with purulent contents. The so-called single, tropical, or amebic abscess of the liver is described by Manson as consisting at first of one or more grayish, ill-defined, anemic, circular patches, half to one inch or thereabouts in diameter, in which the lobular structure of the liver cannot be made out. A drop or two of reddish, gummy pus may be expressed from the necrotic patches. Later the center of these patches liquefies, and distinct but ragged abscess cavities are formed. An abscess thus commenced extends partly by molecular breaking down; partly by more massive necrosis of portions of its wall; partly by the formation of additional foci of softening in the neighborhood and subsequent breaking down of the intervening septa. These may involve almost if not an entire lobe, usually the right. The pus is usually thick, viscid, chocolate-colored and streaked with blood, and often contains large pieces of necrotic liver tissue. *Entameba dysenteriæ* may be found in more than one-half of the cases (in some of the other cases in the wall of the abscess). The ordinary pyogenic organisms are rarely encountered. A large abscess may consist of a suppurating hydatid cyst." (Kelly's *Practice of Medicine.*)

5. *Symptoms of erysipelas:* Sudden onset; high temperature; a sharply defined red patch on the skin which spreads in all directions, the edges being raised and hard; variable constitutional disturbance.

6. *Symptoms of heat-stroke:* Dizziness, feeling of oppression, nausea, headache, vomiting, high temperature, sometimes diarrhea, relaxation of muscles, loss of consciousness and convulsions. It generally occurs during exposure to the rays of the sun.

7. *Diagnostic symptoms of pellagra:* Anemia, gastric pain, diarrhea, salivation, mental and physical depression; an erythema that is bilateral and occurs on the exposed parts of the body; muscular spasms, neuromuscular pains, vertigo, headache, paralysis, melancholia, spinal tenderness.

8. *Pernicious estivoautumnal malarial fever* is diagnosed by finding the specific protozoon in the blood of the patient. This form is caused by the *plasmodium præcox.*

9. *Diabetes mellitus* is diagnosed by the large quantity of urine, with sugar in it, great thirst, enormous appetite, muscular weakness, emaciation, and the acetone odor of the breath.

10. In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *inflammation of the right ovary* the pain is not localized, but may be bilateral, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse, just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender.

PHYSICAL DIAGNOSIS.

1. *In inspection of the thorax,* one should note: The size, shape, and symmetry of the chest; the movements during respiration; the rhythm, force, and frequency of the heartbeat; the position of the apex; any pulsations or enlargements; beading of the ribs; the color of the skin, and any eruptions.

2. *In inspection of the abdomen,* one should note: The general nutrition, size, shape, movements, pulsations, retractions; color of skin, and eruptions; the presence of white or colored lines; enlarged superficial blood-vessels; peristaltic movements; distention, or new growths; and general retraction.

3. *The respiratory sounds.* "The respiratory murmur may be modified in intensity, rhythm, and quality. The modifications of *intensity* are puerile, exaggerated, or feeble respirations. The modifications of *rhythm* are asthmatic, emphysematous, and cogged-wheel or jerky respirations. The modifications of *quality* are bronchial, cavernous, and amphoric breathing. *Bronchial breathing* occurs in lobar pneumonia, phthisis, compensatory emphysema, tumor, syphilis, and infarct. Both inspiration and expiration are harsh and have a high-pitched (tubular) character. *Cavernous breathing* is low-pitched and blowing in character and is heard over cavities. *Amphoric breathing* is similar to the sound produced by blowing gently over the mouth of an empty jar. It is present in phthisical cavities, pneumothorax with patulous opening, and localized consolidation near a large bronchus." (*Pocket Cyclopedia.*)

4. *The voice sounds. "Vocal resonance* is increased over the apex of the right lung in health and in phthisical and pneumonic consolidations. It is diminished in thick chest-walls, pleural effusions, emphysema, and pulmonary edema. *Bronchophony,* or exaggerated vocal fremitus, occurs in phthisis. *Pectoriloquy,* the complete transmission of the whispered words to the ear, is heard over phthisical cavities and in pneumothorax when the lung is patulous. *Ægophony,* in which the voice has a nasal, trembling sound, is heard at the upper border of dullness in pleural effusions." (*Pocket Cyclopedia.*)

5. *Bronchial asthma.* "Physical examination during the attack reveals a distended chest, as the lungs are overfull of air which cannot be expired. Moreover, as the thorax is thus in the inspiratory position, its movements, in spite of the violent respiratory efforts, are extremely limited, and the diaphragm is lowered and almost immobile. The respirations are normal or decreased in frequency; inspiration is short and quick; the expiration is prolonged and wheezy because of the difficulty in expelling the previously inspired air through the narrowed tubes—an expiratory dyspnea. Percussion is normal or hyperresonant. On auscultation a multitude of sonorous and sibilant râles are heard, during both inspiration and expiration. Toward the close of the attack, and during its course if bronchitis coexists, moist râles of various sizes are perceived." (Butler's *Diagnostics of Internal Medicine.*)

6. In *initial stenosis* there will be observed a presystolic thrill; the hypertrophy will be right sided; the left side of the heart will be of normal size; the second pulmonic sound may be accentuated.

In *aortic insufficiency* the murmur is diastolic; the left ventricle is hypertrophied; the arteries will be found throbbing; and the characteristic Corrigan pulse is present.

7. *Pericarditis with effusion.* "The physical signs are: Marked increase of the cardiac dullness; displacement of the apex beat; muffling of the heart sounds; displacement of other organs (if effusion be great). The shape of

the dullness is characteristic. It is conical, the apex of the cone being truncated and situated at the level of the second rib, owing to the close attachment of the pericardium to the great vessels at this point. The apex beat is generally pushed upward and to the left. It lies, when it is palpable at all, distinctly within the left border of cardiac dullness, not, as in enlargement due to valvular disease, in close relationship to it. The marked distention of the pericardial sac surrounds the heart with fluid, and causes a dullness extending much beyond the limits of the organ itself. The amount of bulging and displacement of organs will, of course, vary with the amount of fluid present. As resolution takes place the friction returns, and may be very coarse in character. Muffling of the heart sounds is not always present, and is not entirely due to the presence of fluid, for the fetal heart is quite distinctly heard through an amount of fluid greater than is usually present in pericarditis. The muffling is therefore due mainly to weakness of the cardiac muscle from accompanying myocarditis, although where the quantity of fluid is very great, in serous and chronic pericarditis, this may in part account for it." (Wheeler and Jack's *Handbook of Medicine.)*

8. *Physical signs of arteriosclerosis.* The arteries are tortuous and feel like a pipe-stem; the apex beat of the heart is powerful and may be displaced to the left; cardiac dullness is increased downward and to the left, owing to hypertrophy of the left ventricle; the first sound of the heart is apt to be loud and booming, and the second sound accentuated.

9. *Examination of spleen.* "A greatly enlarged spleen and more rarely one scarcely more than palpable may be seen to move with the respiration; furthermore, in any case of splenomegaly a marked prominence of at least the left upper quadrant is produced. Auscultation may reveal friction sounds in the presence of perisplenitis, or the organ may be anchored by adhesion, but it is ordinarily freely and directly movable with respiration, and palpation is the only method yielding important results. The position of the patient should be right lateral if minor enlargements are to be noted, as in typhoid fever or other acute infections, and the right hand should make pressure posteriorly while the left makes palpation. Abdominal distention defeats palpation save in great enlargement, and the normal spleen is not palpable. If greatly enlarged the dorsal position is to be preferred and the condition can hardly be overlooked, unless with a tense wall the careless or hurried examiner fails to get below the actual border or to distingnish between muscular resistance and the splenic mass." (Greene's *Medical Diagnosis.)*

10. In the case of a bladder distended with fluid there will be a tumor in the hypogastric region, dullness on percussion over the tumor, and the introduction of a catheter will cause the tumor to disappear.

Optional. Right-sided pleurisy with effusion.

OBSTETRICS.

1. *Changes that take place in the circulatory apparatus at birth:* The hypogastric arteries dwindle and become impervious; the Eustachian valve atrophies; the foramen ovale closes; the ductus arteriosus and ductus venosus become obliterated; the umbilical vein becomes obliterated and is afterward known as the round ligament of the liver.

2. *Conditions that may be mistaken for pregnancy:* Amenorrhea, ascites, fibroids, ovarian tumors and cysts, obesity, tympanites, subinvolution of the uterus, and pseudocyesis.

3. *Symptoms of death of fetus in utero:* Cessation of the signs of pregnancy, the abdomen and uterus are both diminished in size, the fetal heart sounds and movements are absent, there is no pulsation in the cord, the mother's breasts become flaccid and occasionally secrete milk. If the fetus has been dead for some time, crepitus of its cranial bones may be elicited.

4. *Retroflexion of the gravid uterus, with incarceration, may result in:* Constipation, irritability of the bladder, retention of urine, cystitis, pyelonephritis, rupture of bladder, sloughing of the uterus, peritonitis, exhaustion, and shock.

5. *Premonitory symptoms of eclampsia* are: Dizziness, disturbances of vision, flashes of light before the eyes, vertigo, headache, diminished secretion of urine with lessened output of urea and some albumin, and pain in the epigastric region.

6. If the chin is presenting anteriorly, expectant treatment may suffice; but care must be taken to observe that the chin does not rotate backward. Spontaneous version may occur, and the presentation becomes a vertex one. Failing this, or as a means of favoring this, postural treatment, such as Walcher's position, has been recommended. If, in spite of this, engagement has not occurred, cephalic version is indicated, care being taken not to rupture the membranes. If this is not successful, podalic version should be tried. If, after all these manipulations the child is still alive and the head is engaged, symphyseotomy is indicated; if the child is dead, craniotomy should be performed.

7. The aseptic management of normal labor aims to *prevent* infection. The prophylaxis consists in thorough disinfection of the *patient*, the *physician*, and the *instruments* and *appliances* employed. The simplest method is as follows: "The *patient*, at the beginning of labor, takes a tepid bath and is well scrubbed all over with soap and water. Then an enema of soap and water to empty the bowel; after the action of which the external genitals, thighs, buttocks, and abdomen are carefully washed with a 1:2000 bichloride solution, special attention being given to overlook no fold or fissure of the surface. The vaginal douche, of 2 per cent. creolin solution, or the weak solution of bichloride of mercury formerly used before labor, has been abandoned, unless there be some already existing infection, when it may be used. The normal vaginal mucus is itself germicidal in some degree, as well as a useful lubricant, and should therefore be allowed to remain undisturbed. Moreover, washing out the vagina exposes the woman to some danger of infection from an unclean syringe. The *physician*, before making any examination or doing any operation, removes his coat, bares the arms to above the elbows, when the hands and arms are thoroughly scrubbed with soap, water, and a stiff nail-brush. Scrape the under surface of the nail-ends and the fissures surrounding the nails with some pointed instrument, not sharp enough to scratch, and having washed off all soap in some clean water, immerse the hands and leave the arms in a 1:2000 bichloride solution, and continue this last washing for ten minutes." (King's *Obstetrics.)*

Nothing should come in contact with the genitals of the patient that is not sterile; and examinations should be as few as possible.

8. "*Internal version* is done by passing one hand into the uterus, seizing and bringing down one or both feet. The cervix must be sufficietly dilated to allow the hand to pass. It should be done as soon as possible after the membranes have ruptured. If there is only slight retraction of the uterus it may be done, by an expert operator, by deeply anesthetizing the patient, but one who has not had much experience of the operation should not attempt it. If the uterus is firmly retracted it should never be attempted. The patient may lie on her left side, or preferably on her back. The right hand may be used in all cases, but in some the left one does better. It depends on which way the child is lying. Use the hand which will most easily reach the front of the child. Thus, if its back is toward the mother's right side, use your right hand, and if the back is toward her left, the left hand; but if you are not accustomed to working with your left hand always use the right. The hands and arms should be thoroughly sterilized, and well washed in lysol solution. Pass the hand in a cone shape to dilate the cervix, if it is not sufficiently dilated already, and pass the hand on to the front of the child, rupturing the membranes, if they are unruptured. As much of the liquor amnii as possible should be retained in the uterus by damming it back with the wrist. If a contraction comes on, spread your hand flat on the front of the child and wait until the uterus relaxes. If you do not do this the pressure upon your closed hand will almost paralyze it, and may cause rupture of the uterine wall. Catch one or both feet, making sure it is a foot and not a hand. As soon as you get a foot, pull the leg down steadily into the vagina, if the uterus is quiescent, but if a contraction comes on, wait, spreading your hand out as before. The child's body usually rotates quite easily, unless the uterus is retracted round it. If version is attempted when the uterus is retracted, as in a transverse case, care must be taken to unhitch the shoulder from under Bandl's ring, if it is caught, but only an expert should undertake such a risky operation, and it should only be undertaken if there is a chance of saving the child's life. The final part of the deliverv is carried out in exactly the same way as when the breech presents." (Jardine's *Delayed and Complicated Labor.*)

The *dangers to the fetus*, are: Injury from the traction, asphyxia, and death.

9. In *breech presentation* the back of the fetus may be palpated to one side of the mother's abdomen, the head is found at the fundus of the uterus, and auscultation gives the heart sounds above the umbilicus. The breech is

either above the brim of the pelvis, or else it fills up the pelvis so that pelvic palpation is impossible.

The *positions of breech presentation*, are:—Left sacro-anterior, right sacro-anterior, right sacro-posterior, and left sacro-posterior.

10. *Cesarean Section.* "Fluid extract of ergot, ɱxx, is injected into the thigh muscles just as the anesthesia is begun. The operator assures himself that there is no loop of intestine between the uterus and abdominal wall, beneath the field of incision. Should a coil of intestine be found there, it is pushed above the fundus. An assistant holds the uterus in central position. The skin incision extends one-third above and two-thirds below the level of the umbilicus. It is best made through the right rectus muscle. The external layer of the rectus sheath is divided, the muscular bundles separated with handle of scalpel and the fingers, and the deep layer of the sheath and the peritoneum divided after lifting them with tissue forceps. Bleeding vessels are controlled by gauze sponge pressure, or held by catch-forceps before opening the peritoneum. A short longitudinal median incision is made in the uterine wall beginning at the fundus, avoiding the membranes if still unbroken. This is extended downward with fingers, scissors, or scalpel to a total length of about six inches. The hand is thrust through the membranes and the child is extracted by the head or the feet, whichever is most accessible. In case of anterior implantation of the placenta, usually the hand may best be passed directly through it. The cord is clamped at two points with catch-forceps, cut between them, and the child is passed to an assistant. The uterus slips out of the abdomen as the child is extracted, and the intestines are kept back with hot sterilized towels placed over the upper part of the incision. The coverings help also to protect the peritoneum from soiling. The uterus is wrapped in hot moist cloths. As a rule, it is better not to wholly eventrate the uterus. The placenta, if not spontaneously separated, may be peeled off by grasping it with one hand like a sponge. If the cervix is not sufficiently open for drainage, a large rubber tube or gauze strip is passed down through it and withdrawn from below. Irrigating or mopping the uterine cavity is unnecessary. Asepsis is promoted by leaving it as nearly as possible untouched. The peritoneum is sponged dry with the least possible friction or handling. The uterine wound is closed with deep No. 2 chromated catgut sutures at intervals of about 1/3 inch. They are given a wide sweep laterally through the muscular wall, falling short of the decidua. The peritoneal coat of the uterus is closed with a No. 1 continuous plain catgut suture, forming a welt over the deep suture line. The hemorrhage is inconsiderable and usually ceases with the introduction of the first sutures—a hypodermic of ergotole should be given before beginning the operation, and one of ergotole and pituitrin on the delivery of the child. Retraction of the uterus is ensured by manipulating it, if necessary, through a hot towel, or by faradism. When there has been much blood lost, a quart or two of warm sterilized 0.9 per cent. salt solution may be left in the peritoneum. The parietal peritoneum is closed with a plain running No. 0 catgut suture. Interrupted silkworm-gut sutures are then passed at intervals of about ¾ inch; through all but the peritoneum, from within outward. The fascia is brought together with interrupted No. 2 plain catgut sutures, or with a continuous suture. The silkworm-gut sutures are now tied. The abdomen is cleansed, and the wound covered with a dressing of several thicknesses of dry sterile cheesecloth; over this is placed a thick compress of sterile absorbent cotton. The dressings are secured with strips of zinc oxide adhesive plaster, and held in place by a Scultetus binder." (Polak's *Obstetrics.*)

GYNECOLOGY.

1. CAUSES OF MENORRHAGIA. *Constitutional:* Purpura, scorbutus, hemophilia, hepatic cirrhosis, over indulgence in food and alcoholic drinks. *Local and Vascular:* Uterine congestion and displacement, endometritis, subinvolution, fibroids, and other tumors.

2. *Effects of Oophorectomy:*—"The operation, if thoroughly performed, is followed generally by atrophy and consequent arrest of function in the uterus, and the precipitation of the menopause. The artificial production of this critical period gives rise to phenomena quite similar to those which characterize the natural menopause, except in most cases menstruation is arrested permanently at once. The popular impression that the operation unsexes the woman in a mental sense or renders her masculine is a mistake. The effect of the operation upon sexual desire is variable, but probably no more so than that of the natural menopause. The question of insanity as a result of the operation has been raised; it probably occurs no more frequently than after other operations of equal gravity, probably not oftener than with the natural meonopause." (Dudley's *Gynecology.*)

3. *Two important muscles of the perineum:*—The transversus perinei and the levator ani.

4. *Fibrosis of the uterus.*—"This is a morbid condition of the uterus which presents the following characters: The patients are usually multiparæ between thirty-five and forty-five years of age, but the condition is also met with in younger women, and in nulliparæ. They complain of menorrhagia which lasts from fourteen to eighteen days. At times the bleeding is so profuse as to place life in danger. The uterus is enlarged, and the cervix is hard to the touch. When the cervical canal is dilated the tissue of the cervix tears rather than stretches; the endometrium is quite smooth, but the walls of the uterus are hard and resisting, and the curette makes a harsh grating sound in passing over it, and brings very little tissue away. The structural changes are very striking; the uterus is larger than usual, and its walls are thick and tough. On section the arteries stand out prominently, exposing their thickened walls. On microscopic examination the muscle tissue of the uterus is seen to be replaced by an abnormal growth of fibrous tissue. The walls of the uterine arteries are very thick, and the lumina of the vessels much narrowed and sometimes obliterated. The glands of the endometrium are markedly atrophied, so that the mucosa presents a much thinner layer than the normal. The changes in the tissues of the uterus are analogous to the curious fibrotic changes which occur in the walls of the cardiac ventricles as a sequel of syphilis. In the uterus the changes are probably a remote consequence of septic endometritis." (Sutton and Giles' *Diseases of Women).*

5. "The *mucous membrane of the uterus* is thick, and consists of a lining of ciliated epithelium, supported on a vascular and very cellular fibrous tissue. Long tubular glands extend down into the muscular coat invading its deep layer. In the cervix the glands are shorter, but more branched, and are lined by columnar mucus-secreting cells. Near the os uteri the epithelium becomes columnar, and passes at the orifice into the stratified squamous type. During menstruation the mucous membrane becomes congested, the surface becomes partially disintegrated, and an escape of blood takes place from the surface." *(Aids to Histology).*

6. The *most common causes of sterility in woman* are: Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammations, dyspareunia, inflammations of uterus, tubes, or ovaries, elongated cervix. The cause may not be in the woman, but in the man.

7. *Posterior displacements of the uterus may cause:* Menstrual irregularities (such as amenorrhea, dysmenorrhea, or uterine hemorrhages), abortion, leucorrhea, sterility, constipation or pain on defecation, neurasthenia, hysteria, and various reflex symptoms. The ovaries and tubes may be displaced or pressed upon; the uterus may be compressed, or dilated.

8. *Tumors of the uterus may be classified as follows:*

I. *Malignant:* Carcinoma, sarcoma, deciduoma malignum, endothelioma.

II. *Benign:* Fibromyoma, adenomyoma, polypi.

9. *Operation for procidentia uteri.* "An incision two or three inches in length is made immediately above the symphysis, and the fundus uteri is drawn forward by a volsellum. Three silkworm gut stitches are inserted through the abdominal parietes and peritoneum, and also through the body of the uterus just posterior to its axis. The stitches should include about ¾ inch of the uterine wall in their grasp, and go about ⅛ inch deep. On drawing them tight, the uterus is fixed forward against the abdominal wall and contracts adhesions. In some cases it may be desirable to scarify the uterine wall before tying the stitches, so as the better to determine adhesions. As a general rule the adhesions stretch somewhat, and hence allow a certain degree of play, but without the likelihood of a return of the displacement." (Rose and Carless' *Surgery.*)

10. *The contraindications to curettage* are: The possibility of pregnancy and malignant tumors.

(To be concluded.)

Hydatid Cysts of the Liver.—D. G. Greenfield reports the case of a male, aged 10 years, in whom when he was aged 3 years his mother noticed a lump on the right side of the abdomen. In the course of two years three hydatid cysts were drained. A year ago he had slight hemoptysis.—*Proceedings of the Royal Society of Medicine.*

Therapeutic Hints.

A Rule for the Administration of Unusual Fractional Doses of a Drug.—Dr. M. S. Aaronson of New York writes that he has devised a rule whereby one may readily administer any fractional dose of a drug, starting out with one of the standard tablets of known strength. Thus if one has a tablet of morphine containing ¼ of a grain, and if it is desired to administer 1/60 of a grain of this drug, the procedure is as follows: Take 60 minims of water and in this dissolve the tablet. Eight minims of this solution contains the required dose. This rule is applicable in the administration of any fractional dose, whether or not the denominator of the fraction is a multiple of the denominator of the fraction represented in the tablet as supplied by the manufacturer.

A Diuretic Mixture in Cardiac Edema.—Fürbringer and Kohlschütter recommend the following:

℞ Infusion of digitalis, 150 grams.
Tincture of strophanthus, 3 grams.
Citrated caffeine, 2 grams.
Solution of potassium acetate (40 per cent.), 50 grams.

The dose is one tablespoonful every two hours.

Ortner combines the infusion of digitalis with a double salt of caffeine. He frequently uses theocin or its preparations in conjunction with the infusion of digitalis.

The Treatment of Pruritus Vulvæ.—Gusserow recommends the use of the following ointment:

℞ Cocaine hydrochloride, 0.15 gram,
Menthol, 1 gram,
Salol,
Olive oil, āā, 2 grams.
Lanoline, add 40 grams.

Fritsch prescribes the following mixture for internal use:

℞ Potassium bromide,
Sodium bromide,
Ammonium bromide,
Chloral hydrate, āā, 5 grams.
Morphine hydrochloride, 0.05 gram.
Atropine sulphate, 0.005 gram,
Distilled water ad 200 c.c.

M. et Sig: One to two tablespoonfuls to be taken at night.

An Emetic for Children.—The following mixture, known as "linctus emeticus," is well adapted for use in children:

℞ Tartar emetic, 0.06 gram.
Powdered ipecac root, 1.2 gram.
Distilled water, 30 grams.
Oxymel of squill (B. P.),
Simple syrup, āā 15 grams.

Of this mixture there should be given from one teaspoonful to one tablespoonful every 15 minutes until the effect is produced.

Pituitary Extract in the Treatment of Constipation.—B. A. Houssay and J. Beruti report favorable results following the hypodermic administration of pituitary extract as a means of stimulating intestinal peristalsis. The injection of 2 cubic centimeters often produces an evacuation at the end of one or two hours. If 3 cubic centimeters be used, then defecation results in from six minutes to one hour. It is pointed out that the doses that stimulate peristalsis are higher than those that excite uterine contraction.—*La Presse Médicale.*

CLINICS, DEPARTMENT OF PUBLIC CHARITIES

CALENDAR, DECEMBER, 1913

MONDAYS			
City Hospital	Ophthalmology	Dr. Strouse	2:00 P.M.
	Surgery	Dr. Dawbarn	2:00 P.M.
	Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Cumberland St. Hospital	Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
	Surgery	Dr. Walmsey	3:00 P.M.
	Surgery, Oral	Dr. Shea	4:30 P.M.
TUESDAYS			
Neurological Hospital	Neurology	Dr. Byrne	9:00 A.M.
Randall's Island Hospital	Orthopedics	Dr. Ogilvy	10:00 A.M.
	Ophthalmology	Dr. Mulcahy	2:30 P.M.
Cumberland St. Hospital	Gynecology	Dr. Burnham	1:00 P.M.
	Surgery	Dr. Iler	3:00 P.M.
Kings Co. Hospital	Genitourinary Surgery	Dr. Morton	2:00 P.M.
Coney Island Hospital	Surgery	Drs. Fiske and Bogart, Murphy and Lack	10:30 A.M.
	Medicine	Drs. Hall, Nash, Hegeman and Byington	3:30 P.M.
WEDNESDAYS			
City Hospital	Surgery	Dr. Dawbarn	2:00 P.M.
	Obstetrics	Dr. Dorman	2:30 P.M.
Neurological Hospital	Neurology	Dr. Maloney	10:00 A.M.
Cumberland St. Hospital	Ophthalmology and Otology	Dr. Schenck	4:00 P.M.
Kings Co. Hospital	Orthopedics	Dr. Truslow	10:00 A.M.
	Dermatology	Dr. Winfield	1:00 P.M.
	Gastroenterology	Dr. Lincoln	2:00 P.M.
	Orthopedics	Dr. Napier	4:00 P.M.
Coney Island Hospital	Pediatrics	Drs. Beck, McQuillan, Pendleton and Van Wart	3:00 P.M.
THURSDAYS			
City Hospital	Medicine	Dr. Evans	9:00 A.M.
	Gynecology	Dr. Child	2:00 P.M.
Metropolitan Hospital 4th	Dermatology	Dr. Dearborn	2:30 P.M.
4th; 11th; 18th;	Genitourinary Surgery	Dr. Carleton	2:30 P.M.
11th	Laryngology	Dr. Foster	2:30 P.M.
18th	Medicine	Drs. Klots and Seward	2:30 P.M.
18th	Obstetrics	Dr. Storer	2:30 P.M.
4th; 18th	Ophthalmology and Otology	Dr. Boyle	2:30 P.M.
18th	Pediatrics	Dr. Wallin	2:30 P.M.
4th; 11th; 18th	Surgery	Drs. Ostrom and Harrington	2:30 P.M.
Cumberland St. Hospital	Gynecolgy	Dr. Burnham	1:30 P.M.
	Surgery	Dr. Walmsey	3:00 P.M.
Kings Co. Hospital	Obstetrics	Dr. Judd	10:00 A.M.
Coney Island Hospital	Gynecology	Drs. McEvitt, Mills, Mayne and Rankin	1:30 P.M.
	Rhinology and Laryngology	Dr. Tucker	1:30 P.M.
	Surgery	Drs. Fiske, Bogart, Murphy and Lack	3:00 P.M.
FRIDAYS			
City Hospitol	Surgery	Dr. Dawbarn	2:00 P.M.
	Laryngology and Otology	Dr. Dougherty	2:30 P.M.
	Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Neurological Hospital	Neurology	Dr. Abrahamson	9:00 P.M.
Cumberland St. Hospital	Surgery	Dr. Iler	3:00 P.M.
	Surgery, Oral	Dr. Shea	4:30 P.M.
SATURDAYS			
City Hospital	Genitourinary Surgery	Dr. Fuller	1:00 P.M.
	Pathology	Dr. Larkin	2:00 P.M.
Kings Co. Hospital	Pediatrics	Dr. Parrish	3:30 P.M.

All registered physicians, resident and visiting, and medical students, are cordially invited to attend these clinics.

Cards of admission, valid until October 1st, 1914, may be obtained at the Academy of Medicine, 17 West 43d St., Manhattan, and at the Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn, as well as from the secretaries of the several medical colleges.

Case of Paralysis of Both Internal Recti with Slight Ptosis.—E. H. Harries-Jones reports the case of a child aged 5 years in whom there was almost complete paralysis of the third nerve on both sides; the eyes were divergent, with widely dilated pupils which did not react to light or accommodation. Ptosis was only partial. The eyeballs did not move upward, downward, or inward. The optic disks were pale on their temporal sides, but the vessels were normal, and there was no sign of there having been any optic neuritis. The history of the case was peculiar, the mother stating that the child went to school last January (six months ago) "quite right," but returned in the afternoon with the eyes in the present condition. There have been no further symptoms—no headache, giddiness, or sickness.—*Proceedings of the Royal Society of Medicine.*

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AORTITIS SYPHILITICA.

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NEW YORK,

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THE history of luetic affections of the aorta is of comparatively recent date, although brief references are made by Lancisi, Morgagni, and Scarpa to the relation of syphilis to the arteries.

With the exact pathological studies of Virchow begins the knowledge of syphilis of the internal organs, and it was Heubner,[1] at that time a pupil of Virchow, who made an exact histological study of the cerebral arteries in syphilis. Heubner is rightfully credited with having laid the foundation of the study of syphilis of the small blood-vessels.

The study of syphilis of the large blood-vessels begins with the English military surgeon, Welch,[2] who described the statistics of aneurysms in the English army, and called attention to the important fact that 66 per cent. of them are of syphilitic origin. Other observers soon reported even higher percentages of aneurysms as the result of syphilis.

The first one to call attention to the fact that the syphilitic changes of the aorta differ from those that are the result of arteriosclerosis was Döhle,[3] a pupil of Heller. The pathological institute in Kiel took up the work of Döhle with more exactness, and in their report fully confirmed his assertions. It is surprising that Virchow was such a strong opponent of the Kiel school. The interest of Chiar and Benda[4] was awakened in the year 1903, and after working independently on the subject of syphilis of the aorta they, too, fully coincided with the views of Döhle.

While the exact pathogenesis as to syphilis of the aorta is not settled yet, there is no longer any doubt that there is an independent affection of the aorta due to syphilis, and the findings have been confirmed by such pathologists as E. Libman, Coplick, Stengel, Adami, Osler, von Hansemann, Pick, Oesterreich, and Benda.

Numerous are the names given to this affection. The best names are supplied by Heller,[5] who calls it mesarteritis luetica, or von Behring,[6] who labels it aortitis syphilitica, both names being fully descriptive of the conditions.

Morbid Anatomy.—In typical cases a most characteristic picture is found. We find either diffuse areas or spots of fold-like elevations of a hard consistency. Between the elevations contractions as the result of fibrous tissue formation are found, forming distinct depressions. The latter are so deep that in some places they appear like grooves. Superficially the intima does not appear to have undergone any changes. The areas of calcification and fatty changes, characteristic of arteriosclerosis, are missing here. Another characteristic feature is that syphilitic changes have a tendency to spread to the aortic valve, and also to the other ostii. This is important clinically, as will be shown later. The further thinning out of the above described depressions leads to the formation of aneurysms. The abdominal aorta is, according to some, never affected.

Microscopical changes are confined to the media. Everywhere round cell infiltration, granular tissue formation, and formation of blood-vessels are found.

Some areas in the media are necrotic. The adventitia shows inflammatory changes. The intima may be free from changes altogether, or only secondary thickening is seen. In cases where arteriosclerosis and syphilitic aortitis coexist, the intima shows atheromatous and calcareous changes. In such cases the post-mortem diagnosis becomes difficult, and we have to-day a great aid in the post-mortem Wassermann examination of the blood. I was much impressed in L. Pick's pathological laboratory by the aid which this method affords in diagnoses.

Etiology and Pathogenesis.—Since anatomical studies have called our attention to the frequency of syphilitic infection of the aorta, we recognize the disease much more frequently clinically. A few statistics will serve to demonstrate the frequency of the disease under discussion in its relation to syphilis. Stadler,[7] in 156 cases of syphilis, found in 82 per cent. syphilis of the aorta. Eugen Fränkel,[8] in 102 cases of syphilis, found in 53 syphilis of the aorta. Bach and Wiesner[9] found syphilitic changes in the aorta and pulmonary artery in 67.4 per cent. In this country Libman, Longcope, and Coplick likewise frequently found the aorta to be the seat of syphilitic infection.

Ages, according to most observers, are between thirty and fifty. Romberg[10] rightly remarks that when there is evidence of aortic or coronary disease in middle life, suspect syphilis. According to Stadler, the time between the primary infection and aortic disease was in 200 cases hard for him to determine, for the majority deny infection, and some are ignorant as to whether they ever were infected. In most cases, however, it can be said with safety that the average time between the primary infection and involvement of the aorta is from fifteen to twenty years. In six cases that I had occasion to observe clinically, three denied primary infection, one showed symptoms twenty-six years after the infection, one thirty-two years after, and one as early as five years after the primary infection. A similar case found in literature, having occurred five years after infection, is cited by Stadler. The case came to autopsy. A few cases with clinical manifestations between five and seven years after the primary lesion are cited in literature.

The relation between tabes dosalis, dementia para-

lytica, and syphilitic aortitis, has lately been shown to exist by a number of prominent observers. Stadler in his 248 cases found 6.2 per cent.; Stinzing[11] found 3.8 per cent.; Rogge and Müller[12] found 10 per cent; von Strümpel[13] even observed a greater number. Of late the clinical observations of Goldscheider[14] and others show very frequently the relation of tabes dosalis to syphilitic aortitis. It is of the utmost importance to examine cases of tabes for diseases of the aorta, and vice versa.

Symptomatology.—The clinical manifestations of syphilis of the aorta differ, depending upon what part of the aorta is affected, the extent of the infection, as to whether the aortic valves and other ostii are involved, the condition of the coronary arteries, the myocardium, and, as very pertinently pointed out by Huchard,[15] the condition of the kidneys. There are doubtless many cases, and I had occasion to see some in L. Pick's series of cases, where distinct syphilitic signs of infection of the aorta are found in patients who had shown no symptoms at all during life.

The symptoms, however, when present differ. In cases where the aortic valve and coronary vessels are involved there exists a distinct symptom complex. To illustrate, I shall take the liberty of citing one of our observations at the Har Moriah Hospital:

A—z, male, forty-six years old; married and father of six healthy children; his wife never aborted. He is a business man and of good habits. At first he denied specific infection; his blood, however, having given a strongly positive Wassermann reaction, and also positive complement fixation test for gonorrhea, he confessed to having had both diseases twenty-eight years ago. He stated that he had very few secondary symptoms, and therefore was treated very incompletely for syphilis. He remained well, however, until two years ago. His first symptoms began with a burning sensation under the sternum, later giving rise to pain. These pains began to radiate to the left shoulder, later to both shoulders, being somewhat aggravated by exercise. Still later he began to develop marked and troublesome pulsations in many of his arteries, particularly the temporal, brachial, and carotid arteries. He was especially troubled at night; he might be comfortable all day, and even when doing light work, but during the nights he would be awakened by a sudden fright, tightness under the sternum, finally giving rise to pain leading to both shoulders and down the arms, associated with dyspnea, and relieved on the coughing up of bloody expectoration. He complained frequently of a sensation as if his heart had stopped beating.

Physical Examination.—Visible pulsations of the temporal, cartoid, brachial, and femoral vessels suggest to us aortic insufficiency. The facies, however, so characteristic of aortic insufficiency, viz., bright eyes, dilated pupils, the wide palpebral slits, and pale bluish sclera, are not present in our case. His face was suffused, his lips cyanotic, and his cheeks were reddish. His blood-pressure showed maximal 150, minimal 60 mm. merc. The pulse on palpation showed sudden up stroke, and sudden fall (pulsus celer et altus) or the Corrigan water hammer pulse. Both pulses were equal and 80 per minute. The apex beat was in the sixth interspace 1 c.cm. outside of the left mammillary line. Percussion showed increased dullness over the aorta, both to the left and to the right, and the heart likewise enlarged. On palpation there was no thrill. On ausculation we heard a diastolic murmur over the third interspace, more to the left of the sternum; the murmur was blowing in character and transmitted in all directions, but not beyond the precordium. Besides this there was heard a systolic murmur over the aorta, a symptom due to roughening and dilatation of the aorta. The first sound at the apex was indistinct, the pulmonic second sound likewise indistinct. Over the carotid a diastolic murmur was heard; over the large vessels, especially the femoral, the pistol shot sound was distinctly heard, and by strong pressure with the stethescope we got the Duroziez sign, viz., a diastolic to and fro murmur of the vessels.

Head's zone over the precordium was very characteristic in that case, and Dr. E. Libman, who kindly examined the case with us, demonstrated most conclusively the sign to which Mackenzie called attention, viz., that the red line caused by the pin becomes mottled, in contradistinction to the healthy side, where the line is only red.

In this physical examination, although in so many respects resembling aortic insufficiency, our attention was called to the syphilitic origin of infection by the following indications: First, the absence of any other causative factor, like acute articular rheumatism, acute infectious disease, excessive bodily work; second, the beginning of the disease with pain under the sternum, gradualy progressing to the stage of angina pectoris at a comparatively early age; third, the attacks of pain being worse at night. The night pain seems to me to be of some importance, as it was present in most of our cases. And last, but not least, we recalled the advice of Fr. Kraus, E. Libman, and others, that wherever there is an aortic disease, suspect syphilis. In this man, of course, our diagnosis was strengthened by the positive Wassermann reaction, and by the typical fluoroscopic and radiographic findings of the dilated aorta, particularly the descending portion. His heart, also, while enlarged, was not the size of the characteristic cor bovinum of the non-specific aortic insufficiency. (Most important differentiating point.) Examinations of the blood, urine, and nervous status were completely negative.

Symptoms when the Lesion is Confined to the Arch of the Aorta.—On account of local pressure, probably due to aortic plexus neuralgia, as already taught by the late E. G. Janeway, or better still, according to Longcope,[16] due to inflammation of the root of the aorta, symptoms occur early in the disease. A case referred to us by Dr. M. Schneck is so characteristic of the symptom complex under discussion, that I shall describe it here fully:

J. S., age 27; married; a massively built laboring man, who had always enjoyed good health. About two years ago he began to notice pain under the sternum, which grew worse under physical or mental exertion. Later he had severe attacks of pain during the night, radiating to back and both shoulders, with shortness of breath during the attacks. Characteristic of the attacks was the fact that he experienced no anxiety, so characteristic of angina pectoris; and let it be mentioned right now that this is a very important feature in differentiating such attacks from angina pectoris vera.

Pulses equal, high tension, regular, and not compressible. Blood pressure: maximal 200, minimal 170. Over the neck no visible pulsations. Apex beat in the fifth interspace left mammillary line, the right border in the midsternal line. There was visible pulsation over the apex and in the epigastrium. Over the aorta dullness was very marked, two fingers beyond the left border of the sternum, and three fingers beyond the right. On palpation there was no thrill. On auscultation over the aorta a harsh, loud systolic murmur was heard, not transmitted. The x-ray examination showed the heart moderately enlarged, with the aorta considerably dilated, characteristically resting like a ball over the heart. The typical Head's zone over the aorta was present. The patient denied specific infection; however, blood was taken for a Wassermann examination, and was found to be strongly positive. Then he confessed to having been infected five years before.

In this case our attention was at once directed to syphilis by the extremely high blood-pressure at such an early age, and by the attacks simulating

angina pectoris but not being of the character of a true angina pectoris, viz., the absence of extreme anxiety, pallor, and perspiration. The murmur could not be mistaken for the characteristic murmur in aortic stenosis because of the absence of transmission and of the thrill; also absence of harsh, loud murmur.

Another type of cases is of those that have gone to the stage of aneurysm formation. While it is not in the domain of this paper to discuss aneurysm fully, I must give a short description of a case treated by us in the Har Moriah Hospital:

M. W., age 56; married; four healthy children. Very obstinately denied any specific infection. He was well until two years ago, when his first complaint was brassy cough and hoarseness. Later a pain under the sternum began to annoy him, characterized by its nagging and boring features. Later the pain showed a tendency to shoot up to the left side of the neck and frequently he had pains over the entire left side of the head, with a feeling of numbness over that same side. Dyspnea was rather mild, unless he coughed excessively. He, too, spoke of his pains being worse at night.

His face was slightly suffused, veins more dilated over the left side of the head, neck, and chest. Pulsation over the right carotid, right temporal vessel very marked, the left carotid and left temporal hardly palpable. Palpation over the axillary vessels and the elbows likewise showed that it was more marked on the right than on the left. Palpation over the radial vessels gave the same result. Blood pressure: right, 160 maximal, 120 minimal; left, 110 maximal, 80 minimal. The pupils were unequal, the left being contracted. A larynx examination by Dr. E. Libman, and confirmed by Dr. Meyerhoff, showed the left vocal cord paralyzed, due to pressure on the left recurrent laryngeal nerve. Palpation over the precordium disclosed a very feeble impulse, no visible pulsation over the aorta, no tracheal tugging, and no heaving systolic or diastolic shock. Percussion over the aorta showed marked dullness more to the left, where it extended about three and a half fingers. The heart on percussion showed no appreciable enlargement. Auscultation disclosed over the apex a feeble first sound, accompanied by a short systolic murmur, second sound snapping. Over the entire region of the sternum, corresponding to the pulmonic and aortic area, a short distant systolic murmur was heard.

Because of the absence of a specific history, and of the characteristic tugging, systolic and diastolic shock, expansive pulsation, and loud murmur, we at first thought of a mediastinal tumor. The *x*-ray examination showed a marked shadow over the aorta, corresponding to the arch, also a shadow extending more to the left than to the right. Turning the patient in the lateral position, the area between the spine and the aorta was seen to be obstructed by the shadow, which, according to Gradel, von Bergman, and Levy-Dorn, is a marked characteristic of aneurysm of the descending portion of the aorta.

A Wassermann was returned strongly positive, and the patient then quietly confessed to having been infected thirty-four years before. The absence of visible and palpable pulsations of the aorta in this case may be explained by the fibrous tissue formation and marked calcareous deposits that are present at times in aneurysms.

Cases where the ascending portion of the aorta alone is diseased may show no symptoms whatsoever during life, and only a post-mortem discloses the condition. The other cases were so similar to those described above that I do not deem it necessary to describe them in detail.

Knowing through the pathological studies of the above-mentioned authors that so many cases are seen at autopsy who died of intercurrent diseases, but still showed such marked pathological changes in the aorta, pathologists at times regard with suspicion the diagnostic skill of the internist. Where does the fault lie? The circumstances mentioned below may throw some light on the subject:

1. Early in the disease when signs are still lacking, although symptoms may be present, the condition is most apt to be confounded with neurasthenia (a most unfortunately frequent occurrence).

2. Patients usually consult one physician after another, giving no one a chance to establish a proper diagnosis.

3. Notwithstanding the fact that modern methods can aid us in an early diagnosis, the usual denial of the patient as to any infection and the responsibility of a busy physician prevent the latter from employing those methods, and hence the diagnosis is incomplete.

4. Many patients are of the hypoesthetic type, so that the early aches and pains do not bring them to the physician.

5. The recently established fact that many cases of tabes dorsalis and dementia paralytica also have syphilitic aortitis, as seen on the post-mortem table, is not generally appreciated.

I shall therefore endeavor to describe the symptoms and signs of the earliest and most atypical cases. At first we should most carefully study the history of the patient. Stadler[7] describes incipient cases as follows: "Early in middle life the patient begins to tire easily; he notices first that he cannot carry out any extra responsibilities, then, that he accomplishes even his ordinary undertakings with great effort. He has aches in different parts of the body, perspires readily, and develops a capricious gastrointestinal tract. Sooner or later, however, his pains show a pronounced tendency to confine themselves to the chest, chiefly over the sternum and the left side of the chest. He feels tender areas over the left side of the chest. There is palpitation and dyspnea on slight exertion, properly termed by Huchard *dyspnea d'effort*. Pain begins to disturb his night rest, and the patient is a hypochondriac.

Another characteristic symptom is the psychical state of the patient. Headaches, loss of memory, disturbing dreams, and sometimes even hallucinations, have been described by Hertz,[17] and while the last-named symptoms may also be present in aortic insufficiency, they only occur in the latter during the stage of decompensation, while in syphilitic aortitis they are already present, even when there are no physical signs. Is it any wonder that a diagnosis of neurasthenia is made? But just such cases tax the physician's skill most.

In our physical examination not only ordinary methods should be employed, but the most refined laboratory methods should be resorted to. Blood-pressure should be repeatedly taken, and the exact size of the heart should be studied fluoroscopically and orthodiagraphically. If the first sound at the apex becomes indistinct, and the second aortic ringing, accompanied by a systolic murmur of the aorta, we have a clue that there is a disease in the aorta; and this occurring early in middle life should at once awaken our suspicion of specific affection of the aorta.

In the absence of definite physical signs, it is worth while to utilize the method of Albert Abrams.[18] He makes the patient extend the head forcibly in order to bring the aorta nearer, whereby with a light Krönig-Goldscheider percussion, the enlargement of the aorta can be more easily distinguished. If he does not succeed in the manner described he percusses quickly, with the patient in full expiration, which, he maintains, likewise facilitates the bringing out of the sound, as the lung resonance does not interfere at this stage. He also found that he could influence the vagus in causing dilatation and contraction of the aorta. The former is accomplished by percussing on the lower four dorsal vertebræ, and the latter by percussing over

the seventh cervical vertebræ, thereby causing what he calls aortic reflex. Percussion over the verterbræ should not extend over twenty seconds. Normally transversely over the manubrium dullness extends between 2 cm. and 3 cm. to the right of the midsternum, and 1½ cm. to 2½ cm. to the left of the midsternum. The only exception to the rule is in splanchnoptosis, where the aorta is likewise stretched, and that can be seen fluoroscopically in the dropping heart (bathycardia). Over the descending portion of the aorta there is a distinct bulging which can be modified when the patient is made to press his abdomen up with his own hands.

We should also carefully inspect such patients and take note of large veins over the region of manubrium, and whether veins over both sides of the chest are equally enlarged, a most important sign of interthoracic disturbance.

Palpable pulsation in the jugular fossa, if we are not dealing with emaciated people, is of significance.

Some authors call attention to the subclavian artery being found 1 cm. to 2 cm. higher, corresponding to the side of the aorta diseased. On account of the elongation and dilatation of the aorta, the extreme motility of the heart is considered a sign of disease of the aorta. Von Hoffmann[19] takes exception to this view, and cautions against acting on this sign, as it is so common in nuerasthenics, and people who have lost a great deal of weight. However, it seems to me that if other symptoms, or other early signs are present, the freely moveable heart should also aid us by awakening suspicion. It is also essential that we should practice palpatory percussion, by means of which a marked resistance under the sternum may be noticed. Of course we must exclude bronchial glands, suprasternal struma, and persistent thymus. Curschmann[20] calls attention to the fact that in disease of the aorta the heart sounds are heard distinctly over areas where otherwise they cannot be heard, or if at all only lightly, as over the right supraspinus process when the descending portion of the aorta is diseased. Romberg[10] and Hirschfelder[21] speak of the heart sound being transmitted to the left and lower inner side of the scapula when the descending aorta is diseased.

A careful study of the nervous status should be made. Should even suspicious signs of tabes dorsalis or dementia paralytica exist, and the blood examination for Wassermann prove negative, the cerebrospinal fluid should be examined for a Wassermann reaction. In cases where the Wassermann is absent the luetin test, as first pointed out by Noguchi[22] should be utilized in doubtful cases. The luetin test is of late being given credit by Kaliski.[23]

The aid of the *x*-ray is so important and has assisted us so much in our cases that I think it advisable to enter into some detail in this regard. The first thing to be noticed fluoroscopically where the aorta is the seat of the disease is the dense shadow over the aorta. If such is seen, even when there is no appreciable widening, we have reason to suspect pathological changes in the aorta. As the disease progresses we notice an increase in the width of the aorta and, what is very important, its irregularity. The heart may at that time show absolutely no enlargement, but, according to Groedel,[5] the heart has a typical horizontal position. A. Abrams of San Francisco, and Levy-Dorn in Berlin, lay great stress on the orthodiagraphic study of the aorta; Groedel believes that fluoroscopic and radiographic studies alone are sufficient.

With the patient in the ventrodorsal position, we can see the arch of the aorta if dilated, as well as the descending portion. In order to study the different parts of the aorta, it is advisable to change the position of the patient while fluoroscoping him. Placing him in a lateral position, viz., left side to the screen and right side to the tube, we can judge whether ascending portion, descending portion, or the entire aorta is the seat of the disease. In advanced cases of dilatation of the aorta it is not easy to ascertain whether we are dealing with aneurysm or dilatation, and even pathologists at the post-mortem table differ in their judgments as to such aortas. Oesterreich, for instance, calls all dilatations cylindrical aneurysms, while other pathologists of equal standing consider them dilatations. However, with the patient in the lateral position the fluoroscopic examination will clear up the diagnosis.

In aneurysms the clear field between the spine and the aorta is obstructed. In the majority of aneursyms we also notice expansile pulsation, although the absence of pulsation should not make us exclude the existence of aneurysm. In the case described above there was no pulsation, probably because of the thickening of the aorta by fibrous tissue formation and calcareous deposits.

Prognosis.—Restitutio ad integrum is entirely out of the question. Life, however, if the disease is recognized early and properly treated, may be prolonged for many years. In the series of Stadler's cases 23 died suddenly, 26 as the result of slowly progressing myocarditis, 3 as the result of pulmonary embolism, and 3 of apoplexy. Huchard considers uremia as the most frequent cause of death, and emphasizes the need of the most critical examination of the kidneys in all cases of syphilis of the aorta.

Treatment.—Although Ehrlich himself cautioned against the use of salvarsan in cardiac and vascular diseases, Grassmann[25] was the first to try salvarsan in luetic aortitis. He advised that only small doses should be used, and given twice weekly, 0.2 to 0.3 until four doses are administered.

We should also try to prevent reaction which, according to Wechselmann, is best accomplished by using water doubly distilled, and sterilized. As a further word of caution, I would state that while it has been customary of late to inject salvarsan intravenously in the office, letting the patient walk home, in cardiac and vascular diseases the patient should stay in the hospital at least from 24 to 36 hours; and where there is aneurysm, or marked myocardial involvement, he should be kept in the hospital two weeks, through the usual course of treatment.

We should not forget the words of P. Ehrlich, that rest is a great factor after the use of salvarsan, whenever the heart is diseased. Some of the cases of sudden death that were reported to Ehrlich after the use of salvarsan were really due to the fact that the patient had done unusual physical work soon after the injection.

At the end of the course of salvarsan treatment the mercury salycilate in doses of 0.02-0.03 intermuscularly should be given once or twice weekly, or inunctions of the blue ointment in doses of 4.0, thoroughly rubbed in every night until thirty inunctions are used. Saturated solution of potassium iodide, 15 drops three times daily, should also be given. A form of mercury that has of late been recommended by Hirsch[26] is the oxycyanide of mercury in .01 solution, and acoin 0.4 to 15.0 of sterile water, one-half c.c. of each intramuscularly. This form of mercury, according to the above named au-

thor, is painless, readily absorbed, and is particularly indicated when tabes dorsalis complicates the disease.

Where the pain is marked and not relieved by this specific treatment, codeine may be used, or according to I. Adler,[27] dionin, in doses of 0.015 to 0.03 once or twice daily. As in the beginning insomnia is a great factor, a hypnotic like veronal 0.6, in the form of a suppository or in a cup of hot milk, is to be given.

A mild and non-depressing hypnotic that I applied and found useful is adalin in a dose of 0.5 half an hour before retiring. Another drug that is dependable, especially when the blood pressure is high, is diuretin, 0.5 t.i.d. If the pressure is not high, it is usually combined, according to A. Fränkel,[28] with caffeine citrate 0.06.

Where the kidneys are involved, it should be our aim to determine by our functional tests the form of kidney affection, and arrange treatment accordingly. If, according to Huchard, it is true that the uremic type—the vascular type—predominates, the indications are toward a great restriction of nitrogenous food substances.

Work, if allowed at all, should be moderate. Habits should be extremely regulated, smoking either entirely prohibited or restricted, and liquors absolutely prohibited. Diet is to be regulated according to the complications. If arteriosclerosis and myocardial changes complicate the condition, liquids should be restricted and none at all taken with meals. The diet should be more the lactovegetable form, with buttermilk at least daily, and only white meats, with fish substituted once or twice a week. All forms of food should be avoided that tend to cause fermentation; also sparkling mineral waters, so as not to press up against the diaphragm and increase the intrathoracic difficulties. The bowels should be kept freely open, so as to prevent any straining. If the patient can afford a yearly visit to a spa like Hot Springs, or a European spa where carbondioxide baths are given under competent supervision, this is very valuable. Baths should be allowed only lukewarm, temperature between 98° and 100°.

Results of Treatment.—Judging from the cases reported, notably those of Longcope (*l.c.*) and Oberndorfer,[29] the treatment is only of temporary value. The former, who observed his cases for a long time, noticed that while salvarsan gave great relief after five or six days, the first four or five doses made the patients very much worse, which he attributed to a Herxheimer reaction. After that patients began to improve, particularly the anginal symptoms disappeared, and only reappeared in the course of several weeks. Oberendorfer, who had studied 99 autopsies of aortic syphilis, whose histories during life he followed closely, arrived at the conclusion that while the symptoms had disappeared in many, and were alleviated in some, the pathological condition remains stationary.

Judging by the six cases I had occasion to observe, the case with aneurysm has been comfortable for the last nine months; the physical signs, however, remain stationary. Of the cases that presented the coronary and aortic valve involvement one responded to treatment immediately, but now, four weeks after the salvarsan injection, although he is getting the mercury and potassium iodide, he needs hypnotics, anodynes, and complete rest in order to alleviate the symptoms, so that his improvement was only of a very transient nature. The other case has been more fortunate. He has had no symptoms, when not exerting himself, for the last three months. He also has restful nights, but exertion causes him sub-sternal distress. In general, however, he claims to be very much improved. The other three cases were milder than the ones described, and while not very incipient cases, because they already had marked physical signs and distinct fluoroscopic findings, they feel considerably improved, and are even doing light work. The results of the Wassermann reaction were only possible for us to study in four cases. In two it became negative, in one it remained strongly positive, and one from 4 pluses, reduced to 2 pluses.

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THE CARCINOMA QUESTION AS IT PERTAINS TO THE UTERUS.

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While we must recognize the painstaking efforts that have been made especially in the last decade to discover the cause of cancer, yet we are forced to admit that carcinoma is one of the unsolved problems of the medical profession. We are reaching out with one hand in the hope of better treatment, while with the other we are holding fast to the old in the hope of rendering what practical aid this ineffectual treatment offers. True, some instances of recovery of seemingly advanced cancer, with or without surgery, are observed, but treatment thus far is based upon empiricism. True success in the

treatment of this scourge must be preceded by more intimate and positive knowledge of its etiology, of which we know little more than did Hippocrates, but there are many things that remain unknown merely because they are unsought. Few secrets are hidden so carefully as to resist the light of scientific investigation, and I think we may confidently expect this one to be revealed, as a result of concentrated efforts being exerted in that direction.

The purpose of this paper is to discuss the practical side of carcinoma as it relates to the uterus, as we know it at the present time, and in doing this we must consider some points that pertain to carcinoma in general and others that have special bearing upon carcinoma of the uterus.

First, I think we may very properly assume that there is a causative factor with which we are unacquainted, be it germ or other parasite or other toxic agent. If this be true, as the behavior of the disease would indicate, then, not knowing its cause, we do not know its beginning, and, not knowing these, we do not know the disease, and much of our supposed knowledge must be open to revision. Very properly we must hold ourselves in readiness to change our views as to what the disease really is. Just as we are now compelled to look on the tubercle and a collection of tubercles making a large growth as a tissue reaction against the tubercle bacillus, and as we must now consider inflammatory processes as a fight of the tissue against an invading toxic agent, so we may find that the epithelial cell proliferation which constitutes the well known histological architectural form in what we call carcinoma, is not the disease but the tissue reaction against disease; nor would the fact that the epithelial cell growth sometimes invades vital structures and aids at last in causing death, stand in the way of its being primarily protective, for such as the action of the acute and chronic protective processes, just mentioned. There is perhaps not sufficient grounds yet to maintain that there is a specific agent for carcinoma—certainly we lack the proof of its identification—but there is too much similarity to tuberculous disease and other infectious processes to ignore the possibility or strongly deny the probability, and, should this be true, the weight of the evidence is strongly in favor of the epthelial cell proliferation being a tissue reaction against the infectious parasite. It is plain that an epithelial cell, or a group of epithelial cells, cannot be considered carcinomatous merely because of separation from surface epithelium, otherwise a skin incision or trauma would almost invariably result in cancer, neither must the epithelial cell below the surface be found to have the proliferating properties of a cancer cell, for it is usually by means of this proliferation that it invades the deeper structure. While it takes a certain grouping of epithelial cells to designate them as a carcinomatous growth, yet the epithelial cell which becomes a part of the cancer is a cancer cell whether it is on the surface or imbedded in connective tissue, and it seems fair to assume that it is imbued with activity other than the mechanical or chemical irritation which played a part in instigating the morbid process. Again, it seems probable that the cancer poison, the effect of which upon the host is so characteristic, is due to other than epithelial cell proliferation and would point to some unknown toxic agent.

Pilcher gives the descriptive definition of cancer thus: "It is in the lawless proliferation of preexisting epithelial cells in luxuriant irregularly arranged masses that invade underlying and surrounding tissues, permeating, destroying them, and finally themselves attaining a mass which can no longer be adequately nourished by an accessible blood supply and which itself then falls into central decay while at the periphery the process still goes on, that cancer consists."

This gives the conception that the proliferating epithelial cells when once irritated into action continue to react without continuance of the irritation and act with the irritation or as a supplement to it and against the organism of which they are an integral part rather than react against the irritation and for their own organism, which may represent our present conception of cancer growth, but is decidedly against the law of cell reaction and therefore against reason. Cells respond to stimuli to irritation but for the protection of their own organism and against an invading organism or irritating process.

Does it then seem impossible or improbable that we may be obliged to define what we now call a cancer as a reaction of epithelial structures against the invasion of the specific microorganism? Would this not be just the conception that we have or should have of the tuberculous process, except the reaction against the tubercle bacillus is a connective-tissue reaction? We turn now from the problematic to that which is better known, although revision may have to follow in the latter.

First, and of great practical importance, and, I might say, contrary to a widespread belief, carcinoma is in the beginning circumscribed and not the local manifestation of a general morbid process. This is shown by the complete eradication through early radical removal, as well as the large percentage of local returns when eradication is not complete.

Second, and also of great practical importance, some form of irritation plays a part as an etiological factor. This may be mechanical, chemical, thermal, actinic, etc. This is perhaps shown in the frequent involvement of organs used as reservoirs, as the stomach, rectum, bladder, uterus, etc., as well as by the particular part involved where irritation is more marked, such as the mouth, the larynx, the pylorus, the cervix uteri, etc., but is more emphatically shown in the frequent or occasional cancer, arising in unusual places due to habits of life, occupational or otherwise, as the lip-cancer of the smoker, the mouth-cancer of the betal-nut chewers of India, the face-cancer of sailors from the sun's rays, the chimney-sweep cancer of the scrotum, the epithelioma of tar workers, the tongue-cancer from an irregular tooth, bile-duct cancer from stone, etc.; but still more emphatic than any other as an indication of these influences of irritation is the cancer reaction which results on the skin of the abdomen in charcoal stove wearers of Kashmir. Untraumatized or unirritated, the skin of the body, arms, and legs seldom if ever develops cancer; but in these people and in x-ray workers, and as a result of long-continued irritation, we have, as pointed out by Crile, gigantic experiments which force upon us the truth of irritation as an element in the beginning of cancer. Let us remember, however, that the succeeding phenomena are best explained upon the ground of this irritation serving the means of introduction of some microorganism or agent yet unknown.

Third, and of still greater practical importance, there is usually a benign or protective reaction to the irritation, a tissue reaction which may be con-

sidered a precancerous condition, a condition which if removed would prevent the development of cancer, or would prevent the invasion of the specific microorganism.

Wherever there has been opportunity to observe, some benign process has usually preceded, such as scar, wart, mole (especially pigmented), fibroadenoma, fissure, ulcer, mechanical abrasion, papilloma, erosion, etc. Only in localities of the body poorly observed do we find carcinoma without the history of the preliminary benign pathology.

Fourth, the epithelial new growth whether primarily protective or destructive, spreads by direct growth and by metastasis, and, through the involvement of important organs and interference with important functions, aids the toxic agent in bringing about a fatal issue in the vast majority of cases in which early eradication does not take place.

Fifth, there is no absolute but rather a relative cancer age, an age of greatest frequency, and this is of vast importance in dealing with cancer of the uterus.

Sixth, heredity of susceptibility may have at times been overestimated, though experiments in mice, fish, etc., and clinical histories would lead us to be not unmindful of this factor; yet in a disease of slow development it is difficult oftentimes to separate hereditary influence from possible infection.

Seventh, the characteristic histological architecture of carcinoma is well known and can be diagnosed by the microscope, and can, therefore, receive appropriate treatment. Upon these propositions must be based our present fight against cancer of the uterus.

The future may reveal the exact cause and an adequate cure, but the present knows no specific. So long as we know no specific cure for late cancer the success of dealing with this condition rests upon education. Education of medical men and the public that women should have these organs examined and their conditions determined, that we have enough "guessing" to do after we have found out all that is possible; education that cancer is largely a preventable disease through hygienic measures and attention to precancerous morbid conditions; that early cancer may be eradicated; that late cancer is practically hopeless except in the amelioration of its conditions; that early operations are safe and that in the disease rather than the operation lies the danger; that elective surgery promises much; that last resort surgery promises little; that the "don't believe in surgery" man is an impediment to the wheels of medical progress and a menace to the public. The question is not what does this or that man believe in, but What will correct the pathology in this particular case? Education that the question is not: "Should benign uterine pathology be corrected?" but "Is there pathology?" Education that at the end of child bearing the question is not usually: "Is there benign pathology?" but "Of what does it consist and what is necessary for its correction?" The non-believing doctor and the non-believing patient often just begin to believe in surgery when a cancer becomes inoperable. Every operator has had his proposal for operation scorned when a radical cure might be expected, and has been begged to operate when operation promised little. A great wave of education is needed to show that the vicissitudes of child bearing and the avoidance of child bearing, etc., bring many women to the relative cancer age with conditions amenable to treatment, but which if neglected lead to cancer.

Without this educational movement our treatment of cancer of the uterus must fall far short of meeting the necessities of the case for many benign precancerous conditions will develop into cancer, early cancer will be allowed to develop into inoperable cancer, and inoperable cancer will be operated upon, but operated or unoperated, it will then lead to a fatal issue. The name of him who discovers the cure of cancer will be counted great, but a greater benefactor is he who can lay down the rules necessary for the prevention of the disease. He may be a brilliant surgeon who leads the way to radical removal of the cancerous uterus, but his glory is dimmed by the man who tells us when to act and what to do to make it impossible for the cancer to develop. Amputation of the cervix for benign conditions we believe has prevented more cancers than the most radical treatment has cured.

In addition to a campaign of education, our treatment of this condition must be along three lines: (1) The recognition and removal of all possible sources of uterine irritation before the onset of cancer. (2) The early recognition and radical removal of circumscribed cancer of the uterus. (3) The amelioration of the symptoms produced by cancer which has progressed beyond the possibility of radical removal.

The first is based upon the proposition that there is a benign or precancerous pathology which if entirely corrected would in most cases prevent the development of the cancer. This, while not based upon exact knowledge of the cause of malignant disease, is yet undoubtedly true, and if true is worthy of the most careful consideration.

Erosions, eversions, cystic degeneration, fibroids, polypi, chronic inflammations, etc., which furnish the opening wedge for the invasion of the unknown cancer agent, should be as promptly as possible eradicated. Not only this, but women should be made to understand that this is the time to treat cancer of the uterus and less provocation than that of cancer pain, cancer hemorrhage, cancer discharge, should lead them to give these organs attention.

The necessity of the second, early recognition and radical removal, is based upon the proposition that cancer is at first circumscribed, and removal is possible, while later it is disseminated and fatal.

Dr. Ries has told us that carcinoma of the uterus could always be cured if our surgery could go as low as the knees and as high as the neck, but as the average surgeon has not attained the necessary skill, it is highly desirable to see these cases early. This, at present, is not the case. We have known cancer to be well advanced before the patient observed or heeded her condition. We have also known a patient to be kept under local treatment for many months until total removal was impossible because the attending physician thought it was erosion, and because, in other cases, he did not want to frighten his patient. In the name of humanity, what are we for, if it is not to frighten our patient when she ought to be frightened? How can a patient be brought to do the right thing if she doesn't know her need? Radical removal is desirable when cancer is still within limits, but surgical skill has followed the disease to the limit of human endurance and sometimes beyond. Surgery must find its greater success in earlier opportunities.

The radical operation has here the advantage that we are usually dealing with an organ which has served its usefulness, is not necessary to life or happiness, and can therefore be totally sacrificed and

its immediate neighboring structures can be removed. The growth is nearly always accessible for microscopic examination, and therefore a diagnosis may be made.

Against radical removal are prejudice and prudishness leading to late consultation. The fact that it is not a vital organ causes less urgent symptoms which fail to force the patient's attention. Close proximity of bladder, rectum, and uterus prevents radical removal if the carcinoma is advanced, and yet their very proximity urges the necessity of early removal. The fact of dissemination through the lymphatics also urges our early attention.

Divergence of opinion has arisen as to how radical an operation should be. Ries advocates a very radical removal of lymphatics. Werthelm and others are less radical. Abdominal operation, it would seem, should displace vaginal hysterectomy for this condition. The uterus, tubes, and ovaries should be totally removed. The vagina should be amputated low enough to reach healthy tissue, a considerable number of recurrences being in the vaginal vault. The broad ligaments should be removed to the extent of exposing the ureters and pelvic blood vessels, facilitating removal of connecting tissues, lymphatics, and perceptible glands. The wide distribution of the lymphatics makes it unlikely that all lymphatic glands are ever removed, and yet this does not argue for leaving any that the operator's knowledge and dexterity and the patient's strength permit him to reach.

Instead of keeping as close to the uterus as possible we should take out as much of the broad ligament as possible, grasping the ovarian artery at the pelvic brim and the round ligament at the internal ring. The peritoneum is now laid open and the ureter exposed. I would here urge the placing of a strip of gauze around the ureter that it may be drawn taut at any time to indicate its whereabouts, as it is best not to separate it from its surroundings for too great a distance. Time will not permit a discussion of the care of the ureter, and the disposal of the same if it is surrounded by carcinoma structure or is accidentally injured. Suffice it to say that this structure is an important one in the operation as well as in the decision for or against radical operation.

In cases in which total removal is prevented by reason of involvement of the bladder, rectum, ureter, or bowel, or extensive metastases, quite as much or more is to be expected from thorough temporizing treatment. The pain, hemorrhage, and discharge which characterize late cancer can be effectually stopped by thorough cauterization. Some of the results in badly involved late cases have been truly surprising. I find the ordinary soldering iron more effectual than the Paquelin cautery as it has more body. The objection, however, is that they were made sharp pointed, and square cornered for a purpose, and this is a detriment in the human body as we cannot so readily control the depth. I have had instruments constructed in spherical and oblong shapes which having curves instead of angles cannot so readily do damage, and lacking the length of the soldering iron, we can bring the heat where it is desired without being forced to burn the vagina. These make very useful cauteries in other regions.

Antiseptic and cauterizing chemicals have been used in early and late cancer, and different forms of rays and enzyme treatment have been tried. Some of these, as for example acetone, have relieved symptoms and have seemed to delay the growth, according to Gillhorn, but we know absolutely no medical treatment at the present time that gives such results as to warrant its use except in inoperable cases. The good results obtained by early radical removal we sometimes count due to the removal of every proliferating epithelial cell. When we know the now unknown cancer agent we will then probably see that it is not so much the removal of every cancer cell as it is the removal of microorganisms.

The value of the microscope, the cystoscope, the ureteral catheter, rectal examination, etc., to determine, first, the presence, and, second, the degree of extension, of the cancer must not be overlooked.

Some matters I have necessarily left unmentioned or have touched only lightly. If I have dwelt upon some points of which the present status of carcinoma would not warrant the full acceptance, it has been because there seems to be enough in the behavior of carcinoma to warrant our accepting the possibility of an unknown agent whose introduction into eroded or abraded surfaces brings about as a protective reaction the well-known epithelial proliferation. If there is a possibility that this is true, then it should receive attention in our care of a carcinoma patient and in those patients having conditions which easily become cancerous, and while contending for a point not demonstrable, let us trust that the consideration of it does us no harm.

In conclusion I would emphasize the following points:

1. The epithelial cell reaction, known as carcinoma, is probably due to a microorganism or agent yet unknown.

2. The cell reaction now known as carcinoma may prove to be a primarily protective tissue reaction against the cancer infection.

3. Women come to the age of frequency of cancer with many benign conditions which serve an opportunity for the introduction of this agent or furnish the irritation which lights up the malignant proliferating process, or both.

4. Proper attention to these conditions would decidedly reduce cancer of the uterus.

5. These conditions receive a large amount of neglect from the profession and the laity.

6. Correction of pelvic pathology as it occurs, and especially as a woman nears the end of the childbearing period, will lessen her chances of developing cancer and will otherwise vastly increase her comfort during the 25 or 40 years of life she should have remaining.

7. There is a fair chance of eradicating early cancer, with almost no chance of other than ameliorating late cancer.

8. Education of the profession and of the public upon these points is sorely needed.

9. Honesty and intelligence should combine not to watch precancerous, suspicious, or early cancer pathology, but to eradicate pathology whether benign or malignant. In other words pathology has no place in the human body, much less in an organ of great cancer frequency. We know no tumor, swelling, erosion, ulceration, cystic degeneration, or irritation that is best to go untreated; if it does not yield to simpler means it should be removed.

10. Early radical removal is at present our best method of attack when cancer has once begun, but it is not ideal. We may hope for a better method.

11. Late cancer can often be checked, symptoms ameliorated, nutrition improved, comparative comfort restored, life prolonged, and perhaps occasionally the cancer completely eradicated by single or re-

peated cauterization, and the same results are claimed upon good authority for other measures, but these do not offer enough hope to displace early surgical measures.

12. Surgery must find its greatest success, not in more radical removal, but in earlier opportunity.

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THIRTY-THREE CASES OF THYROID DISEASE.

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The following is a report of thirty-three cases of thyroid disease which were treated at the medical clinic of the out-patient department of Cornell University Medical College during the past two years. The work was undertaken primarily with a view of observing the effect of the Rogers and Beebe serum in these cases. After a while, however, a good many cases presented themselves in which serum was not indicated and it was thought advisable to include those cases in this report.

Two years is too short a time in which to determine any permanent effects in a chronic disease such as exophthalmic goiter. Moreover only four of the serum cases remained under continuous treatment longer than six months, as they were all working people and anxious to stop this drain upon their time as soon as any improvement was noticed. However, it was thought advisable to publish this preliminary analysis and follow it up with further reports from time to time as the work progresses.

All of the cases in this series showed distinct symptoms pointing to a disturbance of the thyroid gland at some time while under observation, and they represent various phases of this condition which I attempted to classify. We must remember, however, that it is impossible to draw hard and fast lines between any groups of cases of thyroid disease. The symptoms are so numerous and so varied and the mechanism of their origin is so obscure that any attempt at rigid classification is out of place. However, for purposes of discussion and treatment it was found convenient to arrange the cases in the following gropus:

1. *Simple hypertrophy of the thyroid* with perhaps pressure symptoms, but no signs of hyperthyroidism.

2. *Temporary functional hyperthyroidism.* Any prolonged strain, mental or physical, infectious disease, pregnancy, or menstrual disturbance is apt to produce this condition which subsides on removing the cause and resuming ordinary hygienic life. This is particularly likely to occur in people who had a simple goiter before. I have seen many cases that I felt sure belonged under this heading, but the disturbance being mild and temporary, they did not come to the clinic long enough for me to include them in this report. In this series I have two cases of this type.

3. *Cases of true hyperthyroidism of various grades of severity.* This group corresponds to what is generally known as exophthalmic goiter. In placing cases into this group it must be borne in mind that neither the exophthalmos nor the goiter is absolutely essential for a diagnosis.

4. *Mixed cases of hypothyroidism and hyperthyroidism.* These showed symptoms of both conditions and it is probable that they are cases of hyperthyroidism that are in the stage of crossing the border line into myxedema, although one of these appears to have started as a mixed case right from the beginning.

5. *Cases of hypothyroidism or myxedema.*

6. *Cases of thyroid disturbance* which showed symptoms suggestive of derangements of other internal secretions.

Age.—About two-thirds of the patients were between 28 and 40. The youngest was a girl of 13½ and the oldest a woman of 57. There were five patients below 20, eleven between 28 and 33, and eleven between 38 and 43.

Sex.—Only one male in the whole series and he had hyperthyroidism.

Nation and Race.—Thirteen were born in America, seven in Russia, three in Ireland, three in Italy, and one each in Austria, Germany, and Scotland.

Previous History.—In twenty of the cases previous history revealed nothing of importance. In four of the cases a simple goiter was present for 7, 10, 12, and 25 years respectively previous to the development of symptoms. Two cases gave histories of rheumatism. Two gave repeated attacks of tonsillitis. Uterine trouble in two. Sterility in two.

Family History.—One of the myxedema patients has a daughter with the same disease. Another had a mother with a similar condition. One of the Graves's disease patients has a sister who had the same trouble and their mother had diabetes. Two patients presented histories of cancer in grandmother and uncle respectively. One of the mixed type gave a history of insanity in a grandmother.

Etiology.—It was impossible to find any single factor or group of factors that could be held directly responsible for this condition. However, it is interesting to notice that certain conditions served to aggravate this disease to an extent sufficient to call the patient's attention to it.

Five of the patients first noticed symptoms at puberty, either before or soon after the establishment of menstruation. In one of these cases an attack of rheumatism and in another an attack of tonsillitis preceded the appearance of symptoms. In twelve cases no causative factor could be discovered. Confinement was mentioned as the origin of the trouble in two cases.

Four of the cases had a simple goiter for 7, 10, 12, and 25 years respectively and it suddenly became active. One of these cases gave pregnancy as the exciting cause. In the others no cause was found. Worry, hard work, and nervous strain were mentioned as causes by six patients, while sudden fright was mentioned by four. However, on careful questioning it was elicited that mild symptoms of hyperthyroidism existed previously and sudden fright only served to bring out the condition.

Symptomatology.—The symptoms of each group will be taken up separately.

1. Simple hypertrophy of the thyroid gland.—There are two cases in this group. Both of these patients were well nourished women and the only symptoms they presented were the enlargement of the thyroid and the effect of pressure. In one case the left lobe was enlarged and accompanied by a paralysis of the left vocal cord. In the other case there was a marked enlargement of both lobes and the isthmus, the left being the larger. There was experienced a choking sensation. In both cases operation was advised, but not yet performed.

2. Temporary functional hyperthyroidism.—Two cases of this type presented themselves. In one there was a moderate uniform enlargement of the gland, pulse of 100, occasional palpitation, dyspnea, nervousness, and weakness. All these symptoms followed in a woman after nursing her husband through a severe illness, and improved in two months. The other patient had a simple goiter for ten years and suddenly noticed a slight increase of the goiter, together with some palpitation, weakness, nervousness, and slight tachycardia (96). This patient also improved after one and a half months' treatment and stopped coming to the clinic.

Although this condition is mild and temporary, its importance lies in the fact that if these patients continued to remain under conditions unfavorable to thyroid function, such as nervous strain and worry, they are likely to develop true hyperthyroidism.

3. True hyperthyroidism.—There were eighteen cases of this type in my series. I divide these cases into groups both as regards severity and chronicity, as follows: Mild, 3 cases; moderately severe, 4 cases; severe, 11 cases.

Early, or below six months, 4 cases; fairly early, or six months to one year, 3 cases; chronic, one year or over, 11 cases.

The chronic cases were all severe with the exception of three, one mild, and two moderately severe.

The four cardinal symptoms—goiter, exophthalmos, tachycardia, and tremor—were present in nine of the cases. Six patients showed goiter, tachycardia, and tremor, but no exophthalmos, while in three cases both exophthalms and tremor were absent.

The onset was insidious in all these cases. There were no instances of acute onset. Although four patients claimed to have developed the symptoms within one week after a fright, it was brought out that the disease began before and the fright only intensified the already existing trouble.

Eight out of the eighteen cases presented nervousness, excitement, and irritability as their first symptoms. Tachycardia usually followed in these cases. Goiter was noticed first in six instances. This, however, does not necessarily mean that it was not there first in the others. A good many patients never noticed their goiter until their attention was called to it by a physician or a friend. The other four presented dyspnea, palpitation, feelings of faintness, and attacks of diarrhea as their first complaints.

Thyroid enlargement in some degree was present in all the cases. It was marked in size in twelve cases, moderate in five, and slight in one case. In twelve cases both lobes and the isthmus could be felt while in five cases only the two lobes were palpable, and in one case the right lobe alone was involved. The enlargement was symmetrical on both sides in three of the patients. In thirteen the right lobe predominated and in only one case was the left lobe the larger one. Excitement usually increased the goiter temporarily. The consistence of the gland in all these cases was soft and vascular. Thrill and bruit systolic in character were present in two cases. Visible pulsation of the goiter was observed in ten.

Exophthalmos was present in nine cases. It was very marked in six, moderate in two, and slight in one. In one of the cases with moderate exophthalmos the left eye was a little more prominent than the right. Several of the patients noticed that this symptom became more marked during hard work and excitement. Injection of conjunctivæ was present in two cases. Von Graefe's and Stellwag's signs were present in two cases.

Tachycardia in some degree was present in all cases. It varied from 90 to 140. In one case it reached 148. Excitement, hard work, worry and attacks of indigestion always increased the tachycardia markedly. An intermittent pulse was observed at times in one case.

There was an enlargement of the heart downward in two of the cases. The first sound at the apex was usually of a strong, loud booming character. In two cases a loud, harsh systolic murmur was heard at the pulmonic area.

Tremor was evident in sixteen cases. It was always of a rather coarse, slow character, and involved tongue and hands especially. In two patients the whole body was involved so much that the tremor was communicated to the chairs on which they sat. This symptom too was greatly aggravated by fatigue, worry, or excitement.

Four presented twitchings of facial muscles or muscles of the shoulders. Neuralgia, especially in the back of the neck and over the temples, was complained of in one case.

Restlessness, both mental and physical, was a marked feature in sixteen cases. The patients always seemed on the go, and never getting anywhere. They seemed to have no power of concentration. Thoughts ran through their minds with lightning speed, without leaving any impressions there. Along with this there was marked irritability of temper and in ten of the cases apprehensiveness was a prominent feature.

Defective memory was complained of in a few cases. In these it was probably one of the first signs of the advent of myxedematous characteristics. Sleep was restless and disturbed by attacks of palpitation and tachycardia.

Excessive sweating was a feature in twelve cases. Their skin was always more or less covered with perspiration, even during cold weather. In one case a rash maculopapular in character appeared on the neck and shoulder. It came about every two to three weeks, staying a few days and disappearing as mysteriously as it came.

Digestive disturbances were not numerous. A few complained of intermittent attacks of diarrhea, which came on without any apparent cause and remained for a few days to a week. Stools would vary from 5 to 15 per day, loose in character, and contained no mucus or blood. Diet had little effect. Appetite during these attacks was variable and there was no vomiting.

Menses.—There was only one case in which menstruation became irregular. It came every two to three months, and varied in duration from three to eight days. It was scant and not accompanied by pain.

Effect of Pregnancy.—There was one woman who came under observation, while seven months pregnant, and she stated that her condition became worse since pregnancy began.

Weight.—Loss of weight was a prominent feature in ten of these cases. It varied from slight loss, such as five pounds in a few months to quite marked reduction. In two cases fifty pounds were lost in one year.

Blood.—Anemia was not present except in two cases, in which I considered it a complication. Both were of a chlorotic type. In one case the hemoglobin was reduced to 79 per cent., while in the

other it went down to 40 per cent. Both were improved on the administration of iron. There was a diminution of the white bloods cells in five cases, the count being as low as 4,000. The polymorphonuclear leucocytes were markedly reduced in number, in some cases being as low as 40, while the lymphocytes were increased in three cases.

Urine.—The urinary examination was not particularly significant. It revealed a trace of albumen in two cases, a few hyaline casts in one case, and one or two granular casts in another case.

4. Mixed cases of hyperthyroidism and hypothyroidism.—I have three such cases in the series, and a brief outline of one of these will not be out of place.

E. F., age 42, came to clinic July 2, 1912. In the summer of 1907 this patient had some severe illness, characterized by chills, fever, and sweats. This lasted about a month and left the patient very much weakened, and run down. Since then the patient has gradually increased in weight, but kept on losing strength, and lately has been dyspneic at times. She noticed a goiter in the fall of 1911, which kept on growing slowly. There was slight hoarseness for the last few months, and mental dullness and sluggishness.

The patient was obese, face filled out; lines somewhat obliterated. No pads of fat. Left lobe of thyroid markedly enlarged, right lobe moderately enlarged; consistence firm, no pulsation; pulse 100; slight tremor of hands and tongue; skin and hair dry; no exophthalmos.

This patient was treated with 2 per cent. thyroprotein tablets for three months and a few injections of serum. At the end of that time, pulse was 82, tremor almost gone, dyspnea improved, and patient felt much stronger. The treatment was by no means ended, but the patient stopped coming.

In the other two cases the hyperthyroid symptoms were far more prominent. In fact they were probably pure hyperthyroid cases merging into myxedema. They presented all the typical symptoms of Graves' disease including loss of weight. In one of these the exophthalmos was intermittent. In addition, they both complained of headache and both had dry skin and dry hair, and one of them complained of extreme weakness in her legs. She felt as if her legs were giving way under her. The goiter in both of these cases was hard in consistence.

In both of these cases the serum was relied on mainly, while 1 per cent. thyroprotein tablets were given twice a day at short intervals. These relieved the headache wonderfully. Neither of the two finished their treatment. One of them was quite improved after five months. Pulse came down from 100 to 80, headache improved, goiter was markedly reduced in size, and she felt stronger. The other showed no improvement after one month and stopped coming.

5. Cases of Myxedema.—I have three such cases in my series. Two of these were mother and daughter, and they were previously reported by Dr. Keays. There was nothing peculiar about any of these cases. They were typical myxedema, and improved on thyroid feeding. I tried the 5 per cent. thyroprotein tablets, but they seemed to be without effect.

6. Cases of thyroid disturbance complicated by derangements of other internal secretions.—This is a very interesting group. Our knowledge of the physiology of the ductless glands is very scant, and the symptoms produced during their disturbance have not yet been accurately described. It is therefore very difficult to analyze any of these cases and locate the exact site of trouble.

Two cases in this group are particularly interesting, having developed glycosuria after operations on the thyroid. An outline of each follows:

A. A., age 33, widow, came to clinic January, 1913; previous history negative; exophthalmic goiter five years ago. Thyroid vessels were tied, and this resulted in an apparent cure. She returned, now complaining of nervousness and restlessness. Her pulse was 100, and there was slight enlargement of the thyroid, together with slight exophthalmos. Repeated examinations of her urine showed intermittent glycosuria. She got a few injections of serum, but stopped treatment because she had to leave New York. She showed no improvement.

S. W., age 58; previous history negative; innocuous goiter for 25 years. Five years ago this goiter suddenly became active and patient showed marked symptoms of hyperthyroidism. There was an enucleation of part of the thyroid two years ago, following that there was an apparent recovery from all the hyperthyroid symptoms. She returns now with marked eczema vulvæ, excessive thirst, weakness, and loss of weight. Urine on repeated examinations constantly showed the presence of glucose. Treatment in this case was directed along diabetic lines.

Another case in this group presented a queer combination of symptoms and reacted peculiarly under treatment. A brief outline follows:

S. M., age 39, single. Ailment began four years ago with pains, aches, and stiffness all through body, palpitation, nervousness, and tremor accompanied this, and also intermittent exophthalmos; urticarial rashes coming almost daily, and lasting for a few hours, with marked itching, were a very troublesome feature. She presented a hard goiter, moderate in size, right lobe larger than the left; pulse 120, poor quality; tremor and mental restlessness and confusion; blood pressure 100. Serum made her feel worse even in doses of three minims. Thyroprotein one per cent. also disagreed with her. Her thyroid arteries were finally tied, but even this operation has so far not given much relief.

Of the two other cases in this group, one was a girl of 28, single, who came in complaining of an increase in weight from 120 to 178 pounds in two and one-half years. Along with this she suffered with dyspnea, palpitation, headaches, drenching sweats, and falling of hair. There were no pads of fat. Skin had a sallow color and was moist. Hair was not dry. There was no enlargement of the thyroid, but there was a slight tremor and a pulse of 100. The picture suggested myxedema, but she reacted very poorly to thyroid at the beginning. Various preparations have been tried, but with little or no result. For the past few months, however, we have been giving her thyroprotein, 5 per cent. tablets, and pancreatic extract, and we have succeeded in reducing her weight to 156 pounds without any unpleasant effects.

The other case presented all the prominent hyperthyroid symptoms, together with some hypothyroid symptoms. In addition there was a uniform brownish pigmentation covering her forehead, neck, and shoulders. The serum does not produce any unpleasant effects, but she shows very little improvement. She is also getting some adrenal nucleoproteid at various intervals.

Treatment.—This was already touched upon before to some extent. The patients with simple goiter were advised operation to relieve the pressure symptoms. As yet they have not followed this advice.

The temporary hyperthyroidism was treated on the theory that it was the result of a tired gland trying to meet an increased demand for thyroid secretion. The value of rest and hygiene was repeatedly emphasized. Along with this advice these patients were given some thyroprotein—usually a 1 per cent. tablet twice or three times daily. This was done with the idea of saving the thyroid the work of supplying its secretion and thus resting the gland to some extent. In both cases a decided improvement was noticed although the size of the gland was not affected.

The treatment of true hyperthyroidism will be taken up later in the discussion of the serum.

Treatment of the mixed variety was described before as well as the results noticed. The principle followed was to counteract the abnormal activity of the gland with serum and to supply the patients with thyroid by feeding them thyroprotein in small

doses—usually the 1 per cent. tablets. The serum or thyroprotein was chiefly employed depending as to which set of symptoms predominated—the hyperthyroid or the hypothyroid.

None of the cases in this group completed their treatment. One stopped after one month, unimproved. The other two showed considerable improvement.

The treatment of the myxedema cases was mentioned before.

In the cases in which other ductless glands were involved, the treatment was necessarily indefinite. Various organic extracts were used such as adrenal nucleoproteid and the pancreatic extract, but I cannot say anything about the value of these preparations or about the indications for their use. Serum has been employed in three of these patients with no effect in two, and a little improvement in the third, which was the pigmented case.

It is thus seen that the only cases in this group that were benefited in any way were two—one with hyperthyroid symptoms predominating and the other strongly suggesting myxedema.

Treatment of Hyperthyroidism.—The Rogers and Beebe serum was mainly depended upon in the treatment of this class of cases. The necessity of rest and hygiene was emphasized in each case, but the circumstances of most of the patients were such that they could not follow these directions. Only four of the patients stopped work for a short period. All the others had to continue with their work as best they could.

As two hyperthyroid patients refused serum there were only sixteen to whom it was administered. In addition the serum was given to two cases of the mixed variety, and to three cases in which other internal secretions were affected. In other words serum was administered to twenty-one cases in all.

A few words as to the preparation and method of administration. "The serum is prepared by inoculating either rabbits (preferably Belgium hares) or sheep with nucleoprotein and globulin prepared from human thyroid glands. The inoculation must continue over a period of five or seven weeks, at intervals of about six or seven days before the animal is sufficiently immune to make its serum have decided therapeutic value. At the end of this time the animals are bled and this serum prepared for inoculation in the usual way." (Beebe's "Med. Treat. of Graves' Disease.")

The dose at the start was usually 3 to 5 minims. This was gradually increased a few minims at a time until a full tube or 1 c.c. was injected at a time.

As far as possible the attempt was made to give three injections a week. This interval had to be lengthened at times on account of severity of reactions.

The site of injection was the middle of the arm, the right and left being used alternately. The skin was painted with tincture of iodine, and the serum was injected hypodermically.

Reactions.—Usually after the first few injections reaction took place. This started about six to eight hours after the administration of the serum, and subsided in twenty-four, rarely in forty-eight, hours. The area around the site of injection became red and painful. In one case the whole arm was involved. Itching was marked. Applications of cold wet cloths usually gave relief. As a rule no injection was given while any local reaction was evident. In a few cases in which this rule was not adhered to, the result was another and more severe reaction involving both arms. It was rare to get this reaction after the first few injections.

Under this heading I must not omit to describe a set of alarming symptoms, which followed an injection in one of my cases. This patient had been getting the serum for about six months, and was progressing quite well. About three minutes after the injection the girl complained of nausea and turned extremely pale. Her face became suddenly puffed, and in a few minutes the eyelids were so swelled that the eyes which were exophthalmic appeared sunken and small. The face was covered with beads of perspiration. Respiration went up to 40, and pulse was small and so rapid that it could scarcely be counted. After a few minutes the pulse improved, respiration went down, and the patient complained of cramps. This was followed by five to six loose bowel movements in the next half hour. The injections were stopped for three weeks, and then resumed for another month, when for some unknown reason the patient stopped coming and we lost all track of her.

Effects.—The first effect noticeable after a few injections of the serum was an improvement in the subjective feeling on the part of the patient. The patients came back very frequently after the second or third injection saying they felt less nervous, less restless, and stronger. This was a uniform observation in almost all cases. The next effect noticed was the steady decrease in the pulse frequency. Observing these cases as I did from day to day, the improvement in this symptom was so decided in many instances that I could not escape the conviction that the serum was accomplishing this result. If for any reason the patient omitted a few injections the pulse went right up only to be reduced again on resumption of the treatment. The tremor was the next symptom to be affected, becoming much less marked as the treatment proceeded.

After two or three months of the treatment a reduction in the size of the goiter became noticeable in six cases. Together with this reduction the gland became less vascular and more firm in consistence. In one case the entire right lobe disappeared. In another case it was so reduced that a 12½ collar was substituted for a 14½. Exophthalmos yielded very little or not at all to this treatment. However, in three of the patients a decided improvement was noticed, even in this symptom. Another marked general feature of these patients was the good condition of their nutrition. All with the exception of one stopped losing weight and remained stationary, while four gained 3, 10, 12, and 15 pounds respectively while under treatment. The sweats, the digestive disturbances, and the menstrual disturbances were improved in most of the instances.

The longest time any of the cases remained under continuous treatment was eight months. The shortest period was one month. Two cases started treatment a long time ago, but stopped for long intervals, so that it was badly a fair test.

Summary of Results.—Cured—none. It must be remembered, however, that this work is not yet finished. Some of the patients whom I have under observation at present will, I believe, be cured in time.

Apparently cured—one. This was a very early case, and the only complaints were a growing gland and a pulse of 90. The patient is apparently normal now, her gland having been stationary all the

time, while under treatment, and her pulse is now 70. I cannot, however, vouch for the permanency of this result. She is still under observation.

Markedly improved—two. Following is a brief history of one of these:

R. M., age 38, widower, came to clinic September 3, 1912. Sister had Graves' disease some time ago. He lost his wife early in 1911; since then noticed that he was extremely nervous and irritable. In the fall of 1911, he noticed exophthalmos. Goiter appeared in July, 1912. There were marked sweats, palpitation, and diarrhea (five to six movements daily).

P. E.—Marked enlargement of both lobes, right predominating; marked exophthalmos; tremor pronounced, involving the whole body; very nervous; pulse 130; skin very moist. He stopped his work for three months, because he was not fit to work. He has been under serum treatment fairly regularly since September, 1912. The intervals of injection now are one week. At present the goiter is very much smaller; the exophthalmos is greatly improved. The sweats occur only rarely. His tremor involves only his hands and is greatly improved. His pulse is between 80 and 90. He can attend to his work, which is that of a highway inspector, without any trouble.

By markedly improved I mean that their symptoms have greatly subsided and that they are almost approaching normal. On stopping treatment for any length of time or under any severe excitement or exertion, their condition becomes greatly aggravated, but they yield again to treatment quite readily.

Moderately improved—eight cases.

In these cases decided improvement was noticed, but it was gradual and slow. If for any reason an exacerbation took place it was hard to get them back to improved condition.

Slightly improved—four cases. Of these the pigmented case belonging to the sixth group is one. Another had been under treatment for one and a half months only. All of the others were chronic cases.

Unimproved—six cases. These had remissions and exacerbations, but on the whole remained the same. Of these three stopped treatment after one month, one was a chronic case who had been taking serum at various intervals very irregularly. The other two belong to the sixth group, one of these being the case of intermittent glycosuria, who had serum only for a short while, and the other is that peculiar case I mentioned in which an operation was performed by Dr. Rogers; this case is still under observation.

In looking through this summary it may be noticed that the apparently cured, markedly improved, and moderately improved form 50 per cent. of the cases treated with serum. If we include the slightly improved, we have 71 per cent. showing improvement under serum. The remaining 29 per cent. who showed no improvement either gave the treatment little chance or were cases of the mixed varieties. In other words almost every patient with hyperthyroidism who was willing to try the serum more or less faithfully was benefited by it to some extent, and this under very unfavorable hygienic conditions.

General Impression of the Serum.

1. There is no doubt that the serum has a marked beneficial influence on hyperthyroidism in many instances.

2. Early cases yield more readily to treatment.

3. Faithful regularity in the administration is necessary.

4. Rest and hygiene are most essential aids to the serum.

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SCHOOL MEDICAL INSPECTION IN NEW YORK CITY.*

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In New York City the medical inspection, examination, and treatment of school children is under the control of the Department of Health and forms one of the subdivisions of the work of the Division of Child Hygiene. Five hundred and eight public schools with a registered attendance of 700,464 pupils, and 206 parochial and other free schools with a registered attendance of 124,083 pupils, are under supervision; a total of 714 schools and 824,547 pupils. The total appropriation for this work for 1913 is $364,300, a per capita cost of 44 cents for the full year. This cost per child is inclusive of all branches of the work, including administration and supervision, the full system of medical inspection and examinaton, follow-up visits in the homes, and ophthalmological, surgical, and dental clinics. The present school inspection staff consists of the director, assistant director, superintendent of nurses, 5 borough chiefs, 16 supervising inspectors, 16 supervising nurses, 97 school medical inspectors, 16 clinic physicians and surgeons, 10 dentists, 191 school nurses, 22 clinic nurses, with the necessary clerks and typists for the clerical work, and hospital employees.

Since 1897, when the system was inaugurated for the detection and exclusion from school of children affected with contagious diseases, there has been a continual development of the work, and at the present time its functions include: (1) Early detection and exclusion from school of cases of contagious disease. (2) The detection and treatment of neglected cases of contagious eye and skin disease. (3) Individual and group instruction of the children in personal hygiene. (4) Examination for the detection of non-contagious physical defects. (5) Follow-up visits to homes to insure treatment of physical defects. (6) Clinics for the treatment of eye, nose and throat, and dental defects.

1. *The Early Detection and Exclusion from School of Cases of Contagious Disease.*—With the exception of small schools in the outlying districts of the city, which are visited two or three times each week, each school in the city is visited each morning by an inspector or nurse, and all children who have been found to be ailing in any way are referred by the teachers for examination. Indicated cases are excluded and reported to the central office; a diagnostician is sent to confirm the diagnosis, and either readmit the child to school or keep it under observation until the termination of the illness. In the school a tentative diagnosis is usually made, as experience has shown it is far safer to exclude a few children unnecessarily than to allow any ill child to remain in school. Every case of sore throat is excluded, and a culture taken in each case. In order to doubly guard the opportunity for any spread of infection each supervising inspector receives each day a card giving the name, address, school, date of onset of illness, and date of last attendance at school of every schoolchild in his particular district, who has been reported during the previous twenty-four hours by

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any physician as being ill with a contagious disease. The supervising inspectors keep these cards filed by schools and classes. If two or more cases of contagious disease occur in the children in any one classroom, whether or not these children have attended school during the period of incubation, the supervisor visits the classroom, instructs the teacher in regard to the need of precautions and keeps the children under observation until the period covering the time of incubation has passed. If two or more cases of diptheria occur in one class a trial culture is taken from the throat of each child, and if diphtheria bacilli are found the affected children are excluded. The results of this preventive work have been excellent. During 1912 it was necessary to exclude only 4,000 children from school attendance, and in no instance did an epidemic develop. During the four years since the organization of the Division of Child Hygiene it has not been necessary to close any public school in the city on account of the presence of contagious diseases, and in only a few instances have single rooms been closed for a period of a few days for a similar reason.

2. *The Detection and Treatment of Cases of Contagious Eye and Skin Diseases.*—In addition to the cases found at the daily morning inspection the inspector, at the beginning of each term, goes through each classroom, inspects each child and refers for subsequent examination every case of contagious eye or skin disease and every child showing evidence of some physical defect—each case is indexed on a class index card with provision for notes of further care and treatment. Once each month the nurse makes a similar classroom inspection; all children are referred to their physician or a dispensary for treatment. If the latter has not been obtained at the end of twenty-four hours the nurse treats the child in the school, except where the disease is present in an extensive or acute form, when the child is excluded. Trachoma is not treated by the nurse, but neglected cases are cared for at the school clinics and allowed to attend school under the supervision of the nurse if there is no secretion.

The need of care of these neglected cases who formerly were all excluded from school is responsible for the first employment of the school nurse in this country. The first school nurse in the United States was appointed in New York City in 1902. Her value in school treatment of these children, with the consequent lessening of the number of exclusions and decrease in loss of school time, was demonstrated at once. Since then the field of the school nurse has broadened immensely, but her usefulness in this branch of the work is as great as ever. In 1903, when there were only eight or ten nurses employed, 57,655 children were excluded from school for contagious eye and skin diseases; in 1912 only 4,716 children were excluded for this cause. Not only have the exclusions decreased, but with the exception of pediculosis, every type of these diseases shows a marked reduction in the cases occurring. In 1903 trachoma was found in 20 per cent. of the children; in 1912 it was found in only 3 per cent. Notwithstanding the increase in the school population ringworm has been reduced from 5,958 cases in 1908 to 4,108 cases in 1912, a reduction of 31.1 per cent., and an average of only eight cases to each school for the year. Scabies shows a reduction of 17.2 per cent., or from 3,133 cases in 1908 to 2,593 cases in 1912, an average of five cases to each school for the year. During the past year I took a party of students to one of our largest schools in a densely populated Italian district. I had previously instructed the nurses in twelve surrounding schools to bring some typical cases of skin disease to demonstrate. Not one case of ringworm in a school child could be found in this area and only two cases of nearly healed scabies could be produced. The gain in school attendance alone has more than paid for this part of the system of school inspection.

3. *Individual and Group Instruction of the Children In Personal Hygiene.*—The large number of instances of defective primary teeth and the utterly inadequate facilities for free dental treatment have led to a necessarily special method of dealing with this problem. Preventive methods of oral hygiene seem to offer the solution. Each child with defective teeth is given a circular of instruction and is required to bring tooth powder and tooth brush to school. The school nurse conducts "tooth brush drills" with groups of the younger children, teaching them the value of a clean mouth and showing them how to keep it so. Pediculosis, that ever present and so far unsolved difficulty of school life, is cared for by a similar method. The children are given circulars of instructions as to treatment and are required to report to the nurse at regular intervals. If evidence of treatment is not shown they are excluded from school. While the number of cases has not appreciably decreased, owing to continuous home reinspection severe cases with live pediculi are rarely encountered now, though they were formerly common. Out of 184,907 cases found in 1912 only 3,368, or 1.8 per cent., were of the latter type, and therefore excluded. In the classroom, individually and in groups, instructions are given by the school nurse on matters of personal cleanliness and hygiene. In all, during 1912, 160,957 such instructions and treatments were given.

4. *Examination for the Detection of Noncontagious Physicol Defects.*—New York, in common with all cities, has recognized the alarming prevalence of subnormal physical status of the school child. Our problem is probably more intricate than that of many other cities owing to the rapidly changing character of our population due to our prominence as a port of entry and the goal of the larger part of this country's immigration. In discussing the physical defects of school children it is difficult to confine one's self to any part of this complex subject. The physical examination of children in the New York City schools was instituted in March, 1905. At that time no follow-up visits were made to the homes, but the parents were notified of defects found by means of return postal cards, the return half to be used for reporting if treatment had been obtained. Under this system about 6 per cent. of the affected children received treatment. In 1908, with the organization of the Division of Child Hygiene, a staff of nurses was employed to make visits to the homes to instruct the parents in the necessary hygienic measures for the prevention and correction of physical defects and to urge the needed and proper treatment. Since that time, excluding the cases of defective primary teeth which are not made the subject of home visits, an average of 80 per cent. of the children have obtained the needed medical or surgical care. The appropriation for

1912 allowed for the examination of 287,469 children, 41 per cent. of the number enrolled. Approximately this same number have been examined each year since 1908. In addition, each child treated is reexamined to determine if the treatment is effective. In 1912 22,811 boys were examined to determine their physical fitness to take part in athletic contests, and 40,501 examinations were made of children who wished to leave school and obtain employment.

Each child entering school for the first time is examined upon admission, thereafter special cases detected by the medical inspector or referred by the school nurse or teacher are examined, and third, the rest of the children are examined grade by grade. It would, I believe, be wise to provide a large enough staff to allow for the examination of every child once in two years, with special cases examined each year or as much more often as necessary. The function of the school physician is not to make detailed diagnosis. It is not practical in the school to provide the necessary equipment and apparatus for performing refraction, nor for a complete exploration of the nasopharyngeal vault. There is a tendency on the part of specialists in medicine to claim that experts in their particular specialty are needed in order that accurate diagnosis may be made. Such a plan is neither practical or necessary. If carried to a logical conclusion it would mean that each child would be examined by at least six physicians. It is probable that some of the finer defects escape observation. For instance, possibly some of the smaller cavities in teeth may be overlooked, but when we realize that it is only possible to obtain treatment for about 10 per cent. of the cases of defective teeth on account of lack of facilities for dental treatment, are we warranted in spending any added amount for diagnosis rather than for treatment? A community is justified in the expenditure necessary to ascertain that there is some deviation from the normal and for the needed measures of school and home hygiene required to prevent or to cure the wrong conditions. Beyond that the matter should be left to the private physician or dentist to make the detailed diagnosis and provide the proper treatment. Following this procedure in New York City each defect noted is classified broadly as defective teeth, defective vision, defective hearing, and so on. Nasal or nasopharyngeal obstruction sufficient to give objective symptoms of nasal occlusion is designated as defective nasal breathing; true hypertrophy of the tonsils is definitely classified. When any defect is found the parent is notified by means of a special blank form, calling attention to the defect and stating that the child should be taken to the family physician for treatment. Where no attention is paid to this notice, a follow-up notice to the same effect is sent the parents by the principal of the school. If the child still remains untreated the nurse visits the home to explain to the parents the need of attention and to urge that the child be taken to the family physician. Only in case the family are wholly unable to employ a physician is the child referred to a dispensary. In no instance and under no circumstances are the medical inspectors allowed to treat these children. It is of interest to note that an average of 58 per cent. are taken to private physicians, and 42 per cent. to dispensaries.

The incidence of uncorrected physical defects in school children has materially decreased in the past few years. In 1909, 13.1 per cent. of the children examined had defective vision; in 1912 this had been reduced to 7.3 per cent. The number of children suffering from defective nasal breathing has decreased from 18.1 per cent. in 1909 to 7.6 per cent. in 1912, while hypertrophied tonsils were found in 22 per cent. of the children in 1909, and in only 10.4 per cent. in 1912. The children examined during these periods were of approximately the same age groups.

NON-CONTAGIOUS PHYSICAL DEFECTS FOUND AND TREATED.*

	1909		1912	
	New York City	Per-centages	New York City	Per-centages
Number of physical examinations made	251,081	....	287,469	....
Number found needing treatment	172,112	....	206,720	....
Number found with associated defects	102,150	44.2	87,361	30.4
Number found with defects of teeth as only defect	69,962	30.3	119,359	41.5
Percentage of those examined needing treatment	74.48 per cent.		71.9 per cent.	
Defects found:				
Defective vision	30,408	13.1	21 078	7.3
Defective hearing	2,340	1.0	1,206	0.42
Defective nasal breathing	43,393	18.1	21,931	7.6
Hypertrophied tonsils	50,934	22.0	30,021	10.4
Tuberculous lymph nodes	810	0.35	.....	....
Pulmonary disease	744	0.32	335	0.12
Cardiac disease	1,503	0.65	1,597	0.55
Chorea	940	0.40	915	0.31
Orthopedic defect	1,461	0.63	721	0.25
Malnutrition	7,249	3.1	8,303	2.9
Defective teeth	131,747	57.0	142,168	49.4
Defective palate	324	0.14	.....	....
*Number reported treated	84,968	83.2	58,312	66.75

*These figures do not include children reported with defective teeth as the only defect, whose treatment consisted only of instruction in oral hygiene.

5. *Follow-Up Visits to Homes to Insure Treatment of Physical Defects.*—The greatest advance made in school medical inspection since its inception has been the employment of the school nurse. I have already spoken of her value in the school, but her services are of even greater importance in the home. Here social, economic, and racial questions are presented for her power of adjustment. There is hardly a problem in our social system that she is not called upon to solve. The difference between the 6 per cent. of children treated without her employment and the 80 per cent. treated as a result of her efforts bears witness to her efficacy, but her function in prevention of physical ailments is even greater than her use as an agent to secure correction. The relation of home hygiene to physical ill health in childhood is of equal if not greater importance than the relation of school hygiene to the same subject. In the home there is no broad supervision as there may be in the school. Each family, each child, must be considered individually. The diagnosis of a physical defect by the medical inspector is the index: the completed work is the function of the nurse. During 1912 the nurses made 216,554 home and dispensary visits.

6. *Clinics for the Treatment of Eye, Nose and Throat, and Dental Defects.*—During 1912 six clinics for school children were opened. These clinics are in reality small hospitals, having a dispensary service for refraction, contagious eye diseases, and nose and throat diseases, and hospital facilities for operations for trachoma and the removal of adenoids and hypertrophied tonsils. They have been located in the parts of the city having inadequate dispensary facilities. The common method of operating for adenoids and hyper-

trophied tonsils in dispensaries has been unsatisfactory, and in many instances serious results have followed. Anesthetics are rarely used and children are sent home as soon as the operation is completed and the bleeding has ceased. In consequence of the lack of anesthesia the operation is often hurriedly and incompletely performed and the child suffers a severe nervous shock. The early return home results in danger from septic infection and secondary hemorrhage. In the Department of Health clinics the children are required to report the afternoon before the day of operation. They are kept during the night, regularly prepared for the operation which is performed under full nitrous oxide gas and ether anesthesia on the following morning, and the child is then required to remain in the hospital under close observation for the following twenty-four hours. Up to this date 2,492 operations have been performed by this method, with entirely satisfactory results in each instance.

Six dental clinics were opened early this year. In order that the limited facilities might be as useful as possible only those children are treated who are referred by the school inspector. These children are the selected cases where constructive as well as preventive measures offer the best ultimate results. The clinics are all located in separate buildings, each in the center of a group of schools. The need of the increase in the number of these clinics is shown by the fact that more than twice as many children have been necessarily refused treatment as the number possible to care for. In the Borough of Brooklyn alone we now have over 2,500 children on the waiting list for operations for adenoids and hypertrophied tonsils. The parents of these children are unable to pay a private physician, and there are no hospitals in the vicinity.

Five factors are required in the proper working out of our program: The Department of Health, which performs the work; the Department of Education, which has jurisdiction over the schools; the medical profession, who must be responsible for the final corrective medical efforts; the parents, who are the focus of our educational efforts, and the children, for whose benefit and in whose behalf the system is devised. Nothing short of complete and willing cooperation on the part of each and every one of these groups can insure success. The medical inspectors and nurses are required to cooperate in every way with the principals and teachers, and to consult with them in regard to classroom conditions affecting the health of the children. In the schools where an equal interest and readiness to cooperate is found on the part of the principals and teachers, the standard of health of the pupils is very high. In the schools where such cooperation is not obtained the results suffer accordingly.

In New York City the hygiene and sanitation of the schools with matters pertaining to lighting, ventilation, heating, cleaning, classroom furniture, and adjustment of the curriculum to the individual child are under the control of the Board of Education, which has special committees in charge of the various features. So far no adequate program for the proper control and adjustment of these important matters has been made effective. Recently investigations have been made relating to these subjects, and it is possible that needed reforms in the hygiene of the schools may result. The order of the Board of Health that the common drinking cup be abolished has been generally observed in the schools and one of the most prolific sources of the dissemination of contagion eliminated.

School medical inspection has been successful in New York in demonstrating that the schools need not be foci for the dissemination of contagious diseases, and that the incidence of physical ill health and abnormalities may be appreciably lowered by proper health supervision.

33 West Sixty-sixth Street

A COMPARISON OF METHODS FOR THE DIAGNOSIS OF TUBERCULOSIS BY SPUTUM EXAMINATIONS.

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When a bacteriologist is working alone in a matter of diagnosis, the question of methods of technique is so closely interwoven with the personal equation involved that we are quite accustomed to accept the method used by him as at least the best for that individual.

When, however, one has to do with a large diagnostic service, such as the work of Division of Laboratories of the New York State Department of Health, making from 10,000 to 40,000 bacteriological diagnoses per annum, where of necessity more than one diagnostician must be utilized, where each gain of precision or time of process is multiplied by the thousands of specimens to a point of great importance for the economy and efficiency of the laboratory, the exact method used becomes of such value as to merit special study, and in the laboratory mentioned, where the writer has been employed for the last three years, this question of determining the exact precision value and time economy has been an important element of consideration in choosing methods of technical diagnosis in bacteriology.

Of the thousands of specimens examined in that service each year, a very large number are made for the determination of the tubercle bacillus in sputum. The specimens are forwarded in 1 ounce tall sputum jars, known as the New York model, closed with tight-fitting cork, and the vial enclosed within a double tin mailing case.

Most of the specimens are received by mail, the quantity of actual sputum in the vial varying from a mere trace to the full ounce of the filled jar. As a routine procedure, the specimens are opened as received, and each vial is numbered as extracted from the mailing case, the same number being placed upon the identification slip. The specimens are then passed to the bacteriologist for preparation and diagnosis.

The usual method of smear, double stain, and microscopical examination has been carried out in this service for years, but always with a careful scrutiny of its known failures.

The so-called antiformin method has been extensively tried, its failures noted, and its improvement studied. Careful comparison has shown the superiority of Loeffler's improved method of using the antiformin, and this latter has been chosen as the best of the antiformin methods.

The object of the present study has been to apply the best selected methods of sputum examination to a series of specimens of known origin, and

subjecting the material from identical specimens of sputum to treatment by each of the chosen methods, to develop by the comparison of results data that would be of value in determining the relative advantages and exactitude of each form of technique. With these data it was then thought possible to choose the preferable method for the routine use of the laboratory.

In preparation for this work the writer studied and developed to its best his individual technique of each of the methods to be tried, and the plan of the work was then made up as before described; to take from identical specimens of sputum, in continued series and of known origin, as closely identical specimens as possible, and treat each one with the chosen method.

By the kind interest of Dr. Montgomery Leary, Director of the Iona Tuberculosis Sanitarium at Rochester, N. Y., and the care of Dr. Brayton, the Resident Physician there, a series of patients in that institution was selected and the sputum from each one of this series was sent whenever an examination was made.

The following reagents were freshly made up and utilized throughout the serial examinations:

Acid Alcohol.—Hydrochloric acid, U. S. P., 1; alcohol, 95 per cent., 100.

Loeffler's Methylene Blue.—Methylene blue (sat-sol. in alcohol) 30; potassium hydrate (1/100 per cent. aq. sol.), 100.

Carbol-Fuchsin Stain.—Basic fuchsin, 1; absolute alcohol, 10; carbolic acid (5 per cent. in aq. sol.), 100.

Antiform Solution.—Sodium hydrate (15 per cent. sol. in water), 1; sodium hypochlorite, U. S. P., 1.

Egg Albumin Solution.—Egg-white, 1; water, 9; chloroform to saturate.

Alco-Chloroform Solution.—Chloroform, 1; alcohol (95 per cent.), 9.

Ferrocyanide of Potassium Solution, saturated aqueous solution.

Glacial Acetic Acid.

Sodium Chloride Solution, saturated aqueous solution.

Throughout these serial examinations of sputum three methods were employed:

(A) The sputum was thoroughly shaken and of this material a direct smear was made in the usual way.

(B) Another measured portion of the specimen of sputum was placed in a large test tube and to this was added an equal volume of the antiformin solution diluted to make a 50 per cent. aqueous solution. This portion of the sputum with its antiformin addition was digested in a hot water bath at 100° C. until a clear solution was obtained in the test tube. The whole was then cooled in running water and then to this sample thus digested and cooled, three c.c. of the alco-chloroform solution for every 20 c.c. of the material in the test tube, was added and the whole thoroughly shaken and centrifuged. It was then found to show three distinct layers in the centrifuged tube, a top layer of clear fluid; a thin scum layer made up of the chloroform tenaciously holding on its surface any tubercular bacilli that had been in this sample.* The egg-albumin fixative was required for all smears of the antiformin treated specimens.

(C) Of the above specimen of sputum, after shaking, a measured portion was taken into another sputum jar and to this was added an equal amount of the saturated solution of sodium chloride. This sample was then thoroughly shaken until all viscous material had been completely broken up, and the whole left at complete rest for a minimum of six hours. At the end of this time the top of the over surface of the sample was carefully picked up with the platinum loop, and smeared on the glass slide.

In case the sample of this sputum was very thin it was found necessary to use a fixative to maintain the smear on the slide and for this purpose a drop of the egg-albumin solution was placed on the slide, and the smear made in this drop. It was seldom found necessary to use the fixative, sufficient matter generally being in the surface scum to fix quite sufficiently the smear thus made.

Smears from methods A, B, or C were all made in the same uniform size, etc., duplicating conditions as exactly as possible, and treated in the same way on the slide (except the use of fixatve as before noted). The smears were allowed to dry spontaneously in the air of the room, and when perfectly dry were fixed by passing three times through the flame.

The slides were all stained in the same staining bath for each series, and always with controls of known positive smears. They were first stained with carbol-fuchsin, cold—twelve hours in the bath; then rinsed slightly in tap water; decolorized in acid alcohol (about fifteen seconds were found sufficient to give the right degree of decolorization with the reagents used). The slides were then removed from the acid alcohol and rinsed thoroughly with tap water, and then immersed for one-half hour in the bath filled with cold solution of methylene blue.

After washing off the counter stain and the drying of the preparations, they were examined under the microscope with the greatest pains, for the identification of the tubercle bacilli. For greater uniformity of examination and results exactly five fields of every preparation were thus thoroughly examined, and the report of results was made invariably from the examination of exactly this number of five fields.

After this serial examination work of sputa had been underway for some time, it was suggested that the value of the chemical method proposed for the diagnosis of tubercular infection in sputa; *i.e.* the test for albumin reaction to a solution of ferrocyanide in sputum as evidence of tubercular resisting process in the organism, should also be tried here, and for the remainder of this serial work this test was carried out; but further and more extended trials must be made before any conclusions on its value can be offered.

The results of the examination of 104 specimens by methods A, B, and C are here given in tabular form.

Of the 104 examinations tabulated as examined by methods A, B, and C, it is noted that a maximum of 99 of the specimens were found to contain a demonstrable *Bacillus tuberculosis* infection. Of these

*Loeffler described the peculiar affinity of chloroform for the tubercle bacillus, attributing it largely to the binding action of the fat contained in the bacillary body for the chloroform; and because of this strong selective binding action of chloroform for the tubercle bacilli he proposed this use of chloroform to make a selective layer that should hold, extracted from the centrifugal sediment any tubercle bacilli there contained. Our own preliminary study of methods confirmed the advantages claimed by Loeffler for this process, and shown in his own work. This method of using antiformin with centrifugal chloroform extraction was therefore our chosen method where antiformin digestion was used.

TABLE 1. RESULTS OF IDENTIFICATION OF BACILLUS TUBERCULOSIS IN SPUTA—101 SPECIMENS, EXAMINED BY METHODS A, B, C

Specimen No.	Method A. (Direct Smear)	B Anti-formin)	C Salting Out	Albumin Test
1	−	+	+	
2	+	−	+	
3	+	+	+	
4	+		+	
5	+		+	
6	+	+	+	
7	+		+	
8			+	
9				
10	+		+	
11	+	+	+	
12	+		+	
13	+		+	
14	+		+	
15	+	−	+	
16	+	+	+	
17	+		+	
18	+		+	
19			+	
20			+	
21	+		+	
22	+		+	
23	+		+	
24	+		+	
25	+	+	+	
26	+		−	
27	−		+	
28	−		+	
29	+	+	+	
30	+	+	+	
31	+	+	+	
32	+	+	+	
33	+		+	
34	+		+	
35	−		+	
36	−		−	
37	+		+	
38	+	+	+	
39	+	+	+	
40	+	+	+	
41	+	+	+	
42	+	+	+	
43	+	+	+	
44	+	+	+	
45	+	+	+	
46	+	+	+	
47	+	+	+	
48	+	+	+	
49	+	+	+	
50	+	+	+	
51	+	+	+	
52	+	+	+	
53	+	+	+	
54	−	−	+	
55	+		+	
56	+	+	+	
57	+	+	+	
58	+	+	+	
59	+	+	+	
60	+	+	+	
61	+	+	+	
62	−	−	−	
63	−	−		
64	+	+	+	
65	+	+	+	
66	+	+	+	
67	+	+	+	
68	+	+	+	
69	+	+	+	
70	+	+	+	+
71	+	−	+	+
72	+	−	+	+
73	+	+	+	+
74	+	+	+	+
75	+	−	+	+
76	+	+	+	+
77	−	−	−	+
78	−	−	+	+
79	+	+	+	+
80	+	−	+	+
81	+	−	+	+
82	+	+	+	+
83	+	+	+	+
84	+		+	+
85	+	−	+	+
86	+		+	+
87	+	+	+	+
88	+	+	+	+
89	+	+	+	+
90	+	+	+	+
91	+	+	+	+
92	+	+	+	+
93	+	+	+	+
94	+	+	+	+
95	+	+	+	+
96	+	+	+	+
97	+	+	+	+
98	+	+	+	+
99	+	−	+	+
100	+	+	+	+
101	+	+	+	+
102	+	+	+	+
103	+	+	+	+
104	+	+	+	+
Totals	104	104	104	35
Total +=.	90	62	98	35
Total −=.	14	42	6	0
% +=.	86.5	59.6	94.2	100

\+ Means tubercule bacilli found. −Means bacilli not found

there were therefore possible 90 positives in order of efficiency we find that

Antiformin demonstrated 62, practically finding....62 per cent.
Direct smear demonstrated 90, practically finding....90 per cent.
Salting out demonstrated 98, practically finding....98 per cent.

Antiformin found one positive that the direct smear did not.

Antiformin found no positive that the salting did not.

Direct smear found one positive that the salting did not.

Direct smear found twenty-one positives that antiformin did not.

Salting found nine positives that direct smear did not.

Salting found thirty-six positives that antiformin did not.

Calculated to exact terms of actual findings of possible positives:

Antiformin is proven accurate to.....62.60 per cent.
Direct smear is proven accurate to.....91.00 per cent.
Salting out is proven accurate to.....99.00 per cent.

The work had not progressed very far, before the relatively too frequent failure of the antiformin method to find the known existant tubercle bacilli in the specimens, was noticed and reasons for these failures were sought for.

Three different solutions of the antiformin were utilized. Antiformin preparation *1 had been made about four weeks previous to the time of using it. It was noted that about twenty-five minutes were required for this solution to digest the sputum thus treated.

A fresh solution of antiformin was then prepared, designated as *2, and using this solution *2 about eighteen minutes were required for the digestion of the sputum thus treated.

A further solution of antiformin was made, designated as *3, for which the digestion time for its treated sputum was found to be about twenty-two minutes. Note that specimens

Nos. 1 to 36 inclusive were examined with antiformin solution.. *1:
Nos. 37 to 69 inclusive were examined with anti ormin solution.. *2:
Nos. 70 to 86 inclusive were examined with antiformin solution.. *3:

The available chlorine in the solutions, 1, 2, and 3 was determined by titration, and was found to be for

Antiformin solution ..... *1 only 0.4 per cent.
Antiformin solution ..... *2 only 0.9 per cent.
Antiformin solution ..... *3 only 0.6 per cent.

Realizing the deleterious effect that a prolonged digestion of the bacillary forms in such caustic solution as this used in the antiformin method would have, and particularly the effect on the staining properties; the importance of reducing the digestion time to a minimum was evident, and for further study another solution of the antiformin was made, designated as *4, and showing an titration an available chlorine of 1.1 per cent,; and with this *4 solution a satisfactory digestion with clear solution of the sputum was obtainable in twelve minutes. This was used on specimens 87 to 104.

The importance of realizing exactly the right titration of the solution of antiformin used is shown by the tabulated cases; where solution *1 of antiformin, with a digestion time requisite of twenty-five minutes, found only 29.4 per cent. of positives:

Solution *2, with a digestion time requirement of eighteen minutes, found 90.3 per cent of positives;

Solution *3, with a digestion time requisite of twenty-two minutes, found 43.7 per cent. of positives; and

Solution *4, with a digestion time of twelve minutes found 94.4 per cent. of positives.

The above results show quite clearly that if the operator of the antiformin method is able to keep an exact chemical control of the maximum efficiency point of his antiformin solution, he may expect an accuracy of say 94 per cent. for that method; but without such carefully exercised titration control of his solution the method becomes very unreliable and its accuracy may fall as low as 29.5 per cent. of the real positives.

It would appear that the antiformin method utilized with perfect chemical control of its activity would show an accuracy of 94 per cent. (3 per cent. more than the positive findings by the direct smear method only); but even at this its greatest supervised accuracy, the antiformin method offers no advantage over the salting out method (C) with its accuracy of 99 per cent.

In utilizing the method of separating the tubercle bacilli by treating the sputum simply with an equal volume of saturated aqueous solution of common salt, thoroughly shaking and allowing to stand for six hours, then skimming the surface with the platinum loop and making therewith a smear on a slide, and stained either slowly in the cold or if time is an object by hot stains, the writer believes that a distinctly advantageous and accurate method for the routine diagnosis of bacillus tuberculosis in sputum is offered.

No special apparatus such as shaker or centrifuge is required, the proven accuracy of findings is 99 per cent. (the superior of any other method yet brought forward for comparative valuation) and it would be possible for the attending physician to himself treat the sputum, skim the surface and make the smear on the slide which would then be all that would be requisite to forward to the laboratory for the expert diagnostic stain and examination.

If time is a factor in the technique of staining for miscroscopic diagnosis, resort to hot staining is to be recommended, and in this case, as soon as the specimen is fixed on the slide, immerse the slide in the carbol-fuchsin stain, itself maintained in a hot water bath at 100° C. Allow to remain in the hot stain for three minutes; remove and wash with tap water. Decolorize cold with acid alcohol for eight seconds. Wash with tap water and stain with cold methylene blue for one minute, wash thoroughly with tap water and dry the specimen, now ready for the microscopical examination.

278 Yates Street.

SOME EARLY SYMPTOMS OF MENTAL DISTURBANCES.*

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It is really surprising to note the number of physicians who fail to recognize the symptoms of mental disturbances in cases which they are called upon to treat, and how often patients are treated for various ailments, which exist only in their imaginations. This may be due to one of two reasons: first, an incomplete and hurried examination of the patient; and second, a lack of experience with mental cases. This subject unfortunately is somewhat slighted in the average medical school. If this is due to the first reason there is no excuse, but there is an excuse for the second, for while mental disturbances are more or less common, the average practitioner does not have enough of that class of work to keep him alert as to the conditions to expect, and the object of this paper is to point out some of the earlier symptoms with which one might come in contact, and the character of the patient in whom one might expect to find mental disturbances.

Too much stress cannot be laid upon knowing as much as possible about the family and personal histories of our patients. Work along the line of eugenics shows that traits of insanities are transmitted from generation to generation. It has been demonstrated that where two mentally deficient people marry the offspring has a poor chance of escaping the parent affliction. It is surprising how much faster the mentally deficient multiply in proportion to the number of normal individuals. A very striking example of this has been demonstrated recently in a report of the "Kallikak family" by Dr. Goddard of the Vineland Training School.

In considering these deficiences in children one may note first the imbeciles of the various grades. In these there is a history of sluggish development. They are late in learning to walk and talk, and in the higher grades they may have advanced further and have been sent to school, but their stay in school is short on account of an inability to learn. Hence they stay around home and acquire what knowledge they possess only by actual experience. Then there is another group of children who are termed feeble-minded. These children apparently develop well, start in school at the usual age, and get along fairly well up to a certain period. This period varies according to the inborn ability. There is also a disability to advance further; the pupil fails to be promoted; he may drag along in the same class for several periods, and then leaves school because he can't get along or because his fellow pupils make fun of him. He has reached his limit and this break usually comes rather abruptly.

Dr. John J. Thomas of Boston in an excellent article on "Retardation and Constitutional Inferiority in Connection with Education and Crime," discusses another grade which he terms retardation. He excludes from this class such cases that fall behind in the school routine, which failure is caused by absence from school on account of acute disease of various kinds, and also of removal from one school to another where the dropping back in grades can be accounted for by lack of correspondence in the subjects taught in the different schools. This observance also omits the children who are unable on account of defects of the special senses which can be remedied. Adenoid disease in his opinion aside from its effects in causing absence from school or impairment of hearing is never the cause of any serious retardation in school work. He also feels that a large proportion of children reported by the teachers as retarded because of inattention, laziness, and immaturity are undoubtedly imbeciles.

To decide whether a child is really deficient is sometimes very difficult, for we have nothing definite as a standard with which to compare the child. The Simon-Binet tests have been devised as a possible standard, but they are only arbitrary, and do not apply to adult imbeciles. Usually the standard considered by the laity is the average child's ability to get along, an individual being classed as sound mentally when he is able to adapt himself to his environment and to get along well

*Read before the Montgomery County Medical Society, June 25, 1913.

under these circumstances. With this failure of adaptation the child is regarded as deficient, but the adult is classed as insane. The term insanity really means nothing more than this. To judge properly of abnormalities we must take into consideration the whole history; the origin and social position of the patient, the environment in which he is brought up, his former illnesses, as well as the result of the mental and physical examination. A single act, instance, or symptom usually means nothing, and its significance can only be recognized when it is judged in its relation to other facts. Goddard believes that there are different levels of intelligence and that these levels are transmitted from generation to generation. Prostitutes and paupers to a high degree are feeble minded, and there are instances on record in which grand parents, parents, and children were found in the same detention.

In discussing the psychoses it might be well to consider them in their respective classifications, taking up the Præcox group first. In most cases of mental disturbances occurring before or during the period of adolescence, we first think of the possibility of their belonging to this group. In going back over their history we usually find that they have progressed well in school and frequently are reported as having been unusually bright. Their general attitude is noticed to be changing, they become irritable, indifferent to their surroundings, and harder to get along with. Frequently we see a preliminary period of depression, when they become less active, forsake their former pleasures, and their personal appearance suffers accordingly; occasionally they have some insight into their condition, realize that they are different from usual, but are unable to explain this. One striking case in mind is that of a medical student who while at college wrote to his father that he was becoming insane; he was eventually placed in this institution, a typical præcox case.

Their condition is noted by their lack of interest in things notwithstanding their correct observations. The change in the character of their movements is very striking, they may be stiff and awkward, or stand about in strained attitudes; their attention becomes impaired; while they correctly note objects these pass immediately from their observations, and they make no attempt to study them. Frequently in the early stages they complain of headache or of a sense of tightness and often of something "snapping" in the head. As the cases progress their memory deteriorates, the train of thought becomes looser, and eventually quite rambling, and in some forms shows evidence of stereotyped phrases; the patient grasping an idea, and then repeating it over and over again; their conduct is disturbed, they are inclined to perform acts on the impulse of the moment, and this is usually one of their most troublesome symptoms, for they may strike without warning, destroy clothing or furniture, and occasionally attempt or do commit suicide. One case observed recently committed suicide by hanging. He had been to a dance the evening before, and was apparently enjoying himself; the following morning nothing unusual was noticed and that afternoon he was found hanging in a room. Often these acts are the result of hallucinations or delusions which are quite prevalent and abundant in this condition. The physical symptoms of this psychosis are rather vague, but an increase of the reflexes and vasomotor changes, such as cyanosis of the extremities, seems to be quite common.

About this age and extending into later life we also find the Manic-depressive grouping of cases, and the percentage of admissions of this class of patients to hospitals is rather high. A study of the heredity of the case usually gives us a clue as to the diagnosis, for frequently we find their progenitors as having been afflicted with the same condition. The defective basis in some cases is often apparent before the onset of the psychosis. The patients may have been more or less moody in their temperament, easily set back in their plans by some minor incident, and inclined to be easily depressed, or again overactive and talkative by spurts, but not enough to cause trouble, or even be noticed at the time, but on their admission to hospitals their friends are able to look back and recall these incidents.

This disease is usually precipitated independently of external causes, and Kraepelin claims that women are affected far in excess of the percentage of males. In the manic phase of the disease they become overactive, they keep themselves busy, but accomplish very little, their attention is easily distracted, they are unable to elaborate on any one impression because there are so many striking stimuli that these crowd each other out before they have time to develop and this is responsible for their rambling conversation. Hallucinations are rather rare and their delusions are varying, but they are usually exalted, boasting or exaggerating their abilities.

In the depressed phases we find just the opposite. The onset is more or less gradual, they may appear lazy, their ability to think becomes lessened, they become quiet and not inclined to talk, their supply of ideas become more and more limited, their work appears enormous to them, and they find difficulty in performing their various tasks and usually give up their positions on this account. They can see nothing but the dark side of everything. Frequently they realize their condition but explain that they don't feel able to pull themselves together. The physical symptoms are usually negative with the exception of a loss of weight, and other symptoms of an autointoxication.

I believe that there are more mistakes made in early cases of Paresis than in almost any other psychosis. How often do we read of persons being arrested on the streets for some offense and particularly drunkenness, who after a period in jail are sent to some institution for the insane suffering from paresis. Their staggering gait, their inability to articulate properly, and their general feeling of well-being I suppose is responsible for their being taken as an ordinary drunk. Kraepelin claims paresis is a disease of modern civilization and seems to be most prevalent in Western Europe and North America and more prevalent in large cities. Prostitutes to an extremely large degree are subjects of this disease; occasionally husband and wife may be similarly affected, and I recall seeing such a duality presented recently by Dr. Dercum at one of the Society meetings, and within the last six years in this hospital there have been three instances.

The average age of onset of this condition is between thirty-five and forty-five years of age, although it may occur earlier. At the beginning these cases often show a tendency towards sleepiness, they become confused and usually show an increased irritability. They are annoyed by minor actions of

their families, they may become more talkative than usual, and their general attitude becomes that of well-being. A very frequent thing for them to do is to purchase large orders of unnecessary furnishings, clothing, etc., without a thought as to the necessity for them or the money with which to pay for them, and usually the rule is that they have not the money and the orders have to be countermanded by their friends. There is an increasing difficulty of receiving external impressions, their memory also shows a progressive impairment, and as their condition advances this failing is replaced by their imaginations and fabrications. Hallucinations play an unimportant part. Their delusions vary with their emotional attitude, the majority being of the exalted class, while occasionally the delusions are depressive in nature.

The physical symptoms may appear before the mental symptoms, but both are usually found coincident. Of the sensory symptoms, headache may be among the earliest, the special senses may be more acute and there may be some visual disturbances Of the motor symptoms, frequent attacks of dizziness or even severe convulsions may be present at the onset, and these attacks often leave the patient in a condition of advanced deterioration, occasionally there may be a transient paralysis of one side or of a group of muscles following these convulsions. In a large percentage of cases the pupils are unequal in size, and react poorly to light and often when there is a reaction the pupil immediately dilates again, the muscles of the face lose their tone and give the washed out expressionless features, the speech becomes slurring and in the early stages this may not be noticed during an ordinary conversation, but in using words containing an excess of consonants, particularly the m, n's, and r's, this feature shows up. Tabetic symptoms are often seen in paretics and have a tendency to confuse the diagnosis. These symptoms may precede the paresis for several years but are more or less typical of tabes dorsalis. One case admitted to this hospital recently and diagnosed as a tabo-paretic, prior to admission had been operated upon on two different occasions for the relief of a gastric ulcer and was committed with a psychosis, the result of using morphine. He had been inclined to complain of numerous ailments. The pains on which his operations had been based appeared very much as if they had been the girdle pains of the tabetic, and his excessive use of morphine was an effort on his part to relieve the intense pain. At the present time this patient is in the advanced stages of paresis and still complains of the gastric crisis of tabes.

The Wassermann and Noguchi reactions are also valuable diagnostic points and usually give a positive reaction, as this condition is usually found in patients who have been infected with syphilis. Occasionally in clear clinical cases a negative reaction may be obtained, but often this may be explained by a previous rigorous course of antisyphilitic treatment, and then in other cases a short course of treatment is necessary to stir up the condition as to cause a reaction to take place.

In the older patients we expect to find involutional psychoses and among the most prominent are melancholia and senile dementia. Melancholia is really a depressive phase occurring during the early senile period, this same condition occuring during earlier life would probably be classed among the manic-depressive group. The majority of cases are found between fifty and sixty years of age. External influences seem to play an important part as the exciting cause. The onset is rather slow and the early symptoms rather indefinite. The chief among them being a progressive difficulty to perform their usual work, they lack ambition, become sad, somewhat fearful, and frequently complain of feeling badly. Their facial expressions give evidence of their worry and oftentimes they lose control of themselves, become restless and quite agitated. Their ideas of self-accusation become prominent, while in some cases they are hypochondriacal in nature. Hallucinations of both sight and hearing may also be present in this condition but are rather indefinite. In cases of senile dementia we see the condition coming on about this same period, but usually it is later. The onset is gradual; they become puerile in their actions, become slower in their observations of their surroundings, are easily disoriented, become restless, and particularly at night they wander aimlessly about and are quite prone to light matches or play with the fire. Their memory shows a progressive deterioration, and this may be one of the earliest noticeable symptoms. They go out and lose their way home, cut holes into their pockets to get into them, and do various other stunts similar in nature. Frequently they develop ideas of persecution, that they are old, that they are worth nothing, and that their relatives do not want to bother with them, and frequently as a result of this they may attempt self-destruction.

The symptoms and characteristics that have been given above are only the ones most commonly seen in the early stages and cover the more principal forms of mental disturbances with which we come in contact most frequently. Of course we often find a mixture of symptoms which complicate the case and make it more difficult to diagnose early, but in many cases a diagnosis cannot be made until after a period of observation, and to the average practitioner this is not possible, for on account of the troublesome acts of the patient it becomes necessary to commit them to some institution when they pass from your care unless you take the time and trouble to follow them up.

The popular idea held by some physicians that neurasthenia, psychasthenia, and hysteria are often early signs of insanity does not appeal to me as being correct.

VACCINE THERAPY OF PERTUSSIS.

By PAUL LUTTINGER, M.D.,

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Whooping-cough has shown, in the spring and summer of this year, a tendency to recrudescence in New York City. Two hundred and sixty-four deaths were recorded by the Department of Health from February 15 to August 17, 1913, while only 287 occurred during the whole year of 1912. During the above 28-week period 2,451 cases of whooping-cough were reported.

In the early part of April I had occasion to see quite a number of severe pertussis cases in the central part of the Bronx. The ordinary treatment internally with antipyrine, belladonna, quinine, potassium bromide, camphor, as well as inhalations of eucalyptus oil or creosote, did not seem to afford, in most cases, any permanent relief. I finally decided to try the pertussis vaccine. This vaccine, which is

VACCINE THERAPY OF PERTUSSIS—SUMMARY OF PREVIOUS REPORTS

Author	No. of Cases Reported	Age	Surroundings	Duration, Treatment in Days		Source of Vaccine	Millions			No. of Injection	Intervals in Days	Duration in Days	Results
				Before	After		Min. Dose	Max. Dose	Total Dos.				
P[illegible]an, 1...	*(1,000 test inoculations)	*	*	*	*	From a Bordet-Gengou strain given by Dr. Bordet.	¼	20	*	*	*	*	*Vaccine Cases* / *% Control Cases* Much better 31 / 21.55 Better 37.1 / 34.55 Unchanged 15.7 / 23.9 Worse 15.2 / 18.15 Much worse 1. / 1.85
Ladd, 2	9	7 weeks to 6 years	Hospital	7–56	21–56	Bordet-Gengou bacillus emulsion grown on blood agar 24 hours, heated at 60° C. for 1 hour.	20	40	37 to 170	3–8	5 to 14	..	Apparently shortened course and diminished attacks.
Graham, 3	24	2 months to 8 years	Private, except one hospital case	5–60	....	Commercial "Pertussin" (Pro bably Bordet-Gengou cultures.)	20	40	.	6–8	2–4	..	17 apparrently benefited (71%), 7 apparently not benefited (29%). Diminished severity and number of attacks shortened course.
[illegible]arnberger, 4.	6	. . .	Clinic	.....	13–30	Commercial "Polyvalent." (Probably Bordet-Gengou cultures.)	20	40	..	5–15	2–4	28–42	Rather lessens severity than shortens duration. The earlier treatment begins, the tbe better.
Scott, 5	2 out of 17 cases treated	1–2½ yrs.	Clinic	35	26	Commercial. (Probably Bordet-Gengou cultures.)	10	40	40 to 100	3	3–7		One great success, on p rtial failure; vomiting disappeared; young infants give quicker results.
Wilson, 6	24	*	Institution	.....	.....	Commercial. (Probably Bordet-Gengou cultures.)	20	40	..	*	*	9–48	Apparently shortens duration and severity. Kink disappears one week before cough.
Sill, 7	33	1 month to 6 yrs.	Clinic	7–49	10–64	Commercial. (Probably Bordet-Gengou cultures.)	20	60	..	3–12	1–7	.	Diminishes markedly number and severity of parox. and vomiting. Early cases responded better.
Nicolle & Conor, 8...	104	*	Tunis Epidemic	*	*	48-hour Bordet-Gengou culture heated to 46° C. for ½ hour; hence *living* bacteria.	1	5	*	2–5	2–3	..	Cured 35.7; 78% cured 3-12 days; improved 38.46; stationary. 25.96.

*Not given.

said to be made from cultures of the Bordet-Gengou bacillus of pertussis, was obtained from a well-known commercial firm, and is put up in 1-c.c. bulbs, containing 50,000,000 killed bacteria. Following the directions of the manufacturers as to dosage, I gave hypodermic injections of 20,000,000 to 40,000,000 bacteria every four to seven days. The results obtained were indifferent. I could not satisfy myself that the vaccine had either shortened the duration of the disease or lessened to any great extent the severity of the symptoms. The impression was gained, however, that it would be worth while to give the vaccine a more extensive trial.

In looking up the literature on whooping-cough in connection with studies undertaken by a group of workers at the Research Laboratory of the Department of Health, it became apparent that other experimenters had had better results.

Above is a summary of previous experiments with pertussis vaccine.

These reports encouraged me to try the vaccine again, this time in much larger doses and at shorter intervals than heretofore given. From the beginning of June to the middle of August I administered the vaccine to ten whooping-cough cases and to one healthy child (as a prophylactic) with the following results:

Case	Total Duration of Disease, Days	Duration After Treatment, Days	Number of Injections	Total Dosage	Maximum Dose
1	23	14	4	350,000,000	125,000,000
2	28	14	3	300,000,000	150,000,000
3	37	16	6	750,000,000	175,000,000
4	16	12	2	150,000,000	170,000,000
5	34	12	1	200,000,000	200,000,000
6	27	13	4	500,000,000	200,000,000
7	27	13	4	500,000,000	200,000,000
8	18	16	4	500,000,000	200,000,000
9	43	15	6	750,000,000	150,000,000
10	22	8	3	350,000,000	200,000,000

All these patients were seen and treated in private practice, and with one exception were children of working people. They ranged in age from one and a half to four years. I experienced considerable difficulty in most cases in persuading the parents to try the vaccine treatment. The notoriety which a recently exploited tuberculosis vaccine attracted seems to have inspired them with distrust. Added to this is the natural awe in which ordinary people stand of "needles."

With the exception of Case V, the initial dose was uniformly 50,000,000 bacteria (1 c.c.). In Case V I had intended to give a dose of 100,000,000, but inadvertently injected double that amount. The child did not seem to have suffered any ill effects from this rather high dose. The highest single dose

given was 250,000,000 (Case IX), and the highest total dosage was 750,000,000 (Case IX); the lowest total dosage was 150,000,000 (Case IV).

In some cases injections were given as often as every twenty-four hours. Those showing symptoms suggesting a negative phase or other complications had no injections until these disappeared.

A slight elevation of temperature of 1 or 2 degrees and an increase in the number and severity of the attacks of whooping may be the only indication of the reaction, and even this is wanting in many. In none of the ten cases was there a local reaction at the site of the inoculation.

Method of Administration.—The skin of the arm or of the gluteal region is thoroughly washed with 5 per cent. carbolic acid solution or alcohol. Phenol has the advantage of producing some anesthesia of the parts. The bulb containing the vaccine is thoroughly shaken and the contents drawn through a sterile needle into a syringe that has been boiled. The contents are then injected hypodermically, the needle is withdrawn, and with a piece of cotton gentle massage is made over the site of inoculation. Fifty million bacteria is a safe initial dose which can be followed the day after (unless a negative phase develops) with another dose of 100,000,000. From two to four days after the second injection a third dose of 200,000,000 may be administered. Two to seven days can now elapse before the last dose of 300,000,000 is given. Should a slight cough persist I would recommend a fifth dose a week after the fourth injection.

Prophylaxis.—Only in one case (the twin brother of the patient in Case VIII) did I have the opportunity to use the pertussis vaccine as a prophylactic. While it would be preposterous to draw any conclusions from one case, the result obtained is too striking not to warrant further experimentation along this line. In hospital, schools, and similar institutions an extensive experiment along the prophylactic treatment of whooping-cough would soon settle its merits or uselessness.

Case I.—J. R., female, 2½ years old, whooping for nine days, about twenty paroxysms in 24 hours. On June 6, 1913, 1 c.c. pertussis vaccine containing 50,000,000 bacteria given hypodermically in left arm. June 7, coughing worse than ever (negative phase?), some fever, loss of appetite. June 8, temperature normal, 1.5 c.c. vaccine hypodermically in right gluteal region. June 12, number of whoops, 12; 2 c.c. given hypodermically in left gluteal region. June 15, no whoops at night; 3 c.c. vaccine under left scapular region. June 20, stopped whooping but continued to cough a little. June 21, child is entirely well.

Case II.—M. F., female, aged 2 years. Contracted disease two weeks before the first injection. Temperature, 101. A few moist, scattered râles were heard. Has had over twenty-five whoops in 24 hours. June 10, 1913, 1 c.c. vaccine. June 11, mild attack of gastroenteritis; injections postponed. June 15, whooped fourteen times yesterday; 2 c.c. vaccine injected. June 16, only ten whoops which are much milder in character. June 17, 3 c.c. vaccine given. June 24, two to three very mild whoops; mother thinks the baby is well now and refuses further "needles."

Case III.—L. T., male, 3½ years old, delicate child; has been whooping for three weeks, severe case. June 25, 1913, 1 c.c. vaccine injected. June 27, 1.5 c.c., no improvement. June 28, no improvement; 2 c.c. vaccine given. June 29, no improvement. July 2, marked improvement, whoops suddenly became milder and fewer in number. Mother superstitiously refuses to count them. July 2, 3 c.c. vaccine given; still whoops "a little." July 4, 3.5 c.c. vaccine administered with the hope that it may shorten period of decline and prevent sequelæ. July 10, child is not whooping any longer.

Case IV.—C. F., female (cousin of Case II), 1 year and 9 months old; duration of disease, four days. June 14, 1913, 1 c.c. vaccine. June 15, whoops increased in number (from 8 to 14). June 16, improving somewhat. June 17, 2 c.c. vaccine administered. June 24, aunt of patient (mother of Case I) informs me that "she is getting along fine" and had not whooped for two days.

Case V.—E. M., female, 2 years old; sick for three weeks. Parents refuse a course of four to five injections but agree to "try" one. July 13, 1913, 4 c.c. were injected hypodermically in the gluteal region. July 20, a postal from Rockaway, where the family is summering, states that the child is feeling much better. July 26, another postal informs me that "last night and to-day the child did not cough at all."

Cases VI and VII.—G. and D. R., twins, female, 1½ years; contracted disease in Coney Island, notwithstanding the fact that they live almost in front of the ocean. July 20, 1913, 1 c.c. of vaccine administered to each. July 21, there being no negative phase, 2 c.c. additional are given. July 24, 3 c.c. injected; improvement. July 27, improvement continues; 4 c.c. vaccine administered. July 30, improved to the extent of two and four coughs respectively. August 2, children do not whoop any more.

Case VIII.—M. H., male, cousin of preceding two cases, living in same house, 3½ years old. At the time injection was given to Cases VI and VII, I offered to give him and his twin brother, Frank, a prophylactic dose. Frank readily submitted but Morris raised such a hubbub that I was obliged to desist. Ten days later he began to whoop, while his brother remained well. August 2, 1913, initial dose of 1 c.c. given, followed with 2 c.c. on the 3d and 3 c.c. on the 7th. He began to improve markedly after this and on the 12th the last dose of 4 c.c. was injected. August 16, child is reported to be still coughing a little. On August 18 reported to be entirely well.

Case IX.—H. G., female, 2 years old, very severe case. Mother cannot count the large number of paroxysms. Child has had disease for four weeks. July 25, 1913, 1 c.c. vaccine was injected. July 26, seems to have become worse. July 27, is still very bad. July 28, no improvement. July 29, began to improve a little; 2 c.c. vaccine given. July 30, further improvement; 3 c.c. vaccine injected. August 2, improvement continues but at slow rate; 4 c.c. given. August 4, another injection of 5 c.c. August 7, improvement is very marked. August 8, child did not cough at night. August 9, child is well.

Case X.—J. J., male, aged 4 years. Contracted disease in midocean while on the steamer returning with his mother from Europe. Has had disease for two weeks. Patient recommended for treatment by Dr. Louis Goldstein. August 16, 1913, 1 c.c. vaccine injected. August 17, no change; 2 additional c.c. administered. August 18, mother thinks that he whoops more than before (negative phase after second injection). August 19, number of whoops decreased from 20 to 9; 4 c.c. vaccine injected. August 21, night whoops stopped. During the day had seven mild whoops. August 22, 4 mild whoops. Mother refuses further injections. She believes child will get well anyhow. September 14, child had stopped whooping on the morrow of last visit.

It is not within the scope of this article to discuss the etiology of whooping-cough. The bacteriological findings of these and other cases are included in the studies on whooping-cough which are now being made in the Research Laboratory of the Department of Health.

Conclusions.—1. Pertussis vaccine, used in ten cases of whooping-cough, apparently reduced the severity and shortened the duration of the disease.

2. To be effective the vaccine should be given in much larger doses and at shorter intervals than hitherto recommended.

3. A dose of 50,000,000 bacteria should be tested as a prophylactic.

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TURBINOTOMY.

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TURBINOTOMY, or partial excision of the turbinated bone, seems to have been discarded in nasal surgery since the submucous septal operation has come into vogue. If I have a case, however, of nasal obstruction, with its accompanying symptoms of dry throat, postnasal dropping, frequent "colds in the head," winter cough, etc., and I find a moderately large inferior turbinate and a slightly deflected septum I always attack the turbinate rather than touch the septum.

The submucous operation is a good procedure in those cases where the septum is profoundly deflected and where there is no other way of giving more air-room. The damage to the mucous membrane, the danger of perforation, flat nose, and synechia formations is not a trivial matter to be laid aside. These complications are liable to happen in the hands of the most expert rhinologists.

Turbinotomy is a simple procedure compared to the submucous operation on the septum and gives the patient what he wants, more air-room, and stops the postnasal dropping. Even in cases of chronic hypertrophic rhinitis where the bone is not enlarged, I advise turbinotomy, removing only a small ridge of bone with the redundant mucous membrane. The operation seems to be preferable to that of the snare, inasmuch as there is less granulation-tissue formation. The cautery, either electric or chromic acid beads, even if employed lightly, causes a marked edematous condition the next day, which takes about two weeks to disappear. Cauterization is not a complete procedure for nasal obstruction. Those cases which would respond to the cautery would respond to any alkaline cleansing nasal douche.

Turbinotomy is also extremely beneficial in ear cases, even where there is practically no evident complaint of nasal breathing; that is, in chronic intermittent otorrhea and chronic catarrhal deafness in adults. The congestion around the Eustachian tube orifice is removed and promotes better drainage and aeration in the middle ear. I have performed this operation in many cases of catarrhal deafness and chronic intermittent otorrhea, with very beneficial results. I speak of intermittent otorrhea because in most cases it is due to some obstruction around the Eustachian tube in children and is very apt to be caused by adenoids.

A chronic nonintermittent aural discharge which does not respond to the ordinary procedure, not forgetting the value of the polyvalent vaccines, means that a posterior drainage operation through the mastoid process is necessary.

The technique of turbinotomy is as follows: (a) Prepare the case the evening before with a calomel purge to relieve congestion, to be followed in the morning with the usual saline cathartic. A moderate meal before the operation is advisable as the patient does not seem to be so nervous from the effects of the cocaine as he would be on an empty stomach. The tolerance to cocaine of each patient should be determined by having the case come to the office for about three or four visits before the operation and the nasal cavity should be swabbed out with cocaine at each visit. This will also familiarize the operator with all the eccentricities of the patient and also give him time to study that particular nasal cavity.

(b) The nasal cavity is carefully swabbed out with warm saline solution or a spray may be used very gently. Various antiseptic solutions are not necessary as they do no good in mild strength and in strong solutions they only irritate the mucous membrane, lowering the power of resistance to infections. After the nasal cavity is thoroughly cleansed it is cocainized in the usual method with a 10 per cent. solution. Adrenalin with cocaine may be employed if desired. After 20 minutes the cocaine cotton tampon is removed and the operation is begun.

(c) An incision is made through the mucous membrane from the posterior tip of the inferior turbinate to its anterior tip, along its internal surface with a scalpel down to the bone. The mucous membrane is then peeled downward from the bone; in many cases it will drop down immediately after the incision, as it is not very adherent to the bone. The bone is then sawn through from its internal surface with a fine flexible saw, the operator being careful always to have the saw running parallel with the inferior border of the septum, and not to have the point running outward, as damage to the Eustachian tube orifice might result therefrom. In some cases it is easier to saw the bone through from its external surface inward and upward. This is optional with the operator. Now the snare is passed around the cut segment and it is removed *en masse*. Rarely is it necessary to remove more than about one-third or one-half of the bone, and hence there is no danger of any atrophic condition resulting as might happen after a complete turbinectomy. Now the nasal cavity is gently swabbed out with a 20 per cent. argyrol solution, and then packed with iodoform or plain gauze saturated in 5 per cent. argyrol. In the ordinary case all the packing can be removed on the second day. The patient can resume his business on the fourth day. The after-treatment is practically like that of any postoperative wound.

340 STUYVESANT AVENUE.

Meningeal Hemorrhage During Parturition.—J. Euzière and F. Bonnet report the case of a primipara aged twenty who during the course of labor passed into a deep coma, which gradually disappeared after the instrumental delivery of her child. The following signs indicating meningeal involvement were present: rigidity of the neck, Kernig's sign, headache, photophobia, and a moderate rise of temperature. Lumbar puncture revealed bloody fluid. Complete recovery ensued in four weeks.—*Gazette des Hôpitaux.*

Cases of Congenital Ocular Lesions.—E. H. Harries Jones reports the following cases: Case I: Aged 9 years. Right eye: Persistent capsulopupillary membrane (pigmented). Left eye: Pigmented area on anterior capsule of lens. Case II: Aged 23 years. Right eye: Coloboma of iris and choroid downward and inward (usual kind). Case III: Aged 23 years. Right eye: Coloboma of iris and choroid (downward and inward). Left eye: Marked microphthalmos, with coloboma of iris and choroid. Case IV: Aged 11 years. Left eye shows persistent hyaloid artery—not blood-bearing—passing from the optic disk to the posterior pole of the lens. Case V: Child showing congenital dislocation of crystalline lenses, outward and downward.—*Proceedings of the Royal Society of Medicine.*

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TUBERCULOUS INTERSTITIAL NEPHRITIS.

THE question whether tuberculosis may give rise to a primary chronic interstitial nephritis is one that presents many points of interest. It is well known that a large number of tuberculous individuals develop a secondary tuberculosis of the kidneys. Renal tuberculosis of this character is strictly of surgical significance. It is a clearly defined entity, recognized with little difficulty and when unilateral, responding to appropriate surgical treatment. On the other hand, little attention has been paid to the possibility of tuberculosis being the cause of a parenchymatous or interstitial inflammation of the kidneys. Landouzy and Bernard described a primary tuberculous parenchymatous nephritis with albuminuria, hematuria, and edema. Jousset referred to a "néphrite scléreuse interstitielle atrophique," of tuberculous etiology. Tamayo examined the kidneys of 279 tuberculous individuals, and whereas he found a definite renal tuberculosis in 39, nevertheless, in 98 cases investigated histologically, he was able to demonstrate in 86 cases the presence of parenchymatous and interstitial changes of chronic or acute type. The German clinicians who have studied this subject have obtained similar results. Frerichs found in the kidneys of tuberculous individuals cloudy swelling, anemia, and in some instances chronic interstitial changes. Heyn concluded that the tubercle bacillus may give rise in the kidney to foci of inflammation which may not go on to caseation, but which may heal with the formation of scars. He described a contracted kidney *sui generis* in tuberculous patients. Salus found in 28 cases of tuberculosis the presence of albuminuria in 44 per cent. and casts in 51 per cent. and characterized these as evidence of a renal involvement. Herxheimer concluded from his investigations that in adolescence tuberculosis is the most important etiological factor in the causation of hyaline degeneration of the glomeruli of the kidney.

S. Schönberg (*Zeitschrift für klinische Medizin*, Vol. 78, Nos. 5 and 6) has studied this subject anew, his opportunity being afforded by a patient in whom the manifestations of a chronic interstitial nephritis dominated the clinical picture from the outset. A woman twenty-eight years old presented throughout the entire course of her illness of one year a mild uremic condition characterized by headaches, marked vomiting, and occasional vertigo. There was an increased secretion of urine, of low specific gravity and containing albumin and casts. The blood pressure was 230. There was a pronounced albuminuric retinitis. Death occurred during an attack of uremia. Autopsy confirmed the clinical diagnosis. The kidneys were contracted, giving the appearance of a combination of the arteriosclerotic and the contracted kidneys. The poles of the kidney were not involved. Foci resembling tubercles were present in the kidneys, but there was no evidence of tuberculosis in any other part of the body. Microscopic examination of the kidneys showed hyaline degeneration of the glomeruli, reduction of the parenchyma, and atrophy of the uriniferous tubules. The interstitial connective tissue was increased in amount and rich in cellular elements. In the areas that contained most of the latter there were numerous tubercles which were also in close contiguity to the glomeruli. The presence of tubercle bacilli was demonstrated.

The questions arose: what type of interstitial nephritis was presented by the above case and what relation did it bear to tuberculosis; was this an etiological or a complicating factor? The atypical character of the pathological picture and the presence of localized areas of transformation of the tuberculous granulations into fibrous tissue led Schönberg to conclude that the nephritis was the direct result of tuberculosis. Among the various causes of chronic nephritis, he thinks tuberculosis must be included as a possible etiological factor.

DIABETES AND CIRRHOSIS OF THE LIVER.

CLAUDE BERNARD, who discovered the glycogenic function of the liver, was the first to point out the close relationship between a disturbance of this organ and diabetes. Jaccoud, Cantani, and Lecorché were able to demonstrate pathological changes in the liver of diabetics, but threw no light upon the morbid mechanism involved. Hanot and Chauffard delineated as the cardinal symptoms of "le diabète bronzé," cirrhosis of the liver, melanodermia, and diabetes. Bouchard noted the great frequency of hypertrophic cirrhosis of the liver in diabetics. It was Glénard, however, who brought considerable clinical evidence to show the important rôle played by the liver in the production of diabetes, maintaining at the same time that every instance of hepatic diabetes is the result of chronic alcoholism. Gilbert and his pupils distinguished two varieties of diabetes: that caused by hepatic insufficiency, in which the liver is unable to store up the ingested sugar; and that caused by an excessive functional activity of the liver. The former type is benign, but the latter represents a severe grade of diabetes and, according to Gilbert, includes bronzed diabetes, the diabetes associated with acromegaly, certain traumatic forms of diabetes, and pancreatic diabetes. Contrary to the views of Gilbert, Marcel Labbé recognizes only the type of diabetes characterized by hepatic insufficiency.

Basing their opinion upon two cases of diabetes associated with cirrhosis of the liver, Bouchut and Volmat (*Revue de Médecine*, October 10, 1913), believe that whatever may be the rôle which the liver plays in diabetes, there is nevertheless a definite clinical type, namely, a diabetes associated with cirrhosis of the liver. Found in most instances in chronic alcoholics this cirrhosis is almost always of the hypertrophic type. It develops as a rule without ascites or icterus. In general the diabetes is benign, resembling the "diabète gras" or the arthritic diabetes, and frequently the glycosuria diminishes during the terminal stage of the cirrhosis. Occasionally the diabetes may be of severe type. It is difficult to decide clinically in any given case which process has started first, the cirrhosis or the diabetes; sometimes the one, and sometimes the other being the first manifestation, and sometimes both conditions being detected simultaneously.

The interpretation of the above relationship is no more definite than the present-day conception of the pathogenesis of diabetes. One fact has been established, namely, diabetes is the expression of a complex disturbance of the sugar-regulating mechanism of the body, a mechanism of which the pancreas, liver, kidneys, suprarenals, and other organs form a part. Sometimes one organ, sometimes another, may provide the disturbing factor. At any rate sufficient pathological data have been gathered to show that the fault may lie mainly in the pancreas or in the liver.

AN ANTIVIVISECTION ORGY.

The newspaper reports of the meetings of the International Antivivisection and Animal Protection Congress would indicate that the members of the Congress are no less adept than formerly in their use of misstatement and misrepresentation and no more restrained in the expression of their prejudices or distorted beliefs Mrs. Florence Waring, the organizing secretary, for instance, is quoted as saying: "We are in this work for the protection of all helpless creatures, both human and dumb, who are to-day in our own country at the mercy of a class of medical men accountable to no law but their own." Mr. Edward H. Clement of Boston is quoted by the *New York Times* as follows: "Here in the United States is the largest mass in the world of 'tainted' wealth, and the whole toppling mass stands crowned with the Rockefeller Institute There is enthroned man's superior cunning and power, wreaking itself on animals, as erstwhile on humanity"; while Senator Gallinger of New Hampshire is reported to have said that there was every reason to believe that in some hospitals pauper children were "inoculated with loathsome diseases to see the results that will follow"; and that "the dog which turned and lapped the vivisector's hand after a red hot iron had been run into his eye, stands a better chance to reach paradise than the brutal human being who so needlessly tortured the dumb animal." "Human vivisection is a fact and is so widespread as to be called general." Mr. Frank Stephens of Philadelphia is reported to have stated, while Mr. F. P. Bellamy of Brooklyn also called attention to the practice of inoculating children with loathsome diseases and of performing dangerous tests on healthy and ignorant people, which he apparently considered to be a common one.

Mr. J. Howard Moore of Chicago drew a sad picture, as reported in a dispatch to the *Sun*, when he stated that: "Vivisectionists in an earlier day would have been slave dealers or in a still earlier stage of development would have been cannibals ready to eat alive their grandmothers or grandfathers"; while even more tragic was the statement of Mr. D. C. Beard, president of the New York Camp Fire Club, quoted in the *American*: "As 33 per cent. of our physicians are victims of some form of drug habit, they should not be permitted to make dangerous experiments on human beings or even on animals." Even the great Pasteur was not exempt, for in criticising the Pasteur treatment for hydrophobia as "injurious and responsible for many deaths," Mr. Charles W. Dulles of Philadelphia said that "although Pasteur has made most valuable contributions to science, which have been of great service to humanity, in regard to this particular subject, he is a charlatan and an ignoramus."

On top of all this it is rather disconcerting and disappointing to read that at the opening session President Wilson was quoted as having expressed himself in sympathy with the antivivisection movement and as willing to do what he could to further it, and that Secretary of State Bryan on behalf of the President welcomed the delegates to Washington.

THE PSYCHIC VALUES OF LIGHT, SHADE, FORM, AND COLOR.

The human feelings, emotions, and sensations are profoundly influenced by light, shade, form, and color, and it therefore follows that the methods of illumination should be in consonance with such sensations, or at least should offend them as little as possible. In an interesting paper read before the Illuminating Engineering Society and published in their Transactions for October, F. Park Lewis brings out these truths. Referring to the mental and moral effects of light and shadow, Lewis says: "The difference produced upon our state of mind by the glaring brilliancy of an unshaded Welsbach light, especially an old one, or the soft glow of even a yellow illumination is felt by every one, although by no means always recognized as a cause of nervous irritation. In some of the most persistent cases of eyestrain after the ophthalmologist has employed the highest degree of skill in determining the correct combination of lenses to be employed it will be found that the discomfort is due to a badly placed lamp, to the improper use or absence of shades, to an insufficiency or an excess of light, to some specular reflection, or other local fault in the illumination about which he has not been advised. There is probably no one simple element that more deeply concerns the welfare of the people than correct lighting."

Putting aside the esthetic effects of light and color which in themselves have a very considerable influence upon health through the nervous system, the

harm done by too glaring lighting, by badly placed lights, or by insufficiency of light to the vision itself is very great. In these days the fault is generally a too glaring light or an excess of light. The object seems to be to have as many brilliant white lights as possible, and even in public libraries shaded lights are not infrequently conspicuous by their absence. There is little doubt that a considerable amount of the nervous irritation which is so prevalent is largely due to or greatly aggravated by present day methods of lighting.

Practical Eugenics.

Practical eugenics is a problem which is not only as yet unsolved, but is still very far from solution. In fact, no absolutely workable scheme in the direction of preserving the race at a high standard of physical and mental excellence or of checking the widespread deterioration which is taking place in the population of the cities of all civilized lands has been even suggested. It is, however, the worthy aim of leaders of thought in every branch of human endeavor to set forth a means of regenerating the race. A paper of much value has been contributed by Sir James Barr of Liverpool to the November issue of the *American Practitioner*. He points out that the science of eugenics has the positive aspect of encouraging the multiplication of the morally, intellectually, and physically fit and the negative aspect of preventing further degeneration by discouraging or preventing the multiplication of the unfit. Attention is drawn to the fact that the latter, if widely and wisely executed, would be a great point gained and could be easily attained if society would only wake up to a sense of its enormous responsibilities. Barr rightly lays great stress on the necessity for preventing the propagation of the feeble-minded. Such persons are generally prolific and in them the sexual instinct is developed often to an abnormal extent, the consequence being that the feeble-minded increase at a menacingly rapid rate. The great danger of the situation is that the least fit, who are possessed of no sense of responsibility, increase in a far greater proportion than the fit. The logical assumption would, therefore, be that in course of time the fit would be overwhelmed by the burden of supporting those who so far as the welfare of the race is concerned had better never have been born. Fortunately, however, what does happen is not always what logically ought to happen, and as the world has jogged along through the ages improving a little all the time, it probably will continue to do so, though a temperate application of eugenic principles will no doubt accelerate the rate of progress.

Our Present Knowledge of Pellagra.

From many points of view our progress towards a definite knowledge of pellagra is halting and disappointing. As C. H. Lavinder points out in the issue of Public Health Reports for November 21, our actual knowledge of the disease leaves very much to be desired; and the etiology of pellagra remains in obscurity. While the Italian school still holds to the corn theory, the American school appears inclined to regard pellagra as an infectious disease of some undetermined character. Although, as said before, nothing is accurately known regarding the etiology of the disease Sambon's fly theory seems as worthy of consideration as any other. Sambon has shown, for instance, that there are several cases of the disease in the British Isles where the habits of living and kind of food eaten do not favor the corn theory. As for a specific for pellagra, Lavinder remarks that there is none for pellagra as there is none for the vast majority of diseases, and the treatment recommended by him is largely summed up in the removal of the patient from his surroundings, if possible, and preferably to an institution; proper diet, properly regulated rest, hydrotherapy, and intelligent attention to general symptomatic treatment without the employment of too many drugs. The fact is noticed that such a treatment implies the need of institutions, of which we have none in this country. Lavinder utters a timely word of warning with regard to the ready use of arsenic in the treatment of the malady and especially does he advise caution in the employment of the so-called arsenical preparations, such as atoxyl and salvarsan. This latter preparation, valuable as it has thus far proved to be in the treatment of certain forms of syphilis, is coming to be too much regarded as a panacea for a variety of diseases and it is certainly no specific for pellagra.

News of the Week.

City Vital Statistics.—During the week ending December 6, the total number of deaths reported in New York City was 1,372, giving a death rate of 13.32 per thousand of population, as compared with a total of 1,420 deaths, and a rate of 14.32 for the corresponding week of last year. There were only 194 deaths of infants under one year of age, during the week. For the first forty-eight weeks of the year the death rate is given as only 13.77, which indicates a record low rate for the year.

Health Department Report.—In the December issue of the Monthly Bulletin of the New York Health Department, some of the doings of the department during 1913 are enumerated. In the enforcement of the pure food laws, for instance, although the corps of inspectors is totally inadequate, 11,529,899 pounds of foodstuffs were condemned during eleven months. There are now 19,000 places in the city where food is handled, prepared, or sold, and all of these require thorough inspection; for this a force of at least 150 men is needed, whereas there are at present but forty. The percentage of cases of tuberculosis kept under observation by the department increased from 12 in 1908 to 25 in 1913. Tuberculous children are now excluded from school, scrub women are employed to disinfect premises previously occupied by consumptives, and stereopticon tuberculosis exhibits have been given at night in various parks. The system of supervising the health of children in schools and public institutions has been largely extended, and six dental clinics have been established. The department maintains fifty-five milk stations, to which the reduction in infant mortality is largely credited; and the adoption of a milk grading system as a part of the Sanitary Code has resulted in a great improvement in the quality of milk supplied to the city. Every can or bottle of milk coming into New York must now bear a label explaining just what quality and grade of milk it is. The steady fall in the death rate under the present administration of the city is also pointed out. During 1909 the death rate per thousand was 16; during 1910, 15.98; during 1911, 15.13; and during

1912, 14.11. For this year it promises to be below 14, which will almost approximate the 13.52 rate for London in 1912, the lowest on record.

Ambulance Crash.—In a collision between an automobile and a Fordham Hospital, New York, ambulance last week, the ambulance surgeon, the patient, and a policeman were all severely hurt.

Death from Diphtheria Antitoxin.—A verdict of death from asthma complicating an injection of diphtheria antitoxin was rendered recently by a Coroner's jury in the city of Philadelphia in the case of a young man who died following a prophylactic injection. It was shown that from childhood the man had shown marked susceptibility to the presence of horses, developing asthmatic symptoms on exposure.

Civil Service Examination.—The United States Civil Service Commission announces an open competitive examination for men only, for the purpose of filling a vacancy in the office of medical assistant in the Bureau of Chemistry, Department of Agriculture, Washington, at a salary of $1,800 per year. The duties of the position will be to study the claims and representations made in conjunction with proprietary remedies, to look up medical literature, and to assist in preparing cases, etc., under the Food and Drugs Act. A knowledge of French and German is desirable. Candidates will be rated by general education and medical training, practical or professional experience and fitness, and publications or thesis. Graduation from a medical school of recognized standing and at least three years' subsequent experience in the practice of medicine or two years' subsequent experience in either pharmocological investigations or the actual examination of drug products with reference to the claims made therefor by manufacturers, are prerequisites for consideration for this examination. Further details may be obtained by application to the United States Civil Service Commission, Washington, D. C.

Model Milk Ordinances.—The rules of the New York City Department of Health for the control of the milk supply have been recommended for adoption in Johannesburg, South Africa.

Social Work Among Insane.—The Long Island State Hospital, Brooklyn, N. Y., has secured funds allowing for the employment of a social worker in connection with the hospital for the purpose of preventive and after-treatment care among the insane in the city of Brooklyn.

Ecuador to Clean Up.—The Government of Ecuador has recently signed contracts for the carrying out of the sanitation of Guayaquil, which has long been known as the "pest hole" of the Pacific. The plans call for the expenditure of several million dollars, and if properly executed should result in the elimination of yellow fever, bubonic plague, typhoid fever, and malaria, all of which are now prevalent there. For many years the State Department at Washington has attempted to force Ecuador to adopt proper sanitary measures, since the condition of Guayaquil has been a menace to the entire western coast, and its success now is largely due to the opening of the Panama Canal. The contract for the work has been obtained by an English firm, because of the great hostility to Americans in Ecuador, it is said; but it is probable that the actual work will be done, mainly by sanitary engineers from this country.

New Sanatorium Open.—The Metropolitan Life Insurance Company has recently opened the sanatorium which it has built at Mt. McGregor, N. Y., for the care of employees of the company suffering from tuberculosis. The sanatorium is located 1,200 feet above sea level, on a plot of 420 acres. In seeking legal approval for the use of its money for the erection and maintenance of the sanatorium, the company obtained from the Appellate Division of the Supreme Court a decision in which for the first time was laid down the proposition that it is not only within the powers of a corporation to assume the care and treatment of such of its employees as are afflicted with tuberculosis, but "the reasonable care of its employees according to the enlightened sentiment of the age and the community is a duty resting upon it, and the proper discharge of that duty is merely transacting the business of the corporation."

American Red Cross.—At the ninth annual meeting of the American Red Cross in Washington, announcement was made of the completion of the $300,000 fund, which was necessary in order to secure the $400,000 appropriated by Congress for the erection in Washington in memory of the women of the Civil War of a building to be used as headquarters for the Red Cross. This assures erection of the memorial at an early date.

Centenarian and More.—Hannah Koskoff, an inmate of the home of the Daughters of Israel, New York, celebrated last week what was said to be her 116th birthday. She was born in Russia and came to this country sixty-four years ago.

Medical Licenses.—As the result of the November examinations held by the South Carolina State Board of Medical Examiners, eighteen of the candidates received licenses to practice medicine. The examinations were taken by forty-four applicants for licenses.

Sex Plays.—The production of the modern sex plays was severely criticised and condemned at a recent meeting in New York of the Society for Sanitary and Moral Prophylaxis. Even those members of the society who approved in the abstract of the presentation of these questions upon the stage joined in disapproval of the plays now being offered in the city.

Personals.—Dr. Livingston Farrand, professor of anthropology at Columbia University, New York, and a graduate of the College of Physicians and Surgeons, New York, in 1891, has been elected president of the University of Colorado, Denver, to succeed President James H. Baker, who will retire on January 1.

Dr. Louis Laberge, medical health officer of Montreal, has resigned his position after twenty-seven years of service.

Dr. Biggs Resigns.—After twenty-six years in the service of the City of New York, Dr. Herman M. Biggs on December 3, resigned his position of chief medical officer of the Department of Health, and his resignation was accepted to take effect on December 31, 1913. Dr. Biggs will devote himself to the duties of chairman of the Public Health Council of New York State, to which he was appointed on the creation of the Council last year. During his long service in the city department Dr. Biggs has introduced many reforms, and much of the excellent work of the department is credited to him. In his new office he may be expected to do for the State what has already been done for the city.

Society of American Bacteriologists.—The annual meeting of this society will be held in Mon-

treal, on December 31, 1913, and January 1 and 2, 1914, under the presidency of Professor C. E. A. Winslow. On the first and last days the meetings will be held in the new Medical Building of McGill University, and on January 1 the society will meet at Macdonald College. On the same evening the annual dinner will be held at the University Club, Montreal, and the President's address on "The Characterization and Classification of Bacterial Types," will follow. Further details of the meetings, to which all those interested are cordially invited, may be obtained from the secretary, Dr. A. Parker Hitchens, Glenolden, Penn.

Charitable Bequests.—By the will of the late Mary H. Russell, of Philadelphia, the sum of $5,000 is bequeathed to the Germantown Hospital, and the residual estate, amounting to about $60,000, is bequeathed to the Children's Homeopathic Hospital, to construct and maintain additional buildings.

The Late Dr. Peiser.—At a meeting of the Medical Board of the Bronx Hospital and Dispensary, held on November 11, 1913, the following resolutions were adopted:

Resolved, That we deeply deplore the untimely death of our colleague and fellow member, Dr. Louis Peiser. We recall his cheery and happy disposition, his unfailing courtesy, his constant endeavor for the uplift of his profession, and his scientific interest therein. We shall miss his sage counsel and sincere willingness to bear his share of the work in the building up of our institution, and we tender our most respectful condolences to his bereaved family. Be it further

Resolved, That a copy of these resolutions be sent to his family and the medical press, and be entered in our minutes.

EMIL MAYER, M.D.,
ROBERT I. FRANK, M.D.,
HENRY HEIMAN, M.D.

Obituary Notes.—Dr. HARRY M. HAYES of Peoria, Ill., a graduate of the Rush Medical College, Chicago, in 1894, and a member of the American Medical Association and the Illinois State and Peoria County Medical Societies, died at the Proctor Hospital, Peoria, from typhoid fever, on December 2, aged 42 years.

Dr. RICHARD CRANCH GREENLEAF, formerly of Lenox, Mass., a graduate of the Harvard Medical School, Boston, in 1870, and a member of the Massachusetts Medical Society and the Berkshire District Medical Association, died at his home in Lawrence, Long Island, N. Y., on December 3, aged 68 years.

Dr. ROBERT ALVIN WALKER of West Monterey, Penn., a graduate of the University of Wooster, Medical Department, Cleveland, O., in 1877, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Clarion County Medical Association, died at his home on November 26, aged 59 years.

Dr. HENRY P. HOWARD of Dallas, Tex., died at his home on November 21, aged 82 years.

Dr. WILLIAM HUTCHINSON MERRILL, retired, of Peperell, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1886, died at his home on December 2, aged 52 years.

Dr. JOHN DECKER FRAZER of Danton, Va., a graduate of the University College of Medicine, Richmond, in 1902, and a member of the American Medical Association and the Medical Society of Virginia, was killed on November 26, when, while making his round of visits, the horse which he was driving took fright and ran away.

Dr. THOMAS J. CROFFORD, formerly of Memphis, Tenn., a graduate of the Hospital College of Medicine, Louisville, Ky., in 1870, and a member of the Tennessee State Medical Association, the Shelby County Medical Society, and the Southern Surgical and Gynecological Association, died at his home in Los Angeles, Cal., after a short illness from pneumonia, on November 24, aged 54 years.

Dr. HENRY M. WINANS of Muncie, Ind., a graduate of the Medical College of Ohio, Cincinnati, in 1880, and a member of the American Medical Association and the Indiana State and Delaware County Medical Societies, died on November 23, from cancer of the throat.

Dr. HENRY FREDERICK MUELLER of Sauk City, Wis., a graduate of the Kentucky School of Medicine, Louisville, in 1889, died at his home on November 23, aged 55 years.

Dr. ABBY SWAN MORSE of Gloucester, Mass., a graduate of the Boston University School of Medicine in 1875, died in the Addison Gilbert Hospital, Gloucester, from appendicitis, on December 2, aged 68 years.

Dr. FITZWILLIAM SARGENT WORCESTER of Peabody, Mass., a graduate of the Harvard Medical School, Boston, in 1873, died in the Josiah B. Thomas Hospital, after a lingering illness, on December 7, aged 62 years.

Dr. ALFRED LAYMAN of Philadelphia, a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1882, and a veteran of the Civil War, died at his home on December 6, aged 70 years.

Dr. CHARLES A. USILTON of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1882, died at his home from nephritis on December 3, aged 59 years.

Obituary.

JOHN GREEN, M.D., LL.D.

SAINT LOUIS.

Dr. JOHN GREEN died of pneumonia at his home in St. Louis on December 7. He was born in Worcester, Mass., April 2, 1835. After graduation from Harvard in 1855 he studied medicine and at the beginning of the Civil War entered the medical service of the Western Sanitary Commission; later he served as acting assistant surgeon in the Army of the Tennessee and in Maryland with the Union Army. At the close of the war he resumed his medical studies and received his M.D. from Harvard in 1865. After a further period of study in Europe he began practice in St. Louis, where he was a pioneer ophthalmologist. He was professor of ophthalmology at the St. Louis Medical College of Washington University since 1886. In 1905 he received the honorary degree of LL.D. from Washington University, and in 1906 from the University of Missouri. Dr. Green was one of the organizers of the American Ophthalmological Society. He was also one of the founders of the St. Louis Academy of Sciences and of the Archeological Society and was a trustee of the Missouri Botanical Garden. Dr. Green was not only a skillful and learned ophthalmologist, but a man of broad general culture and ripe scholarship, deeply interested in the world and its inhabitants and ever striving for its and their betterment.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RADIUM FOR THE HOSPITALS—POISONING BY LEAD—ORGANISM OF RHEUMATOID ARTHRITIS—KING EDWARD'S HOSPITAL FUND—G. M. C. INSURANCE—OBITUARY.

LONDON, November 28, 1913

YESTERDAY the Court of Governors of the Middlesex Hospital had before them the report for six months when Prince Alexander of Teck said that he had asked the committee of King Edward's Hospital Fund to see if they could purchase radium for all the hospitals to use the emanations and he had offered to arrange for the Middlesex to prepare the emanations in their cancer research laboratory and supply tubes at the cost of their preparation. This would reduce the cost of treatment tenfold and save institutions from trenching on capital. Sir A. Pearce Gould supported this scheme with enthusiasm and gave some information as to what they had done with radium treatment at the Middlesex. He said they must speak guardedly as to its use in cancer, but they could say it had influence on the growth of the body cells—it could stimulate or inhibit growth or destroy living tissue (radium burns). On the cells of malignant growths its influence was much stronger, but its action was by no means uniform. In some cases a single application had a striking effect, in others treated from the same tube none whatever. He knew of one case where half an extensive area of disease was removed at the first application of radium and the other half unaffected though equally exposed. In some burns readily occurred, in others the tissue resisted. He had applied it to the brain for hours without result, but a man to whom it was used on the hip had a great hole burnt into his thigh because he had a bunch of keys in his pocket. It would be misleading to speak of radium as a cure for cancer in the way some drugs may be said to cure specific diseases. But so long as cancer was a single localized disease, and it was sometimes so for a long time, radium offered a brighter, more confident hope than had ever attended the use of any remedy except operation. Money spent on radium for hospitals would be a good investment as it did not get any poorer by giving off emanations.

Sir Thomas Oliver, who is our leading authority on plumbism and other forms of metallic poisoning, has been giving a course of lectures at the Royal Institute of Public Health, dealing with this and other points of industrial hygiene. He said lead was used in about 100 trades and was the metal most hurtful to health. Between 1900 and 1912 no less than 8,523 cases of poisoning by it were recorded, of which 394 were fatal. Compulsory notification had proved very valuable by leading at once to investigation of every case and its surroundings. Lead mining itself was not a cause, but the miners were often tuberculous. The danger of plumbism began with the smelting of the ore in which about 40 per cent. of the lead went into the flues in the form of fumes and there was deposited as dust, so that cleaning the flues was more dangerous even than the smelting. Lantern slides were shown illustrating the methods employed in the manufacture of red lead. White lead was the most dangerous of all and only men were allowed to work in its processes and they had to wear respirators and the lead was watered to lay the dust. In pottery the prevalence of poisoning led to an inquiry in which the lecturer took part and better regulations were made, less white lead was used and it was fired with silica or boric acid. Painting for indoor decoration could be done as well with zinc oxide. Whether in our climate it would do as well as it has done in France was now being considered by a commission. The lead entered the system by three ways: (1) by the skin—not very often, as plumbism was not common among glaze dippers who were all day plunging bare arms into lead; (2) through the respiratory system, the worst cases being thus brought about; (3) through the alimentary canal, often from workers eating with unwashed hands. The early symptoms were pallor of the face with a rounded look and expressionless appearance—anemia due to interference with the blood-making. Next came the blue line round the edges of the gums and their receding, loss of appetite, metallic taste, and after a time abdominal pains. A blue line might occur from other causes—as *e.g.* bismuth given for ulcer in the stomach. Headache, extremely severe, was another symptom of lead poisoning, in addition to which blindness was apt to occur, and it was most difficult for one thus suffering to recover sight. Lead seemed to affect the brain and had direct action on the retina. Many women workers had been blind for twenty years. Other symptoms were wrist-drop and paralysis. In Hungary the worst cases could be seen, for in that country the workers lived and slept where they did their work and many children showed plumbism of the brain type and died of convulsions and coma.

As regards the prevention and treatment Sir Thomas urged the closest attention to the Home Office regulations, which were superior to those of most countries. He then described the electrolytic method by which it is attempted to eliminate lead from the system, and Mr. Clegg, who had been working with him on this method, then gave a demonstration of the apparatus with which he had removed salt from his own body. The last plan was to have two baths, one for the feet and one for the arms, thus securing a controllable current that can be borne by the patient. Experiments carried on for three years on a rabbit which had been paralyzed by lead given in its food was successful, the paralysis being cured and lead found in the bath. In the same way workers suffering from plumbism had been cured. Sir Thomas held that whether the lead was all removed or not the treatment deserved further trial for under it the anemia disappeared, the muscular power returned, and it gave a tremendous stimulus to nutrition. Further, the workers were able to continue employment and earn their living—so saving immense sums for compensation.

Dr. H. Warren Crowe brought before the Pathological Section (R. S. M.) on the 18th inst., his investigations into the etiology of rheumatoid arthritis. Further research has confirmed the result he had previously obtained as the organism which he was led to regard as the primary cause of the disease. It is similar in appearance to the pyogenic staphylococcus, but may be distinguished in the growth on a medium of egg slightly tinted with neutral red. The pyogenic staphylococci produce rose-red colonies which turn to vivid orange, but the other organism's colonies remain rose-red or only become paler; both produce indentation of the medium: the color and indentation being diagnostic.

Dr. Crowe's paper considered the questions whether his organism was causal or casual and in what group of germs it should be classed. Previously he called it staphyloidcoccus A. Now as the result of further work he regards it as pathognomonic of rheumatoid arthritis and gives it the name *M. deformans*. It seems to be a variety of the *M. epidermidis*, the only difference being that it liquefies gelatin at a slower rate. Now as to the evidence of its causal influence, the complement fixation reaction was employed not only by the author but by Fleet-Surgeon Kilroy, who performed independent tests without knowledge of the sources of the sera—a service for which Dr. Crowe expressed his very deep gratitude. Surgeon Kilroy's extensive experience with this testing in the Wassermann reaction must be familiar to your readers. In 26 cases of rheumatoid the organism was found in all, cultured in 22 of them and demonstrated by positive complement reaction in the other 4. In 14 doubtful cases it was found in 11, being cultured from 9. Adding to these cases of neuritis, which many consider so closely related if not identical, the total number is 48, the incidence 45, *i.e.* 93.75 per cent. Besides Dr. Crowe's organism streptococci were present in 21 of the cases and *B. coli* in 7. But it must be added that it occurs in other diseases, Dr. Crowe having himself found it in mild septicemia, in rheumatism, and in neurasthenia. Agglutination tests did not prove so decisive, but the evidence was considered satisfactory, as far as it went. Opsonic data were also corroborative of the speaker's theory.

Dr. Crowe related how he discovered the organism; three years ago he first saw it in the blood of a phthisical woman of 34 who suddenly developed acute arthritis in one knee with brachial neuritis and who for three years previously had had a temperature of about 101° F. Treated by a vaccine from the organism the knee joint got well, the neuritis disappeared and the temperature became normal. A year later the same organism was found in the urine of two women with acute rheumatoid arthritis and a vaccine was followed by the same result. Next he saw his *M. deformans* in the urine of a male rheumatoid patient, who also had a chronic nasal discharge and in him a vaccine was effectual. These four cases, hitherto unpublished, set him to work on systematic investigation, choosing the urine as *materies morbi* with the result stated above—a germ incidence of 93.75 per cent. in all cases, obvious or suspected. Regarding rheumatism proper (by no means confusing it with rheumatoid arthritis), as caused by the streptococci found in the urine so constantly but producing no kidney disease, he assumed them to be circulating in the blood and they are also common inhabitants of the digestive tract. But though innocent they may acquire virulence for they have been isolated from the blood in acute rheumatism. If then a common saprophyte of the bowel on gaining access to the blood produces rheumatism, Dr. Crowe offers the parallel that his *Micrococcus deformans*, belonging to the epidermic group, a common saprophyte of the skin, reaching the blood becomes the cause of rheumatoid arthritis.

An "at home" was held on Wednesday at St. James' Theater by Sir G. and Lady Alexander in aid of the League of Mercy, an auxiliary of King Edward's Hospital Fund, which has contributed in its thirteen years' existence nearly £200,000. Sir G. and Lady Alexander are presidents of a district which has raised £11,000 in the last three years. Several hundred guests were invited to the at home. Lord Willoughby de Broke presided and remarked that such a magnificent meeting showed the voluntary system was not dead whatever government might do. He would regret if a mechanical, inanimate set of state hospitals took its place and thanked the host and hostess for organizing this meeting. Mrs. Mateo Clark, in appealing for workers and also subscriptions, suggested that the dead should pay for the living by the government subsidizing the fund out of the death duties.

On November 10 a total of 2,230 insured persons were being treated under the act—841 of them in sanatoria or other institutions. Of course the numbers treated outside were enormous. Allegations of malingering were made and the committee appointed six part-time referees to examine, who have reported on 208 cases that 167 were incapable of working. Of those capable 30 per cent. had been certified for debility, anemia, weakness, etc., and 15 per cent. for rheumatism and dyspepsia. Of the capables it is said not many were malingerers in the ordinary sense, but from lack of nourishment are in a state of invalidism or inertia and cannot be certified as fit although they cannot equally be certified as incapable. The few cases of obvious malingering were generally in receipt of low wages. The report adds that apart from invalidism or malingering the period of incapacity is often prolonged by neglect of the patients, especially those with hernia, ulcer, varix, rheumatism, and dyspepsia. Fourteen complaints made against the panel doctors were investigated by the Medical Service Sub-Committee, who reported that one was "technically substantiated" from maintenance as to receipt of a message, one committed an error of judgment, one refused to visit an insured person and is severely criticized and the patient transferred to another practitioner, one was not in a fit state to provide adequate treatment and is no longer on the panel. In the other cases the complaints were not substantiated.

The General Medical Council has been sitting during the week. Sir Donald Macalister was prevented by illness from taking his place as president. Accordingly the treasurer, Mr. Tomes, presided. Prof. G. Elliot Smith took his seat as representative of the Victoria University as successor of Prof. Lorrain Smith, who had resigned.

Dr. Clement Godson, consulting physician to the City Lying-in Hospital, vice-president of the League of Mercy, and late president of the Gynecological Society, died on November 26. Born in 1845 he graduated at Aberdeen and took the M.R.C.P. in 1874. He served for a time as assistant obstetric physician at St. Bartholomew's Hospital and was physician to several hospitals and charities. He was a colonel of the R.A.M.C. (territorial force) and commanding officer of the Second City of London General Hospital of the same force. He was Knight of Grace of the Order of St. John of Jerusalem. He had been examiner in obstetrics at the universities of Aberdeen and of Durham. He contributed to St. Bartholomew's Hospital Reports, Quain's Dictionary, and the Transactions of the Obstetrical Society on Gynecological Subjects. In his presidential address to the Gynecological Society (1895) he discussed the "Evolution of Obstetrics and Gynecology."

OUR PARIS LETTER.

(From Our Regular Correspondent.)

THE TRANSFUSION OF BLOOD—ITS EFFECT ON HEMOPOIESIS—COLITIS IN THE ADULT; ITS SURGICAL TREATMENT—THE ADVANTAGE OF APPENDICOSTOMY—THE VACCINE TREATMENT OF WHOOPING COUGH — GONORRHEAL SPERMATOCYSTITIS — THE DEATH OF PROFESSOR COYNE.

PARIS, October 15, 1913.

THE transfusion of blood, which for many years has been relegated to obscurity despite the efforts of Professor Dieulafoy, has again come into favor. Carrel has shown that normal salt solution cannot replace blood to a satisfactory degree. The intravenous injection of blood does not act merely by virtue of the mass of the latter; it is really a corpuscular graft which acts upon hemopoiesis. Professor Legnou recently devoted one of his clinics to show the benefits that one may derive from transfusion. A case reported by Robineau before the Surgical Society July 28, 1913, is particularly interesting. The case was one of severe anemia consequent upon hemorrhoidal bleedings, in which case normal salt solution and horse's serum stopped the hemorrhages without improving the general condition. The patient got progressively worse. Robineau resorted to transfusion. The operation lasted 13 minutes. The patient's color rapidly improved and he felt better. One hour and a half after the transfusion the erythrocyte count rose from 1,115,000 to 2,480,000. Then during the next eight days the count fell to 1,800,000. On the eighth day there then occurred a sudden improvement that gave the impression of a true resurrection. The erythrocytes rose to 2,000,000, then to 2,600,000, and then to 3,800,000. There was therefore an initial phase of hemolysis, then a period of intense activity in the formation of red blood cells. The hemoglobin percentage underwent similar changes. From 25 per cent. before the operation, it rose during the transfusion to 40, 50, and then to 60 per cent. During the following few days it fell to 50 per cent., but finally rose again to 60 per cent. It seemed as if the transfusion had restored to the patient the hemopoietic power which he had lost. The method is therefore to be regarded as a heroic one in the treatment of anemia resulting from repeated hemorrhages.

In a series of articles in the *Gazette des Hôpitaux*, July, 1913, Mathieu publishes the results of his observations on the severe forms of colitis in the adult. Usually the reverse of what are observed in childhood, the local phenomena, tenesmus, bloody stools, and hemorrhages are more pronounced than, and predominate over, the symptoms of a general toxemia. The symptoms may be grave from the outset and may threaten a fatal outcome, or there may result a chronic ulcerative colitis more or less pronounced. A most detailed clinical examination is necessary in order that one may make a differential diagnosis of this condition from paratyphoid infection, cancer of the rectum or of the sigmoid and rectum, tuberculosis of the rectum, syphilis of the rectum and sigmoid, or simple ulcer of the rectum. Bacteriological examination may enable one to diagnose a bacillary or an amebic colitis, but in a large number of cases rectoscopy yields the best results. It shows in the most recent cases a red, swollen mucosa, particularly in the region of the rectal valves whose thickened edges present a marked contrast to their usual sharp border. In the old cases one notes the smooth, dry surface of the mucosa. This is red and friable and no mucus is present. These are the signs of a pronounced atrophy and of irreparable lesions. In cases that have lasted a number of months the lesions may be quite superficial; there may be a diffuse redness and a friability of the mucosa. In these cases the clinical signs afford no criterion as to the gravity of the disease, and the rectoscope alone is of value in the diagnosis and treatment.

The treatment is medical and if this fails, surgical measures must be resorted to. In the medical treatment Mathieu favors the use of irrigations of nitrate of silver in the strength of 0.2 to 0.30 gms. per liter. The rectoscope is useful in permitting a direct application to the accessible ulcerations. A milk and cereal diet should be given. The surgical treatment has the following double aim: (1) To set the colon at rest and to prevent it from becoming the seat of putrefactive changes and of the development of anaerobic cultures; and (2) to enable one to institute lavage from above. Of the various surgical measures proposed—colostomy, ileosigmoidostomy, and appendicostomy—Mathieu favors the last. It meets the indication in every case, offers no difficulty, gives rise to a minimum of discharge, and enables one to carry out lavage of the entire colon from above downward. The slight accompanying inconvenience enables one to maintain indefinitely the appendicular opening. The credit for this operation belongs to Robert F. Weir of New York. It represents a distinct step in the treatment of colitis and should be resorted to more frequently than it has been.

Since the discovery in 1906 of the pertussis bacillus by Bordet and Gengou different forms of specific treatment have been attempted without yielding any absolutely reliable result. C. Nicolle and I. Conor have just communicated to the Academy of Science the result of their new investigation on this subject. In the course of an epidemic in Tunis they injected under the skin of children suffering from pertussis 1 to 5 drops of an emulsion of the bacilli, representing 1,000,000 to 5,000,000 microorganisms. These were obtained from 48-hour cultures, washed in normal salt solution, and heated to 46° C. for one-half hour, which did not affect their vitality. The inoculations were repeated every two or three days. On an average two to five injections were sufficient. They were well borne and produced no reaction. The experiments were made on 104 children. Thirty-five per cent. were cured, 38 per cent. were improved, and 26 per cent. received no benefit from the treatment. Noteworthy was the fact that the cases in which the diagnosis of whooping cough was incontestable included the largest number of cures. On the other hand, the doubtful cases included the largest number in which only an improvement or no improvement at all was noted. It was only at the end of the second week of the disease that the vaccine treatment began to be of any value. This fact and time necessary for the treatment to be carried out limits the practical value of this method of treatment.

Georges Luys in *La Clinique*, August 22, 1913, describes in great detail the symptoms of gonorrheal spermatocystitis, a frequent and, as yet, little known complication of gonorrhea, and the one that lies at the basis of many of the rebellious cases of this disease. Frequently the fundamental condition, because of its latency, eludes the observation of the practitioner. In other instances it may pre-

sent one of the following symptoms: increased frequency of micturition; constant perineal and prostatic pains, independent of urination; frequent seminal emissions or more or less pronounced impotence, and painful or retarded ejaculations. In some cases blood ejaculation, or recurrent attacks of epididymitis, furnish a valuable clue to the diagnosis. The urine may be clear but most frequently contains long shreds, principally in the first and last glasses. Methodical examination alone permits one to make an exact diagnosis of this condition. (1) Rectal palpation should be performed with the patient standing, his legs outstretched and his trunk inclined forward. The examining finger introduced deeply and above the cornua of the prostate will detect the changes in the consistency of the seminal vesicles—their induration, etc., and will occasion the expulsion from the urethra of vesicular molds. Sharp pain will be elicited at two points: at the region of the diseased vesicle, and between the two prostatic lobes, in the region of the verumontanum. (2) The olivary-tipped explorer elicits a sharp pain on passing the verumontanum. Occasionally it is arrested by spasm. (3) After dilatation of the urethra the urethroscope shows an enlarged verumontanum, which may be inflamed and polypoid, and mirrors the condition of the seminal vesicle. The surgical methods of treatment: vesiculotomy, vesiculectomy, and vasotomy are in most cases ineffectual. It is necessary to treat methodically the vesiculitis itself: (1) By means of proper and prolonged massage, carried out for a large number of sittings. (2) By means of dilatation of the ejaculatory orifice by direct urethroscopic medication. (3) By means of catheterism of the ejaculatory duct, which as the result of an inflammatory stenosis prevents the vesicular contents from being expelled.

Professor Coyne of Bordeaux has just died at the age of 71. He rounded out a life that was devoted to science. A pupil of Vulpian and of Leon Labbé, he had been an assistant in the clinic at Paris, and then chief of the laboratory in the Charity Hospital. In 1876 he left Paris to teach pathological anatomy and histology at Lille. Two years later he became professor of pathology at Bordeaux and for the next 34 years his life was dedicated to the laboratory and to teaching. He wrote important works on normal and pathological histology. His doctorate thesis on "The Structure of the Laryngeal Mucosa" is to this day an authoritative work; and this is likewise true of his treatise on the "Benign Tumors of the Breast" which he wrote in collaboration with Leon Labbé. His numerous investigations on the structure of the internal ear led to the discovery of the accessory ganglion of the auditory nerve which has since been described by the textbooks under the name the "ganglion of Coyne." In pathological anatomy one may cite among others his writings on pulmonary syphilis, the adenoid growths of the palatal vault, and the mixed tumors of the salivary glands. He collected his lectures as given at Bordeaux in a "Treatise on Pathological Anatomy." The first edition of this important work appeared in 1894. Professor Coyne's career was an inspiration in its devotion to science.

Tuberculin Therapy.—H. Aronson notes that in the tuberculin treatment of human beings immunizing reactions are not produced. The good effects of tuberculin depend upon the stimulation which this substance exercises upon the white blood cells.—*Archiv für Kinderheilkunde.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 4, 1913.

1. The Nervous Irritability of Chronic Renal Disease. W. H. Robey, Jr.
2. A Method of Promoting the Efficiency of an Out-Patient Clinic. M. M. Davis, Jr., and E. W. Barron.
3. Report of Voice Clinic, September, 1912, to June, 1913, Out-Patient Department of the Psychopathic Hospital. W. Palmer Lucas.
4. Some Observations on the Condition and Treatment of Stuttering. C. Charnley.
5. Digitalis: Its Action and Its Uses. W. R. Steiner.
6. Experiences in the Treatment of Vocal Disorders. C. Charnley.

1. The Nervous Irritability of Chronic Nephritis.—W. H. Robey reports a series of cases illustrating the fact that pronounced nervous symptoms may constitute the earliest manifestations of chronic renal disease. When a man forty or fifty years of age who has been active and successful in business begins to complain of headache, to be nervous and irritable, or to have any other change in disposition, thorough and repeated examinations of his heart, blood-vessels, blood-pressure, and twenty-four-hour urine are imperative. It should be borne in mind that the toxemia of chronic disease of the kidney may exert an influence upon the nervous system either as a very early sign or one occurring after the renal condition has become fairly advanced. In the toxemia of bacterial infections analogous manifestations may be noted. The pneumococcus may invade the body in a variety of ways. In acute articular rheumatism the earliest manifestation may be in the nervous system; later the skin, joints, or serous cavities may be involved. When middle-aged individuals show signs of nervousness, or a change in disposition, such as irritability and nervousness, the heart, blood-vessels and kidneys should be thoroughly and repeatedly examined.

2. Promoting the Efficiency of Out-Patient Departments.—M. M. Davis and E. W. Barron refer to the fact that a large proportion of the patients that attend the dispensary do not return for treatment. This seriously limits the efficiency of the dispensary. At the Boston Dispensary a plan has been adopted by which a close watch is kept of the return of patients. This watch is facilitated by the use of a visible index, in which the patient's record card is posted under the date on which he is expected to return. If the patient does not return a postal card is sent to him requesting him to return on a definite date. If two postal cards are sent without response, the case may either be dropped or referred to the Social Service Department for investigation.

5 Uses of Digitalis.—W. R. Steiner quotes Hirschfelder in the statement that digitalis should be given for dilatation of the ventricles and for fibrillation of the auricles. In valvular disease the drug is required only in broken compensation. In subacute and chronic cases of heart disease its use is often accompanied by brilliant effects, though some instances of mitral stenosis prove refractory to it. In aortic lesions, contrary to the teachings extant since the time of Corrigan, digitalis is not contraindicated, but in prolonged use strengthens the heart by increasing the tonicity. Bradycardia or arrhythmia, however, should be carefully looked for in these cases, as its presence indicates cumulative effects. In juvenile or respiratory arrhythmia, digitalis is contraindicated if the heart is not dilated, but in heart block, or atrioventricular allorhythmia, it should be employed if the block is complete, as Bachman and Hewlett and Barringer have shown that digitalis increases the automaticity of the ventricles. The drug, however, should be used with caution. In extra-systole it should be given, if this condition is accompanied by dilatation, on account of the effect upon the latter, and also in pulsus alternans, as digitalis increases the force of contractions, which is weakened in this type of

arrhythmia. In the remaining variety of irregularity—auricular fibrillation—the action of digitalis is magical by virtue of the slowing of the ventricular rate from an inhibitory effect upon the fibrillating auricles or from a depressing action upon the conduction of impulses from the auricles to the ventricles, through the atrioventricular bundle or muscle of His. The best effect of digitalis is seen when the pulse is rendered quite slow, that is between 50 and 60, for which purpose large doses may be necessary for a considerable period of time. Windle, for instance, estimates that five to eight drams of the tincture may have to be given in fifteen minim doses for about ten days before the maximal slowing is noted. If, however, still larger doses are given, the same result can be accomplished in two or three days. In acute intoxications either from acute infectious diseases or from the action of poisons or from acute fatty degenerations from other causes, digitalis is distinctly contraindicated. In partial heart block, also, it should not be used, because it is likely to bring on complete block suddenly and with it there is danger of an attack of the Adams-Stokes syndrome.

New York Medical Journal.

December 6, 1913.

1. The Physical, Mental and Moral Vigor of Our School Children. S. A. Knopf.
2. Oil-Ether Anesthesia. J. T. Gwathmey.
3. Cancer of the Uterus and the American Society for the Control of Cancer. LeR. Breun.
4. Diagnosis of Acute Abdominal Conditions. J. T. Schell.
5. The Indications for Operating in Acute Mastoiditis. G. H. Cocks.
6. The Relation of Hyperthyroidism to the Nervous System. A. C. Buckley.
7. High Freqency Cauterization in the Treatment of Urethral Caruncle. S. Wiener.
8. Cancer. J. A. Guthrie.

2. Oil-Ether Anesthesia.—J. T. Gwathmey states that oil-ether colonic anesthesia is an evolution from intravenous anesthesia. The advantages claimed for this method of anesthesia over other methods are: (1) The element of apprehension and fear caused by placing a mask over the face in inhalation anesthesia is avoided. (2) No expensive apparatus is required. (3) The after effects of the anesthetic are reduced to a minimum. (4) A more complete relaxation is secured than with any other known method of administration. (5) The limits of safety are widely extended, compared with other methods. (6) A more even plane of surgical anesthesia is automatically maintained than is possible by any inhalation method—unless administered by a skilled anesthetist using a perfected apparatus. The technique of the oil-ether rectal anesthesia is as follows: the mixture (two ounces of olive oil and six ounces of ether) is given with the patient in bed on the left side, in the Sims' position, a convenient lifter having previously been placed under him. It is not always necessary that he should know that an anesthetic is being administered. A small catheter, well lubricated, is then inserted three to four inches within the rectum; to this catheter a funnel is attached. The mixture should be poured slowly into the funnel, at least five minutes being consumed in administering eight ounces, the usual amount required. It is best not to withdraw the tube immediately, but to wait until the patient is partly unconscious and the muscles are relaxed. From five to twenty minutes (according to the percentage used) should be allowed for the anesthetic to take effect, before the patient is moved. The patient should then be lifted gently on a stretcher and carried to the operating room. The anesthetist at this time should see that a clear airway is maintained when necessary, by placing a finger under the symphysis of the lower jaw. If the patient shows signs of approaching cyanosis, loss of lid reflex, stertor, or embarrassed respiration of any kind, two or three ounces of the mixture should be withdrawn by the small rectal tube already mentioned, placed four to six inches up the rectum. If the breathing is easy and regular, with the reflexes active, the patient will be found to be relaxed and in surgical narcosis as far as the operation is concerned. At the end of the operation, the two small rectal tubes already mentioned should be placed in position, as high up the colon as convenient without traumatism, and cold water soapsuds should be injected into one tube and drawn off through the other; two to four ounces of olive oil should then be introduced into the rectum and the tubes withdrawn. The patient should be gently returned to bed, with as little jolting or handling as possible, the room should be darkened, and free ventilation should be secured.

6. Hyperthyroidism and the Nervous System.—A. C. Buckley notes that by far the majority of patients suffering from hyperthyroidism present mental symptoms in some degree. In fact, mental symptoms may be the earliest noted, that is before the cardiac or ocular symptoms become manifest. The most commonly noted are an intense and indefinite agitation with more or less mental and motor restlessness. The patient is unable to settle down to any occupation, and complains of being distressed by any sudden noise, or unexpected news, this being accompanied by a palpitation that may last for several hours. Other patients suffer with marked excitement, restlessness, sleeplessness, hallucinations, incoherence, violence, refusal of food, dirty habits, emaciation, diarrhea, and exhaustion which may terminate fatally. In 1883 Savage reported several cases of insanity with Graves' disease, with the conclusion that when insanity is associated with exophthalmic goiter the prognosis as to life is very grave.

7. High Frequency Cauterization in Treatment of Urethral Caruncle.—S. Wiener describes the technique of this procedure as follows: The caruncle and contiguous mucosa are anesthetized by the surface application of a five per cent. cocaine solution. An ordinary insulated wire electrode is used with a spark of medium intensity. The tip of the electrode is held about one-eighth of an inch from the surface of the growth, and the spark is passed successively over every part of this surface. The normal mucosa should be avoided. The entire application need not take longer than one minute. No pain whatsoever is experienced by the patient provided the cocaine has had sufficient time to act. There is no reaction after the effects of the cocaine have worn off; in fact, where dysuria and tenesmus are present, the very first urination following the treatment is less painful than those preceding it. Only very small caruncles can be destroyed at a single sitting. Usually two or three applications will be necessary. These should be made at intervals of five or six days. In one case, of the flat angiomatous type, involving almost half the circumference of the meatus and extending a considerable distance upward along the posterior urethral wall, the growth was made wholly to disappear in three treatments.

11. Genital Tuberculosis in Children.—O. Lyons believes that primary tuberculosis may occur in the male generative organs, but is rare compared with secondary infection. Primary tuberculosis in the seminal vesicles and prostate is a rare occurrence. The frequent localization of the tuberculous lesions in parts of the body not readily exposed to external infection must be regarded as congenital. The entrance of the tubercle bacilli through the urethra is very rare and the history of tuberculosis in childhood is generally against any exclusive port of entry. The onset may be sudden or gradual and when confined to the genital organs may give rise to no symptoms calling attention to it. A discoloration or swelling is perhaps the first symptom. Acute tuberculosis of the epididymis or testes is rare and begins suddenly with acute symptoms. It has probably been preceded in some cases by preexisting tuberculous nodules that were unnoticed.

In the differential diagnosis, congenital syphilitic orchitis is the most common and the most difficult disease to exclude. The chief aids are the other signs of congenital syphilis and the therapeutic test. Sarcoma is the next most frequent disease, but can usually be recognized; clinically the treatment would be the same. Hydrocele usually presents no difficulties, but should be remembered as it is often a symptom of tuberculosis. Benign tumors are so rare they need little consideration. The prognosis of primary tuberculosis of the genitals in children is usually favorable and it is important to know that tuberculosis of these organs remains almost always the only tuberculous focus in the body, differing in this respect from that in adults. Operation, therefore, may produce permanent cure though this is not certain. It should always be advised.

Journal of the American Medical Association.

December 6, 1913.

1. Shock. G. W. Crile.
2. The Rôle of the Tendo Achillis in the Etiology of Weak Foot. E. S. Geist.
3. Certified Milk. T. C. McCleave.
4. Pathology of the Prostate. E. O. Smith.
5. Chronic Cystitis in Women Not a Disease. G. G. Smith.
6. The Preparation of Private Houses for Operations. J. C. Hirst.
7. A Case of Systemic Blastomycosis. R. T. Morris.
8. Note on a Mold, Coccidioides Immitis, Found in a Case of Generalized Infection in a Man. W. J. MacNeal and C. E. Hjelm.
9. Some Intraabdominal Complications Following Laparotomies. A. E. Benjamin.
10. Erysipelas: Clinical Observations on 800 Cases, Including 95 Treated by Bacterial Vaccine and 20 Treated by Phylacogen. S. Erdman.
11. Tuberculosis of the Genital Organs in Children. O. Lyons.
12. The Probable Embryologic Origin of Mixed Tumors of the Testicle. A. C. Stokes.
13. Operative Treatment of Genital Tuberculosis. Indications and Technique. H. Cabot and J. D. Barney.
14. Chronic Stenosing Gastritis. H. W. Soper.
15. Bladder Suture Four Years After Operation. J. R. Judd.
16. A Case of Dislocation of Proximal Phalanx of Great Toe. P. G. Skillern, Jr.
17. Case of Foreign Body in the Rectum. F. M. Conlin.
18. New Kidney Forceps. F. C. Walsh.
19. A Simplified Colorimeter. J. I. Armstrong.
20. Some Inexpensive Equipment for the Physiological Laboratory. C. McPeek.
21. The Myringoscope. G. G. Carroll.
22. A New Retractor for the Abdominal Contents During Peritoneal Closure. M. B. Ahlborn.
23. A Simple Tourniquet Used in Giving Salvarsan Intravenously. T. F. Laurie.

1. **Shock.**—By G. W. Crile. (See MEDICAL RECORD, June 28, 1913, page 170.)

2. **Certified Milk.**—By T. C. McCleave. (See MEDICAL RECORD, June 28, 1913, page 1193.)

4. **Pathology of the Prostate.**—E. O. Smith concludes that the prostate gland has five distinct glandular areas, which may be termed lobes. Pathological changes in the seminal vesicles are often overlooked and the prostate alone considered, when in fact both are involved. Tuberculosis of the prostate is seldom found without the same infection of seminal vesicles. Prostatic hypertrophy is usually a simple adenomatous growth which crowds the normal prostate, so as to form a surgical capsule. In the roof or anterior portion of the prostatic urethra these new growths are covered with but little more than mucous membrane. Malignancy of prostate is confined to the posterior lobe.

7. **Systemic Blastomycosis.**—R. T. Morris reports a case of this condition. The patient was a medical man and the infection seemed to have originated in Texas or in Chicago. He was operated on for liver abscess in a London hospital and came back to this country. The diagnosis of liver abscess was still made and further operations did not relieve the general condition. Superficial abscesses appeared elsewhere, containing thin yellowish or brownish pus. A culture of blastomyces from one of these abscesses definitely established the diagnosis of systemic blastomycosis. Potassium iodide was given but was ineffective as was also neosalvarsan injected intravenously. Vaccines were being prepared for trial but before they were completed the patient died. The author remarks that systemic blastomycosis is probably not so very rare but that the diagnosis is not often made.

9. **Intraabdominal Complications Following Laparotomy.**—A. E. Benjamin points out that postoperative intraabdominal pain is usually due to some interference with the function of the alimentary canal from inflammation of the peritoneum, adhesions, kinks, or obstructions. It is essential to determine whether the function of the stomach or intestines is interfered with. In cases of mucous colitis thorough irrigation of the colon, either in the knee-chest position, the elevated hip position, and the right-sided flank position materially lessens the intraabdominal postoperative distress. This is especially the case with a membranous pericolitis in which the operator has been obliged to separate bands of adhesions or liberate the ascending colon from an adhering transverse colon. These constitute the majority of cases which give the operator later trouble and postoperative adhesions are increased if the surgery is incomplete. The state of the muscle tone of the abdominal wall is also a factor of later trouble and it should be built up as far as possible before operation and supports should be used afterward, the tonic treatment being continued. As long as there is any infection in the abdomen and there is destruction of endothelial cells adhesions will follow. It is especially important to leave no raw surfaces or denuded areas within the abdomen, and such should be covered by peritoneum or detached omental grafts as far as possible. When the actual cautery can be used on a denuded surface adhesions are less likely to occur, because when the scab separates there is usually a healthy membrane left. The author objects to leaving the stump of the appendix loose in the abdomen and to the use of non-absorbable sutures. Operative traumatism which is likely to occur in most operations and undue exposure of the viscera are also causes of later trouble. To avoid any possibility of leaving any foreign substances in the abdomen only large pads should be used for sponging it and three-yard wet rollers of gauze used to cofferdam the field of operation. As regards drainage, the author would drain for perhaps forty-eight hours if there was a large amount of bloody exudate in the abdomen. Gauze drainage is seldom if ever indicated. Adhesions of the omentum and intestine to the suture line used in closing the peritoneal opening are far too frequent. Operators often overlook the presence of the fascia layer back of the recti in closing median incisions. In the postoperative management one of the first factors in causing intraabdominal tension is acute gastric dilatation.

Generalized Emphysema in Childhood.—Lucien Rivet reports two cases of this condition. The first was that of an infant seven and a half months old in whom an acute generalized interstitial emphysema complicated a bronchopneumonia. Death occurred. The second case was that of a four-year-old child in whom rupture of pulmonary alveoli occurred in the course of a severe bronchitis and laryngitis. The resulting emphysema involved the subcutaneous region of the upper part of the thorax and the base of the neck. The emphysema disappeared in eight days. In the treatment of this condition the author notes that compression of the affected area, and minute puncture of the skin with aspiration of the air have been advocated. But these procedures are associated with a risk of infection. The best measure is to limit the extension of the emphysema by allaying the cough and the dyspnea with hot formentations applied to the thorax, with inbalations of oxygen, and respiratory sedatives. In severe cases of interstitial emphysema in which the swelling is so excessive that there is a risk of sudden death, the author advises that puncture of the skin may be cautiously attempted.—*Gazette des Hôpitaux.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

THE IMPORTANCE AND DETECTION OF TEMPORARY GLYCOSURIA.

Individuals afflicted with diabetes recognize the futility of applying for life insurance and very seldom present themselves for examination. Alimentary or temporary glycosuria is the form commonly encountered by examiners, and it happens that this class of cases often creates more or less perplexity and concern as to how often the sugar is present.

It is accepted by practically all companies that the frequent recurrence of glycosuria is a decidedly unfavorable sign, and the fact that an applicant is affected in this way should be known whenever possible. This feeling is engendered by an experience which shows an excessive mortality among insured lives with a history of repeated glycosuria. Death in these cases is usually due to intercurrent diseases which the patients are apparently unable to resist through lack of vitality. Actual diabetes plays a considerably smaller rôle as the cause of death.

It would seem that a healthy man's capacity for the proper assimilation of carbohydrate food has certain limits, and that the digestion of large or even moderate amounts of these articles of diet sometimes becomes too great a task in certain individuals, one of the results of which is the presence of sugar in the urine. The conditions under which this physiological capacity is diminished are not understood except that they are apt to be associated with certain disturbances or abnormalities, such as gout, the liberal use of alcoholics, obesity, etc., and, furthermore, they may eventually evolve into true diabetes. In other cases this capacity may be lessened temporarily in an apparently healthy individual from some trivial reason. While the task is often difficult, an effort must be made to distinguish one set of cases from the other, for it may safely be assumed that those persons coming in the first class and who cannot tolerate certain ordinary articles of food or drink without the frequent production of sugar in the urine are uninsurable.

The following procedures have been suggested for the purpose of ascertaining whether the assimilating forces of a certain subject are competent to dispose of carbohydrates in the regular way.

1. The examination of several specimens of urine. They should not be obtained at the same hour on the different days. The specimens should be voided about one and a half to two hours after meals. The best plan is to obtain these samples on three successive days, the first one after breakfast, the second after lunch, and the third after the evening meal. The applicant should not be informed of the time of day when the urine is to be called for unless it is positively necessary to make an appointment.

2. A statement should be signed by the applicant to the effect that he has or has not been under treatment or on a restricted diet for any urinary disturbance during the past year. One has to add with regret that this statement is not always a true one, and that if the applicant is willing to conceal the fact that he has had glycosuria, he is usually ready to sign a false statement.

3. The administration of a test dose of from 100 to 200 grams of glucose, the urine to be examined one hour and again in four hours after giving the glucose. This plan is emphatically condemned. That it is misleading has been proved by persons who have tested themselves in this way after having found their urine to be negative by repeated analyses previously; a marked glycosuria was produced in many of these experiments.

4. The most satisfactory method in suspected cases of recurrent glycosuria is to induce the applicant to partake of a test meal with a medical representative of the company. The meal should be composed of a generous quantity of carbohydrate food, starches and sugar, including fruits and a glass of sweet wine; in other words, of good ordinary food. The writer has been recently interested in the administration of these test meals in twelve cases with a history of recurring glycosuria, the subjects having denied treatment and restricted diet in signed statements and having furnished normal urine at the time of the examination. The applicants were persuaded in a courteous way that could give no offense to submit to the meals. A decided reaction for glucose was obtained in urine procured one and a half to two hours after the meal in ten out of the twelve cases. The urine was again examined four hours after, and sugar was still present in four of the specimens.

The Insurance of Defective Individuals.—Feilchenfeld evidently does not refer to what we term substandard risks, although at times his defectives amount to the same thing. Naturally all defectives are substandard risks. He begins with the effects of infantile diseases, such as rachitis, which sometimes increases the risk. Scrofula in childhood, however, is not necessarily a menace in adult life. A history of convulsions, seemingly outgrown, the patient's stock having been sound, although the fits point to epilepsy or hysteria, does not necessarily mean a defective adult. A history of acute infectious diseases of childhood does *not* increase the risk, provided no pernicious sequelæ have developed. Diseases gone through in later life have more significance, for typhoid, erysipelas, pneumonia, etc., have on one hand a tendency to leave serious sequelæ or—as in the case of erysipelas—to recur indefinitely. Pleurisy is a malady of interest in this connection, as the serous form is more unfavorable for after years than the purulent if the latter is properly treated. The author no doubt refers to frequency of tuberculosis as a sequela of simple pleurisy, but he only mentions hemoptysis. Acute articular rheumatism naturally has a number of complications which may prejudice the risk, and malaria is equally notorious in this respect. The author now discusses other forms of defectiveness. Emaciation and obesity both increase the risk. Emaciation, however, means nothing if a family trait, or trained athletes, or those forced by their labors to perspire constantly, or those on low caloric diet. Obesity always involves defectiveness, in regard to a tendency to arterial disease, cardiac, and renal disease. Statistics show that slight glycosuria in childhood shows no tendency to shorten life. Of especial significance is the prognosis in functional albuminuria; this is good if the urine lies between 1016-1025; albumin minimal; absence of all formed elements except an occasional hyaline cast; absence of indican; occasional disappearance of albumin at times. These people may be insured for ten to fifteen years.—*Blätter für Vertrauensärzte der Lebensversicherung, May-June,* 1913.

Book Reviews.

Early Pulmonary Tuberculosis; Diagnosis, Prognosis, and Treatment. By John B. Hawes, 2nd M.D.; with Preface by Richard C. Cabot, M.D.; 114 pp. Price $1.50 net. New York: William Wood & Co., 1913.

This is a small volume but it contains much that is good for the man in general practice and the student who desires to specialize in tuberculosis. Chapter I gives the "Classification of Patients," adopted by the National Association for the Study and Prevention of Tuberculosis and in the subsequent chapters the history, signs, and symptoms are dealt with. The author devotes considerable space to discussing the best method of physical examination. The various tuberculin tests are reviewed and it is refreshing to see again a warning against the instillation of tuberculin in the eye. He very categorically says "Practitioners are advised not to use this method." The chapter on differential diagnosis, which the author calls conditions which may simulate tuberculosis, is rather brief and to be of real value needs elaboration. The chapters on prognosis and treatment form an excellent review of our present knowledge of these subjects. The rest of the book contains some interesting illustrations of cases with *x*-ray photographs. Appendix "E" is a reprint of Dr. Carrington's directory for living and sleeping in the open air with illustrations of porches, window tents, reclining chairs, etc. All in all, the book is what Dr. Cabot calls it in his preface "small yet authoritative." Print and illustrations are excellent and the division in sub-chapters makes it a very practical volume for the busy man.

Die Korperliche Erziehung des Kindes. Von Prof. Dr. Hans Spitzy, Wien. Mit 104 Textabbildungen. Berlin and Vienna: Urban & Schwarzenberg; New York: Rebman Company. 1914.

This book deals with every phase of the physical development of the child from earliest infancy. The transformations occurring in the bodily structure during the early months of life, the nutritional requirements at this period, the development of standing and of locomotion, and the growth of individual groups of organs are all fully and tersely described. The child during the years preceding the school age presents important problems in physical development which are not overlooked in this book. The author next discusses the school child and the numerous questions of school hygiene, such as fatigue, the school seat, and the influence of the school upon the development of the child. The future of school children's physical culture in the schools, postural exercises, are next discussed in detail. Gymnastics, games, summer and winter sports, the training of teachers of physical culture, orthopedic gymnastics, the physical training of the feeble-minded, the school physician, puberty and the school, are all topics that are fully discussed by one whose knowledge of his subject is both sympathetic and profound. The book is profusely illustrated. It cannot fail to be of value to the general practitioner, the pediatrist, the orthopedic surgeon, and the school physician.

Burdett's Hospitals and Charities. Being the Year Book of Philanthropy and the Hospital Annual. Containing a review of the position and requirements, and chapters on the management, revenue, and cost of the charities, an exhaustive record of hospital work for the year. It will also be found to be the most useful and reliable guide to British, American and Colonial hospitals and asylums, medical schools and colleges, nursing and convalescent institutions, consumption sanatoria, religious and benevolent institutions and dispensaries. By Sir Henry Burdett, K.C.B., K.C.V.O., London: The Scientific Press, Ltd., 1913.

This, the twenty-fourth year of publication of Burdett's "Hospitals and Charities," sees this work brought thoroughly up to date. More than six thousand institutions are therein dealt with and information of great value concerning each of them is given in succinct form. Perhaps the most notable feature of this edition is the chapter devoted to British hospitals in their relation to the Insurance Act, and it is significant to read the statement "that the overwhelming majority of opinion among all classes in Great Britain is that the voluntary system of hospitals must be maintained and extended upon wise lines."

This very useful book has a niche of its own and no higher praise can be given to the present edition than to say that it is an improvement upon former editions.

Manual of Operative Surgery. By John Fairbairn Binnie (Aberdeen), Surgeon to the General Hospital, Kansas City, Mo.; Fellow of the American Surgical Association; Member de la Société Internationale de Chirurgie. Sixth Edition, Revised and Enlarged, with 1,438 Illustrations, a number of which are printed in colors. Price $7.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

Dr. Binnie, in the sixth edition of his well-known manual, has rewritten the chapters devoted to operations on the stomach, and paid particular attention to the anatomy of the gastrointestinal lymphatics. A new chapter has been inserted covering the treatment of tumors in general, one on the surgery of the upper lip and one on the excision of cervical ribs. Far more space has been given to such rare and difficult operations as hypophysectomy than to more ordinary surgical interventions, this having always been the writer's policy. There are 103 additional illustrations.

Lehrbuch der Haut- und Geschlechtsleiden, einschliesslich der Kosmetik. II Band, Lieferung 1 und 2, Geschlechtskrankheiten, von Sanitätsrat Dr. S. Jessner. Vierte sehr erweiterte Auflage mit zahlreichen abbildungen im text und auf 22 meist farbigen Tafeln. Price, Lieferung 1, 5 marks; Lieferung 2, 2 marks. Würzburg: Curt Kabitzsch, 1913.

This is the second volume of Jessner's work on Diseases of the Skin and Genitourinary Tract and is divided into two parts. The first deals with syphilis and its complications. After the usual introductory discussion of the spread of the disease, its prevention, sociological aspects, etc., chancroid receives passing attention. With true Teutonic love of order and wealth of detail, the author develops his subject in all its breadth, from the appearance of the initial lesion to hereditary manifestations. Under separate headings are described lesions of the skin and mucous membranes, circulatory, lymph, gastrointestinal, respiratory, genitourinary, and nervous systems. Syphilis of the liver, pancreas, peritoneum and the special organs of sense are accorded adequate consideration. The treatment described and advised is that of all modern syphilographers, the inunction method of administering mercury receiving preference.

Gonorrhea, its complications and sequelæ occupy the second portion. Here, the author is less successful. His text is full, complete, and well arranged but he adds little or nothing to the mass of scientific facts presented by previous writers. His has been the path hewn by Oberlaender and Kollman. The full page illustrations in color, mostly of syphilitic lesions are especially worthy of honorable mention. They accurately mirror Nature. The literary style is clear and concise and will be gratefully acceptable to such readers whose German is none too fluent.

Genitourinary Diagnosis and Therapy for Urologists and General Practitioners. By Dr. Ernst Portner, Specialist for Urology, Berlin, Germany. Translated and edited by Bransford Lewis, M.D., B.Sc., Professor of Genitourinary Surgery, Medical Department of St. Louis University, St. Louis; Genitourinary Surgeon to St. John's Hospital and Frisco Hospital; Member of American Urological Association; American Association of Genitourinary Surgeons; American Medical Association, etc. Forty-three illustrations. Price $2.50. St. Louis: C. V. Mosby Company, 1913.

The translator's preface says: "It embraces a wealth of practical, valuable information hardly credible." There is no denying the verity of this claim, but the deed is accomplished through the omission of many important directions and instructions in technique, together with a terseness permissible only in cablegrams. The author gives occasional advice which cannot pass unchallenged. He permits (page 15) "small quantities of red wine and light beer" to his acute gonorrheal patients. His methods of diagnosing urethral stricture (page 59) by means of a metal catheter number 20 is by no manner possible. The editor should receive thanks for interpolating the Kollman dilator in the paragraph on after treatment of stricture. The procedure described (page 70) for the puncture of prostatic abscess through the rectal wall is unsurgical and obsolete. After the instructions for self-catheterization (page 87) he writes: "Many patients live this 'catheter life' without serious discomfort for the rest of their days." How interesting it would be if the author had told us what period of time "the rest of their days" represents with his patients. The appendix consists of a chapter of excellence by A. Sophian of Kansas City on the serological diagnosis and specific (vaccine) treatment of gonococcic infections. The work does contain many excellent classifications, indications for and contraindications in surgical conditions.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Seventh Annual Meeting, Held at Lexington, Kentucky, November 17, 18, and 19, 1913.

THE PRESIDENT, DR. FRANK A. JONES OF MEMPHIS, TENNESSEE, IN THE CHAIR.

The South's Most Important Public Health Need.—DR. CRESSY L. WILBUR of Washington, D. C., urged the citizens of the South to stop at nothing short of success in their effort to establish a perfect system by which all deaths and births should be accurately reported. The records of births and deaths, interpreted in the light of progressive sanitary science, were not dry figures, dead and dusty mementoes of the past, but were living facts pregnant with a message of helpfulness and life-saving for the men, women and children of the present and future.

Vital Statistics.—Dr. OSCAR DOWLING of New Orleans read a paper in which he made the following recommendations: 1. Transmission by this committee to the legislature of each southern State, where needed, a petition for the consideration of (1) the adoption of the model law in full. (2) Appropriation of adequate funds to establish an effective system of collection, compilation, analysis and application of vital statistics data received. (3) Designation of a date for thirty minutes' discussion of reliable vital statistics, the basis of commercial sanitary and social progress in the South. (4) Personal effort by members of this committee to have modification of model laws, where they existed, brought more closely into conformity with the provisions. (5) Aid to popularization of payment of fees to every local registrar.

The Sanitary Milk Surveys in Kentucky.—Mr. R. M. ALLEN of Lexington, said Kentucky was the first state in the Union to abolish swill dairies. The pure milk work in that state saved consumers annually nearly a million dollars worth of water. There were only about 62 dairymen now in Kentucky who watered their milk, and they were all listed and closely watched. All of the dairies in Kentucky were listed on the score card and the work included bacteriological examination among the dairies to teach them what it meant and to show them how to protect their milk. Pasteurization was necessary for most of the milk going into the large cities. The ideal plan was to fill the baby's bottle direct from the bucket milked from a healthy cow in a clean stable. The cooled bottle could then be shipped anywhere.

Eugenics.—Dr. LEE A. STONE of Memphis defined eugenics as that science which taught all people how to best improve the races that were to come, and develop a higher state of mental and physical perfection among all peoples by teaching perfect breeding. Marriage, the blending of two souls together to make more perfect the future soul of one who was to be born, was the object that nature had in mind when she gave the world beings of opposite sex. When that time came in our civilization, when men and women before they married would carefully investigate all that might be known of the lives of each, with a view of reaching a perfect union, there would be born as the result of that union the perfect man. Then would the dreams of eugenists come true, and a finer and truer philosophy of life be born.

The Negro in Relation to Public Health.—Dr. C. E. TERRY of Jacksonville, Florida, reported that only a few southern States kept complete and reliable statistics in reference to the negro, and hence much of scientific value was lost. The high mortality rate among negroes from communicable and preventable diseases was a great menace to the general health of the South. Statistics showed that typhoid fever, malaria, measles, scarlet fever, whooping cough, diptheria, tuberculosis, and pneumonia were responsible for more than 40 per cent. of all deaths among negroes. These same diseases also were responsible for more than 26 per cent. of deaths among the whites. The high mortality rate among the whites was directly traceable to the prevalence of these diseases among the negroes. The necessity for raising health standards among the negroes and of inaugurating a campaign of prevention was imperative. Negro citizens lived under the worst sanitary conditions through poverty, racial inferiority, and neglect. But they mingled with the white population in stores, factories, kitchens, and nurseries and so spread the diseases which were prevalent among them. The health of the negro was the most important subject before the South today.

In the general discussion which followed, the burden of this problem, it was pointed out, devolved on public officials, sanitarians, and sociologists. Accurate observation of living conditions and experimental methods were urged. The speakers declared that no field was so barren of sanitary achievement as the bettering of the health and condition of the negro, and that none was more worthy of painstaking effort, presenting as it did the promise of far-reaching results of the utmost importance to the southern States. If landlords could be induced to build better houses, if municipalities would insist on better sanitary conditions, if the negro was given more information, and was better educated with reference to social hygiene, there would necessarily be an improvement in the race and this to the benefit to his fellow-being, the white-man.

Cerebrospinal Meningitis with Special Reference to Certain Signs or Measures.—Dr. RANDOLPH LYONS of New Orleans read a paper based upon an analysis of twenty-one cases of cerebrospinal meningitis with the particular object in view of determining the relative importance of eight signs or measures in adults. The actual value of the procedures described could not be accurately judged by so small a series of cases, nevertheless the results were suggestive and appeared, in general, to be in conformity with the experience of others in the adult form of cerebrospinal fever. The relative importance of Brudzinski's signs had not, to his knowledge, been carefully determined in adults. From the point of view of early diagnosis the eight measures fell into the following order of importance: Lumbar puncture stood first amongst the special measures. The first puncture established the diagnosis in 95 per cent. of the cases. Next in importance was rigidity of the neck. This could be demonstrated in twenty out of the twenty-one cases on first examination or 95 per cent. Kernig's sign came third. It was present on first examination in 90 per cent. of the cases and at some time during the disease in 100 per cent. The "neck sign" fell into fourth place. They found that Brudzinski's statement with regard to the relatively greater value of his "neck sign" over Kernig's sign in children, did not hold good for adults. It was found positive on first examination in 76 per cent. of the cases and could be elicited at some time during the course of the affection in 90.4 per cent. Brudzinski's contralateral (identical) reflex came fifth on the list, being present on first examination in only 33.3 per cent. of the cases. Babinski's sign occurred in but three cases or 11.6 per cent. at some time during the disease. In two of the cases it was positive on admission. Macewen's sign was found to be of practically no value in this series. It could be demonstrated in but one instance. This patient was the only child (5 years) in the group. The field of usefulness of this sign seemed to be limited to meningitic affections of early childhood. Lastly, the presence or absence of the patellar reflex was found to be of no apparent diagnostic importance.

Meningococcus Carriers.—Dr. WILLIAM LITTERER of Nashville, Tennessee, drew the following conclusions: (1) The viability of the meningococcus isolated from carriers varied greatly in different epidemics. (2) The variability in the resistance of the meningococcus was not a reliable index as to the degree of toxicity of the microorganism. (3) The meningococcus appeared to be of so short vitality and so fragile an organism outside of its natural habitat (the human body) that it led to the inference that direct transmission (droplet infection, etc.) was probably the only means of conveying the disease. (4) The great majority of healthy persons who harbored the organism could resist the infection. Only 2 per cent. of the carriers in their series developed the disease. (5) The spray could not reach all the deep recesses of the upper air passages, nevertheless it was imperatively indicated in all carriers, for the reason that it either destroyed or mechanically cleaned out all cocci with which it came in direct contact, thereby lessing re-infection, at the same time reducing droplet infection to the minimum. (6) The autogenous vaccine very probably played a prominent part in effecting a cure in two cases of the "persistent carrier" of six months' standing. (7) There were apparently no means at their command in which the "persistent carrier" could with any degree of regularity be rendered free from the carrier state. (8) In institutional epidemics the wisest procedure was a prompt isolation of all patients and the search for carriers and their detention, together with the general use of the spray.

The Bacteriology of Cerebrospinal Meningitis.—Dr. K. R. COLLINS of Atlanta, Georgia, stated that primary cases of pericarditis, joint lesions, iritis, etc., had been reported where the meningococcus was found to be the only invading organism. Cases of cerebrospinal meningitis, due to the typhoid bacillus, bacillus of tuberculosis, bacillus of influenza, the pneumococcus and pyogenic organisms, could in most instances be differentiated by finding any one of

the above organisms in the spinal fluid. Such cases might be found coincident with epidemics of meningococcal origin. Secondary cases of cerebrospinal meningitis were found in many of the infectious diseases, following lesions of pyogenic origin. Henry reported a case following super and submaxilliary abscesses due to the fungus actinomycosis. Such cases might sometimes puzzle the physician when occurring in the midst of the epidemic form. It was rarely possible to wait for bacteriological examination to be made before treatment was instituted, but in cases where anti-meningitis serum was used, the laboratory findings could frequently be obtained before the second dose was given.

The Intrameningeal Treatment of Tabes Dorsalis and Cerebrospinal Syphilis.—Dr. Thomas R. Boggs and Dr. R. R. Snowden of Baltimore spoke of the desirability of direct application, by intraspinal injection, of antisyphilitic drugs in the treatment of cerebrospinal syphilis which had long been recognized. Bichloride, salvarsan and neosalvarsan had all proved too irritating for direct use except in very minute quantities. They reported the results obtained in eight cases treated by the intraspinal injection of serum removed one hour after the intravenous injection of salvarsan or neosalvarsan. This method was first employed by Swift and Ellis and their technic was followed, with one important exception; Swift and Ellis added normal saline to the serum and injected a forty per cent. solution, whereas they injected larger doses of the undiluted serum. It had been shown by Plaut, Gonder, Swift and Ellis and others, that such serum had a decided spirochetical activity, especially if heated at 56° for half an hour. When injected into the spinal canal it was but mildly irritating and its beneficial effects were striking. In carrying out the treatment, blood was withdrawn one hour after the intravenous adminstration of salvarsan and allowed to clot. The next day the serum was removed, centrifugalized and heated at 56° for half an hour. Lumbar puncture was then done, cerebrospinal fluid withdrawn and exactly enough serum injected to replace this fluid. The amounts varied between 20 and 35 c.c. and the treatment was repeated every ten to twenty days until the spinal fluid was normal in respect to the cell count and Wassermann. Eight unselected cases were treated in this manner, five cases of tabes dorsalis, and three cases of cerebrospinal syphilis. In every case there was marked improvement, the cell count dropping to normal and the Wassermann becoming less marked and in most of the cases entirely negative. They felt this method of Swift and Ellis was a step forward in the treatment of cerebrospinal syphilis. In their cases the reactions were not, as a rule, severe, though more marked than those treated with diluted serum, as reported by Swift and Ellis. They point out the interesting fact that in two of their cases, where they injected into one patient serum obtained from another, that patient suffered a very violent reaction, while the patient receiving his own serum, at the same time, had no reaction. The most constant result was the disappearance of the lightning pains and other sensory disturbances and this resulted in a more cheerful mental attitude and a corresponding improvement in the appetite and nutrition. The effect on locomotion was slower in development, and less marked, but definite, and in some cases very great improvement was achieved, rather more pronounced, apparently than in patients treated by smaller doses of diluted serum.

Dr. R. H. Von Esdorf of Mobile said the best thing to do in cases of cerebrospinal meningitis was to try and establish a hospital and get the cases isolated as early as possible, surround them with the best conditions that could be had, which many individuals could not get at their homes. Particularly was this the case in the colored race, where he had seen two children down with the disease in the country in one bed and being treated with serum, with no hospital facilities, and the bed reeking with filth and wet with urine from the children, etc. If a small hospital could be established and the cases isolated, it would lower the mortality from this disease very materially.

Dr. V. H. Bassett of Savannah had been unable to find an authenticated case of infection of the meninges by the gonococcus in his review of the literature. But owing to the fact that the meningococcus in smears closely resembled the gonococcus, he would suggest that they be on the lookout for infection of the meninges by the gonococcus.

Dr. Lillian H. South of Bowling Green mentioned a case in which a diagnosis of meningitis was made from a swab of cotton sent in a sterilized container to the laboratory, and from this one case there developed one hundred cases in one town, with thirty-five deaths. Three counties were infected. A physician told her at the time that there was only one case of meningitis in that town or county. The child from whom the swab was taken died before it could receive the serum. Another child in the same family was seriously ill from meningitis.

Dr. C. C. Bass of New Orleans maintained that rigidity of the neck was an important sign in connection with the diagnosis of meningitis. Meningitis was accompanied constatntly by fever. These two signs or symptoms of themselves were sufficient on which to suspect the presence of meningitis. If there was sufficient ground on which to suspect meningitis, lumbar puncture was indicated, with examination of the cerebrospinal fluid.

Dr. E. C. Thrash of Atlanta, Georgia, claimed that physicians were controlling the active diseases very well, but they had not scratched the surface of germ carriers. Tuberculosis, diphtheria, typhoid fever, were diseases that were disseminated by carriers, and not so much by the active disease. The sooner they began to wake up to the importance of these germ carriers, the more good they would be able to do.

Dr. L. E. La Fétra of New York City held that one thing that occurred which would oftentimes disturb the physician who dealt with children was pneumonia. Occasionally they would find retraction of the neck, a high leucocytosis and fever with pneumonia, with no signs, they could discover, and the signs might not come out for two or three days. If there was suspicion of meningitis lumbar puncture should be made. Another thing was that certain cases of poliomyelitis would give them fever and, at times, leucocytosis and stiffness of the neck. These were the cases which had marked sensory symptoms and hypersusceptibility of the nervous system generally.

Dr. Molloy, from the Philippine Islands, wished to call attention to the danger of using cocaine solution which, in the great majority of cases, might not be sterile, into the operative field, thereby carrying some infectious material into the spinal canal and endangering the life of the patient thereby.

Dr. L. W. Elias of Asheville, North Carolina, said that the classical directions were to give one dose of the serum every day for four days, and if the case improved, to wait and watch. Other directions which seemed to him to be more accurate were to give the serum until the fluid was germ free. One case impressed him very favorably. A little boy, six years of age, in a hopeless condition, was given three or four doses of the serum, shortly after which the fluid contained but few germs, and his recovery was uninterrupted.

Dr. C. C. McLean of Birmingham stated that one thing they had to consider in treating meningitis was sudden death following the injection of the serum. He had seen two cases of sudden death from injection of the serum. The blood pressure should be taken along with the injection of the serum, and as soon as the blood pressure began to rise the injection of the serum should be stopped.

Dr. J. R. Dowling of Albany, New York, emphasized the effect of trauma in connection with this disease. He had had two cases in which trauma played a part. When cases were submitted to the nose specialist for operation they must consider the possible dangers which might result from such a condition. Both of these cases were instances of cerebrospinal meningitis excited by operations performed by him.

Dr. Arthur T. McCormack of Bowling Green, Kentucky, spoke of the importance of spraying the noses and throats of children. In no instance in which a child's nose and throat were sprayed did meningitis occur. This spraying could be done by teachers under the supervision of the health officer.

Dr. Henry Hanson of Jacksonville, Florida, maintained that the use of autogenous vaccines, according to Theobald Smith, was not of much benefit in carrier cases. The carrier case, as a rule, was immune to the organism. A great many of these carrier cases were simply mechanical carriers and the organisms were not very definitely closely associated with the circulation in the system of the individual, and it would be unusual to expect a vaccine to be very efficacious in cases of this kind. Another point to consider in such cases was the virulence of the organism in carrier cases.

Dr. C. E. Terry of Jacksonville said that they had recently had in Jacksonville a small epidemic of diphtheria, and four months ago they began to handle these cases in a different way from what had been the custom in the past. They began making a search for carriers, and whenever a case was reported from a home they took swabs from every member of the family and servants in the house, and segregated the carriers from the non-carriers. While the work was too new to draw any conclusion, they had found out that wherever they had had diphtheria in a neighborhood the proportion of carriers found in that neighbor-

hood had far exceeded the number of carriers found in school rooms where diphtheria was not present in the neighborhood, and presumably the carriers found under those circumstances were virulent.

President's Address: Medical Resurrection and Reconstruction in the South.—Dr. Frank A. Jones of Memphis said that previous to the war of 1861-5 the medical schools and the medical men were to the fore. They took equal rank with the schools and men in other sections of this great land. They had men in those days untrammeled and unshackled. They had schools without endowments and professors without pay who gave to the world some of the greatest men of the present age. After the Civil War things were in a chaotic state. Medical schools sprang up all over the land, good, bad, and indifferent. They had no state support nor any private funds. This condition of affairs in a great measure brought them into disrepute with some of their neighbors who had not suffered the ills of a devastating and all consuming war. Old things were passing away. New blood and new life were being instilled. They could see the medical schools and the medical men coming to the front and taking their places where they rightfully belonged, when their influence would, as in the days of yore, be felt. The day was not far distant when medical schools could and would demand recognition, and when they could and would dictate their own standard of medical education and not according to any one man unit of merit for entrance. Much yet remained to be done in adjusting the medical colleges and standards to the rapidly changing conditions. The Southern Medical Association in its influence for good should have the hearty co-operation of every southern physician. It should be for the physicians, by the physicians, and of the physicians. Every southern medical college worthy of living, though its lot might be hard for a few years, should be handled with justice.

The Importance of Pediatrics as a Special Study.—Dr. L. E. La Fétra of New York City said that there was an enormous mortality before the normal time of birth, due to miscarriages, prematernity and still-births. An investigation made in Philadelphia showed that in 1911 there were 39,975 babies born, and of these 2,131 or about 5 per cent. were still-born. There were also 559 premature births and in which the baby died, and there were during the same year 10,666 miscarriages. This meant that one out of every five of these pregnancies resulted in a miscarriage or still-birth. Just think of the blasting of hopes, the discouragement of womanly effort these figures implied! Something must be done to prevent this enormous loss of life before its portals were fully entered. Secondly, they had a very large mortality during the first few days and weeks of life. The health officer of Washington had stated that in 1911, out of 957 deaths in the the first years of life 151 occurred on the first day, 130 between the first and seventh days, and 114 between the seventh and thirty-first days; that is, 395 or about 40 per cent. of the deaths of the first year occurred during the first month and about 1-6 on the first day. These figures were not exceptional, for in 1910, out of 1,070 deaths 150 occurred on the first day, and in 1909, out of 1,042 deaths, 140 occurred on the first day. They could set down 1-6 of the mortality of the first year as occurring on the first day, and almost 1-3 of the first year mortality as occurring during the first week. This first week's mortality was not due to the milk or the manner of feeding, but to earlier acting causes, such as hereditary weakness or disease, malformations, difficult or mismanaged child-birth and septic infection. Thirdly, they had a large mortality during the remainder of the first year. This was due to difficulties with nutrition and to infection, particularly to gastrointestinal and respiratory diseases. Along with this mortality there went a morbidity whose prevention was possible to a large degree.

The Importance of Regulated Rest and Play to School Children.—Dr. James D. Love of Jacksonville, Florida, stated that every school child needed individual supervision and guidance in order that the nature and extent of rest and play might be adapted to the physical requirements and limitations of the child. Cooperation between the physician and trained amusement directors and physical instructors was essential in order that best results be secured. The physical director should be possessed of sufficient medical training to enable him to delegate to the individual child the form of play best suited to his physical development. In the average public school, which was supplied with a physical director, much more time was devoted to the vigorous and promising young athlete than to the child who was physically defective and, therefore, in great need of regulated exercise and rest. Physical training was too often given without consideration of the child's needs and capacity for exercise. Clubhouses should be maintained on every public playground, supported by state or county funds and provided with one or more physical directors who, operating with the family physician, might regulate the rest and play of every child of a community. In these clubhouses instruction might be given parents regarding the nature and amount of play and rest suitable for their children. Supervision might, in this way, be maintained over the child throughout the entire year, play be made educational and elevating to the child's morals. As far as was consistent with a child's physical needs and capacity, freedom should be accorded him to select a form of play that most appealed to his taste and inclination. A child's unstable nervous organization was frequently made to suffer by too sustained mental effort and unduly long study periods. Frequent cessations of study and recesses must be regarded as a necessity for every growing child rather than as a special privilege to be awarded the brightest and best behaved. Any school system was faulty which included as forms of punishment the curtailing of a child's period of play and the "keeping in" after school hours.

The Importance of Medical Inspection of Schools.—Dr. Philip F. Barbour of Louisville, Kentucky, said that the state owed to the child a healthy environment while that child was in the school under the supervision of the state. The best way to prevent damage by a contagious disease was to protect the child from infection by recognizing and excluding contagious diseases. This required medical inspection. Inspection should exclude all contagious diseases, whether febrile, as scarlet fever, etc., or cutaneous as scabies, etc., or trachoma, etc. Inspection should also recognize defects of vision and hearing or other bodily defects. School nurses were necessary to follow up the inspector's orders. The medical inspector needed special training and should have adequate remuneration.

Medical Inspection of the Children in Rural Schools.—Dr. William M. Jones of Greensboro, North Carolina, stated that medical inspection was an established fact in most well organized city schools, the rural schools, as a rule, having no inspection and, consequently, no safeguards to protect them from contagious epidemic diseases. Those few schools that had inspection, or examination, had no regular plan and no way of checking results. The rural school had been neglected on account of ignorance, prejudice, and economic consideration of the communities. To the rural school medical inspection and examination were more necessary and, consequently, more important than to the city school. City parents were more likely to notice defects in their own children and to have them corrected than were country parents. The reason for this was that the city parent had constantly before him on the streets, in parks and other places, large numbers of children and he was forced to see and note defects, whereas the country parent saw only his own children and those of one or more neighbors, and, consequently, did not have defects called to his attention as did the city parent. Medical inspection should consist of an inspection of the school buildings, grounds, privies, water supply and means of dispensing. The pupils were examined for eye, ear, nose, throat, teeth, skin and special defects. Cards were given informing the parent or guardian of the defect, ordering him to carry the child to the family physician for treatment and advice. The physician was to return the card, but the majority failed to do so and the cards were lost. However, a record was made of all children to whom cards were given, and when the school was revisited the following year these cases were inquired into, and, if necessary, a second card was given and the parent or guardian had the defect called more forcibly to his attention by a letter telling him of the danger and necessity for treatment. To impress on the children some idea of disease, its cause and prevention, lectures were delivered, illustrated with slides whenever possible. This made a permanent impression. Teach the child and he would teach his parents.

Milk and Its Relation to Infant Mortality.—Dr. Henry Enos Tuley of Louisville spoke of the great importance of the prevention of infant mortality, and said that while there were many causes of the heavy mortality among infants under five years of age his remarks were limited to the question of milk. He stated that breast milk was the ideal food for the infant, but for many unknown reasons this supply was too often a failure and there was much artificial feeding among the infants after the third month. He then told of the idea of certified milk and the milk commission as conceived by Dr. Henry L. Coit and which had been so practical and one of the most potent factors in the reduction of infant mortality, by providing

a clean milk. The formation of infant welfare associations, which carried the gospel of clean milk and infant hygiene into the homes of the poor and ignorant, was pointed out as one of the ways to reduce infant mortality. Dr. Tuley stated that the medical profession was remiss in not taking a more active part in all social service movements and should help organize an association for the distribution of clean milk. The work of the nurse in the homes was also commended as a great help. The author stated that under no circumstances should swill be fed to dairy cattle, even if legislative enactment was necessary before the practice was stopped. He stated that recent investigations had pointed out a new menace, viz.: the infection of cows' milk with the bacillus abortus, and that it had been advocated that certified milk, as well as market milk, be pasteurized, or preferably boiled under official supervision. He brought out the fact that milk was a carrier of contagion and the possible rendering safe of market milk supply by pasteurization or sterilization, but that procedure should be under the supervision of municipal control and the consumer educated in the care of milk in the home. He stated that the flash process of pasteurization did not destroy any of the pathogenic bacteria but did destroy the lactic acid bacilli, allowing the milk to decompose, such milk being unsafe for infant feeding. The author was unable to state the relative nutritive qualities of cooked and uncooked milk, but that the highest authorities disclaimed that there was any deleterious effect from heat. He was not ready to agree that certified milk should be heated to render it safe. In closing the author made an appeal for organization of those interested in child welfare work in each community and the gospel of clean milk and child hygiene into the homes of the poor in order to stem the tide of infant mortality and save those babies to society.

The Management of Carbohydrates in Infant Feeding.—Dr. L. W. Elias of Asheville spoke of the method of Dr. Clock of New York, which consisted in displacing the intestinal bacteria with lactic acid bacilli. An essential to success was that the genuine Bulgarian lactic acid bacilli should be used, since they passed through the stomach uninfluenced by the gastric juice. These were administered in a sugar solution in which they developed best. The entirely new feature about Dr. Clock's method was that the treatment was carried on without any change from the diet which the infant was on when taken ill. His success both in private and out-patient cases was nearly 100 per cent. This method was interesting, aside from its phenomenal percentage of cures, in that it eliminated the usual starvation of the first day or so, and this was in line with the latest ideas in treating typhoid cases. A treatment including feeding from the start should be evolved for summer diarrhea. In a very limited experience with this method last year Dr. Elias was led to believe that there were large possibilities in it. To see a feverish baby with frequent green stools, containing mucus and blood, and, thirty-six hours later, to find the temperature down near normal and the stools in normal yellow, free of blood and mucus with the baby looking as if it were a healthy one, substituted since the last visit, was most striking and impressive.

(To be continued.)

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 27, 1913.

First Vice-President, Dr. T. Passmore Berens, in the Chair.

Resolutions upon the Death of Dr. Ellsworth Eliot.—Dr. Wendell C. Phillips read these resolutions upon the death of Dr. Eliot, who was president of the Society from 1872 to 1873.

Resolutions upon the Death of Dr. John S. Warren.—Dr. Charles H. Richardson read these resolutions upon the death of Dr. Warren, who was treasurer of the Society from 1889 to 1904.

Neoplasms of the Bladder and Remarks on Operative Treatment.—Dr. Francis R. Hagner, Professor of Genitourinary Surgery, George Washington University, Washington, D. C., read this paper by invitation. He declared that it would be a great advantage if the term benign tumors of the bladder were eradicated, as this gave rise among many unfamiliar with them to the impression that there was a class of bladder tumors clinically benign, whereas all tumors of the bladder were clinically malignant. Unless they were removed by some operative means they would either directly or indirectly cause the death of the patient. The operative treatment of the papilloma was divided into excision by open operation and intravesical operations. The open operations in multiple papillomata had not been very satisfactory as metastases were so apt to occur along the whole line of incision. Nitze's results in the intravesical operation in these growths gave a smaller percentage of recurrences than those operated on by the open method; this was especially true in the multiple papillomata. There were a few cases reported in which the growth had been removed suprapubically and the base cauterized by the Oudan current that had given favorable results. Unquestionably the majority of genitourinary surgeons were using either excision with an operating cystoscope followed by cauterization, or else the high frequency cauterization by the Oudan current. They had had several of these cases, and, while they had not extended over a period sufficient to draw accurate conclusions and while small recurrences had been noted in two of the patients, they had been readily removed by another application of the current. While no one could speak positively on the value of this treatment, all were agreed at this time that it seemed to offer better chances of success than any of their earlier treatments. It was imperative to examine these cases cystoscopically at regular intervals, and to remove at once any evidences of recurrence. The frequency of malignant tumors of the bladder in relation to those in other parts of the body had been given as 3.9 per cent. by some authorities and 7.6 per cent. by others, so there was some variance in personal experience of various observers. Dr. Hagner said he had purposely avoided describing the symptoms of benign growths because the symptoms of malignant and non-malignant growths were the same. Hematuria was the cardinal symptom but it was often not present until the case was far advanced. The hemorrhage had distinct characteristics, being generally abundant, of long duration, and occurring irrespective of injury, violent efforts or straining; it was obstinate in yielding to threapeusis and finally disappeared for as little reason as it apparently took place. It might recur in a few days or not for several months. As a general rule carcinomatous tumors gave more persistent bleeding than the so-called non-malignant types of bladder tumor. Pain was a most constant symptom; it might be entirely absent, but later on it usually became severe and constant. Tumors distant from the urethral orifice produced less pain than those at the orifice. Reflex pain due to pressure on the nerves was very common in this condition, radiating to the thighs, perineum, and epigastrium, but it was usually a late symptom. The tumor mass might be so large as to act as a foreign body and thus cause pain. Although the fundus of the bladder was supposedly a comparatively rare location for new growths, Dr. Hagner said his personal experience led him to feel that they occurred in this portion of the bladder more frequently than was usually described. Statistics showed that the lower one-third of the bladder was the location of two-thirds of the vesical tumors; if this was true, the operation that the author had used in these cases was applicable in one-third of all malignant tumors of the bladder. One of two facts was certainly true, either bladder tumors were more frequent, or else their methods of diagnosis at this time were more accurate. The cases to which special attention was directed were those involving the fundus or lateral wall of the bladder. All of the author's cases were operated on by the methods described in the *Annals of Surgery*, November, 1910. Inability to remove the friable mass in the first case without breaking the tumor mass suggested the method of removal which had been used in the subsequent cases. The operation was impracticable for tumors of the bladder base. The method of procedure was as follows: The bladder was irrigated, and, if bleeding, adrenalin 1-10,000 was instilled and allowed to remain for five minutes. The bladder was then distended with salt solution, and a Nitze cystoscope introduced. This was held in place by an assistant while a suprapubic incision down to the bladder wall was made. The prevesical fat was well separated and the tissue well retracted by wide lateral retractors so as to give a good exposure of the bladder wall. At this stage it seemed possible by illuminating the bladder with the cystoscope to outline the tumor mass by transmitted light; although iridescence was caused by the illumination of the fluid, the outline of the tumor mass could be made out. The growth was then inspected through the cystoscope, which was held by the left hand. With the right hand a threaded needle was pressed on the fundus of the bladder, and the

dimpling caused thereby was readily seen through the cystoscope. The needle was carried first to the left of the growth at a sufficient distance to give a margin of healthy bladder wall. It was then plunged into the bladder and the suture drawn through, being held taut by an assistant. The same procedure was employed at the right and at the lower border of the growth. An incision was made through the bladder wall around the inner side of the three traction sutures, the portion of the bladder wall to be removed being clamped as the incision was advanced. The bladder wall containing the growth was lifted up by the clamp and held by an assistant. The fluid left in the bladder was removed by a large syringe through the suprapubic wound to prevent its entrance into the peritoneal cavity and the cavity of the bladder was packed with gauze. If the parietal peritoneum was to be removed (and if it was adherent to the bladder wall it should be removed) the incision in the bladder wall was then carried upwards into the peritoneal cavity and the portion of the pritoneum covering the growth was removed. The bladder and peritoneal wounds were then closed by two rows of chromic gut sutures, a suprapubic drain being left in the bladder, although in the last case the bladder was completely closed and drained by a retention catheter through the urethra. If the lateral wall was the seat of the growth it might not be necessary to go into the peritoneal cavity, while, on the other hand, if the tumor was located in the fundus of the bladder near the median line or backwards towards the posterior wall, it was safe to carry the incision upwards directly into the peritoneal cavity and to remove the peritoneum covering the bladder over the location of the growth. Results in the last case before referred to made it seem perfectly safe to close the bladder wound completely. It was the author's belief that many bladders that they did not close could be closed providing the patient had a urethra that could stand continuous bladder drainage. Dr. Hagner reported in detail his eight cases of cancer involving the fundus of the bladder or the lateral walls. Three had been operated upon by the method here described and all were alive and well. One was operated upon March 10, 1910, one November 11, 1910, and the last one March 18, 1912. This operation had not been tried before so far as the author knew. It was applicable to the upper two-thirds of the bladder. It had certainly made the operative treatment much more satisfactory than guessing at the point of location of the tumor, making an incision, having the bladder wall collapse, finding the sutures were too near or too far from the growth, and then having to introduce the finger into the bladder to make out this line of incision and having the growth break up. In conclusion Dr. Hagner stated that he felt that every patient who presented blood in the urine, unless there was a definite known cause for its appearance, should be examined at once and the location of the hemorrhage ascertained. If this rule were followed one would not see so many cases of hopeless late vesical neoplasm.

Dr. Edward L. Keyes, Jr., said that Dr. Hagner's series of cases of excised carcinoma of the bladder, without recurrence within one year, was certainly very brilliant. The method gave a new hope in this desperate pathological condition. Not being able to criticise what Dr. Hagner had done Dr. Keyes made some observations on the symptoms, diagnosis, and treatment of papillary bladder tumors. He had been struck more than once by the disparity between the pathological condition and the symptoms of hemorrhage. The bleeding might be fast and furious when the tumor was small. It might be zero and the tumor large. He had seen two tumors of the bladder in patients who were supposed to have nothing more than neurasthenia and were cystoscoped for demonstration to students. Thus some cases did not admit of an early diagnosis because there were no symptoms. Dr. Keyes had seen three cases of papilloma growing from the trigone which did not have hemorrhage as a primary symptom. They showed only pyuria and frequent and painful urination. They were all cured by the employment of the high frequency current. Dr. Keyes called attention to the distinction he had previously endeavored to make between which tumors of the bladder were clinically benign and which malignant. That pathologists were incompetent to determine the clinical malignancy of a bladder tumor had often been illustrated. In one reported case, for instance, the tumor removed at a first operation was classed as carcinoma. It clinically lived up to this classification by relapsing; but when excised a second time the same pathologist (one of the best in the country) called it papilloma. Therefore the speaker preferred to classify tumors as benign or malignant in accordance with their reaction to treatment by the high frequency current. Those that could be destroyed by the current he classified as benign; the others as malignant. But this method of diagnosis would entail a dangerous delay, if we had not some criteria to help us judge which tumors would probably prove amenable to this treatment and which would not. In the speaker's experience there were several cystoscopic features of bladder tumors that denoted malignancy fairly well. Among these the most striking were two: First, sloughing on the tumor. A tumor that had not been treated and showed a sloughing surface was clinically malignant. Second; severe and intractable cystitis of an intense character that resisted all treatment to alleviate it was apparently always malignant. Certain other features should of course be taken into consideration, such as grave debility or a hard tumor, palpable by rectum or by bimanual examination. The presence of either of these showed malignancy, but their absence did not exclude it.

Dr. Leo Buerger said he wished particularly to emphasize one point brought out in Dr. Hagner's paper, the importance of an early diagnosis. There was another point he wished to dwell upon, and one about which most of them were more or less skeptical, that was, the possibility of obtaining a definite pathological diagnosis, telling them whether or not they were dealing with a malignant tumor of the bladder or with one that was benign. In the treatment of these cases it was most important to determine whether its pathological examination showed it to be a carcinoma or a papilloma. This was in many instances a difficult proposition. It seemed to him almost a hopeless task to trust to the pathologist or to the clinical history alone, but the safest data in making up the diagnosis of carcinoma of the bladder was revealed by the use of the cystoscope. They all knew that frequently papilloma was benign; also that it frequently occurred as carcinoma. How should they consider this question? How could they report to the pathologist and ask for a diagnosis? In his experience he found that they were dealing with varied types as follows: (1) The pure papilloma, single or multiple; (2) papilloma which showed early signs of degenerative changes in the epithelium; (3) tumors which showed changes which penetrated into the muscles, or with small collections of cells in the vessels; (4) papilloma in the body of a carcinoma; (5) tumor that had been invaded by carcinoma; (6) tumor which was a papilloma, but which the pathologist would term carcinoma; (7) tumors starting elsewhere, but associated with papilloma. All these tumors were either papilloma, or papilloma plus carcinoma. Could they help the pathologist in determining which tumor was papilloma and which carcinoma? Yes. Fulguration should not be employed because it was slow. One should bite off as much of the base of the tumor as possible, as well as some of the surrounding tissues. If the tumor grew deeply in the muscular tissues, it was carcinoma; if the tumor invaded the muscles, it was a malignant growth. He said that they should bite off with the forceps or with the snare as much of the tumor as possible, especially at its base. If they found that it grew in the muscle, it was a carcinoma. If atypical cells were present, it was a carcinoma. The cases mentioned could have been easily diagnosed by biting off a piece. Another important point Dr. Buerger mentioned was that there was in these cases a surrounding edema; there practically always was to be noted an area of edema and the microscope would show edema plus carcinoma. He recommended that in every case they should look for this edema. He made a plea for a more definite pathological diagnosis by the aid of the cystoscope and the aid of the pathologist.

Dr. Alfred T. Osgood thought that the method of operating employed by Dr. Hagner was a very ingenious one and that the subject under discussion had been very well covered, but there was one point which it seemed to him might be made more impressive. Upon the early diagnosis of tumor depended the salvation of many of these cases. The impression that the entire symptom-complex or at least the cardinal symptom must be present before tumor was suspected seemed to prevail. A tumor might exist in the bladder without symptoms or the signs of slight vesical irritability only be aroused by it. Symptoms of cystitis were frequently due to or caused by the presence of a tumor of the bladder. The cardinal symptom of hemorrhage was very frequently absent entirely or for a long period of time. Sometimes these cases would be treated for months and even years before a tumor of the bladder was discovered. It was the early diagnosis of these malignant tumors that Dr. Osgood wished especially to emphasize. Many of these could

only be helped by the early discovery of the cause of cystitis.

Indications in Renal Surgery Which Demand Immediate Operative Intervention.—Dr. Louis E. Schmidt, Professor of Genitourinary surgery, Northwestern University, Chicago, Ill., read this paper by invitation. He stated that his object was to endeavor to show the great discrepancy between the results of their methods of examination, including the newer methods, and the symptomatology which was still not thoroughly correlated with the facts that experimental post-mortem work and findings at the time of operation have shown to exist. Since the results of their usual examinations and the symptomatology had oftentimes apparently no real relationship to the gravity of the situation, the great necessity for immediate action could not be pointed out with absolute definite warning. He said that he would select conditions which appeared to him of much importance, would touch upon a few others and would entirely omit some which undoubtedly were of the same magnitude. There were cases met with by all which demanded quick action and that in some instances the usual diagnostic methods be used with discrimination and not stretched out over too long a time, but that they be limited yet correctly done. In chronic surgical diseases of the kidney no haste need be undertaken, but a most thorough and prolonged examination during the period of preparation for operation should be carried out. In a general way the urgent cases requiring immmediate operation were those in which the condition in or around the kidney threatened that organ with destruction or if no relief by operative interference was given that the general condition became so involved that the termination in most cases was fatal. It seemed more desirable to make a classification of these cases according to general conditions than to use any pathological or etiological classification. Hemorrhage, no matter whether produced by injury or in the course of nephritis, tuberculosis, stone, or neoplasm, gave rise occasionally for immediate intervention. The same could be stated of anuria, and here again the usual chronic conditions above mentioned might be the cause, but it was to the different types of acute nephritis attention would be directed. For present purposes the old classification of acute and chronic nephritis seemed most satisfactory. At present he would deal only with acute conditions. These were: 1. The acute parenchymatous type which was produced by all the well-known infectious diseases. 2. The acute suppurative type, which was exemplified so well by the colon bacillus infection. 3. The acute toxic type, which was produced by many drugs and toxins. What the significance of the passage of bacteria really was had not been positively established, but, in the speaker's opinion, it was a distinct sign of the involvement of the kidney. For instance, if the *Bacillus tuberculosis* was found in the urine, it did not necessarily indicate that the kidney was involved in a tuberculous process, but that a nephritis might be present permitting its passage. All agreed, however, that if the kidney had any cause for decreased resistance it readily permitted germs to be the cause of disease. Decapsulation probably relieved intrarenal tension, but it was improbable that it relieved intrapelvic tension or edema of the kidney as thoroughly as an incision through the organ into the pelvis. The possibility of the existence of a physiological albuminuria was still debatable, but Dr. Schmidt was inclined to believe that albuminuria never existed unless nephritis was present. It was an absolute fact that urinary findings might be completely negative even in extreme cases. On the other hand, if the immediate vicinity of the pelvis was involved and breaking down into the same, the urinary findings were very apparent. The fact should be emphasized that a negative urinary finding did not show the absence of a small abscess in the renal or perirenal tissue, and, furthermore, clinically it had been demonstrated that the renal function in these cases was not always impaired. It might be that the greater the destruction the greater the probability of loss of renal function. It had been shown by v. Noorden that the presence of albumin, red blood corpuscles, and hyaline casts was not sufficient to establish a diagnosis of nephritis, and by Cohn that traumatism could cause these elements to appear in the urine. With definite facts of this kind it must be admitted that some of the urinary findings in the class of cases under consideration were not of the importance that they were in certain and well-known processes. Furthermore even the functional and urinary tests, including cryoscopy of the blood, had been known to fail. In this group of infected kidneys cases were met with where there was suppression of one side only in the early stages, and anuria of both kidneys set in if the condition was permitted to persist. Clinically, it had been shown that certain conditions located on one side produced certain substances which undoubtedly, after gaining access to the circulation, had the power of destroying the opposite kidney. In infected cases it was not necessary for the germ itself to gain access to the second kidney. The symptomatology of all acute kidney disease varied with the intensity of the infection and often the duration of a few hours, certainly days, was of the greatest importance. With increasing diminution of urinary secretions in cases of septic involvement of the kidneys, why wait for anuria? When marked suppression had set in it was desirable to urge operative interference. It might be urged that such cases would recover without operation, but experience had shown that this was doubtful. When anuria had persisted for more than forty-eight hours the mortality was extremely high. In cases of this kind produced by stone, there would be scarcely any one to question the advisability of operative procedure. When produced by septic involvement, the subject was not so clear in the minds of all. In acute purulent infective nephritis were included all those cases (except those belonging to the acute infectious diseases) where there were bacteria in the circulating blood which for some reason or other produced infiltration of the kidney parenchyma. All these processes were similar; etiologically all were also metastatic and hematogenous infections, and why the process should differ in individual cases had not yet been determined. There was, as a rule, the usual general train of symptoms present, varying, however, to a marked degree. Local symptoms might be absent or one might find extreme sensitiveness. There was always present the characteristic resistance over the erector muscle on the corresponding involved side; occasionally there had been noted a localized inflammatory edema. In the diagnosis, naturally all the newer methods should be employed, the *x*-ray, ureteral catheterization, functional tests, the separately collected urines should be examined bacteriologically, chemically, microscopically, and possibly guinea-pig inoculation should be employed. In the differential diagnosis pyelonephritis had to be taken into consideration. It could be stated definitely that this condition was most often urogenic in nature and, therefore, ascending in character, and more frequently bilateral in contradistinction to those cases under discussion. As a rule uremic symptoms were absent and edema of the extremities was always absent. The author did not dwell on those conditions in which operative interference was generally acknowledged to be indicated. He concluded as follows: (1) That it was impossible for a one-sided acute infectious nephritis to occur; that if such an acute condition persisted for any length of time certain agents were produced in the course of the destruction of the kidney which destroyed the kidney cells. These bodies of nephrotoxic character, after gaining access to the circulation, were not only at once the source of the greatest danger in destroying the kidney cells of the involved side, but equally important to the opposite side, producing similar destruction of the otherwise healthy kidney. (2) That if the process was not too far advanced there was at least only the destruction of a certain amount of kidney tissue. With the hope in view that the operative procedure would stop the further progress of the destruction of its kidney and of its opposite, there was also the hope that by the operation the consequences to the system in general might be avoided. (3) That under the circumstances the correct course to pursue was to undertake operative measures, particularly where all known conservative treatment had been of no avail. (4) That these procedures might vary as to the indication. In the severe hemorrhages the operative procedure would be guided by the condition and this also held true in cases of anuria. (5) That in groups one and three, after being used all medical means for at least a short period of time, operative interference was desirable and decapsulation in these cases was the operation of choice. (6) That if operation should be decided upon in cases of acute infectious nephritis, especially in colon infection, the kidney should be exposed. If the involvement had not progressed too far nephrotomy was the operation of choice; otherwise a nephrectomy should be performed.

Dr. George E. Brewer said they were all as yet unfamiliar with the indications for operation in certain renal conditions, especially those which demanded immediate operative intervention. In his discussion he said he would limit himself to a consideration of the acute hematogenous infections of the kidney. There was no question in his mind that there was abundant proof that microorganisms in the blood might pass through the healthy kidney without producing structural changes. But,

on the other hand, they might produce changes from sloughing, swelling, infiltrations, and even destruction of the organ. What changes occurred depended entirely upon the virulence of the microorganisms and the resistance of the kidney tissues. There was no doubt that any kidney that had been subjected to disease, or injury, or anything that caused hyperemia was a kidney that was vulnerable to these organisms. As they attempted to pass through they might find a lodgment and form an abscess, or abscesses which broke down and formed larger abscesses in the capsule or perirenal tissues. There were two general classes to be considered, the ordinary acute form and the hyperacute form. In the first class, the patient was moderately ill and presented the textbook appearance of pyelonephritis or suppuration of the kidney with which they were all familiar. But there was another type so virulent that the patients died before such changes as enumerated occurred. In this type, the process was so virulent and the symptoms so intense that even renal symptoms were not present. In the symptomatology of this virulent type there was present a beginning chill with a sharp rise of temperature to 104°, 105°, or 106° F. and in one case he had met with to 107° F. Associated with this sudden rise of temperature there was an intense prostration and pain on the affected side; this pain was often referred to the anterior abdominal wall, which, of course, was very misleading. An examination of the urine would show no particular change. Why? Because the function of the kidney had been entirely suspended. The urine from the opposite kidney would show no evidence of any change. But upon centrifuging the urine almost invariably there would be found a few blood cells and often a trace of albumin. In these cases prompt surgical intervention was the only recourse. In the majority of the hyperacute cases there was a colon bacillus infection, but there was no rapid destruction of the kidney; this was an acute infection, with symptoms somewhat similar to the above, but relieved by a rapid and radical method—nephrectomy. In the staphylococcus or pneumococcus infection, the infection was so rapid that unless the kidney was promptly removed the patient would die. How die? Because of the pronounced toxemia from the kidney, or a toxemia resulting from metastatic abscesses in other parts of the body. These were the cases that called for imperative surgery. A careful urinary examination should be made in all these cases with centrifuging.

Dr. JOHN F. ERDMAN said that in cases of streptococcus infections of the kidney there was a possibility of mistaking them for gall-bladder trouble or infection of the liver. When hemorrhages occurred nephrectomy was indicated in many of the instances.

Dr. J. BENTLEY SQUIER said that a certain fact came to his mind; this was that in Switzerland they had two methods of operating in a certain number of groups—first, decapsulation, and, second, nephrectomy. Two years ago he published a paper in which he related the details regarding decapsulation subsequent to displacement of the kidney. Dr. Squier related the case of a woman who entered the hospital because of frequency of urination and hematuria. She was under observation for two months and was acutely ill, especially so when she came in. The condition subsided, but came on again, the hematuria being very profuse. Just what pathological condition was going on could not be determined and it was suggested that she submit to an exploratory operation, to which she consented. The kidney was exposed and a section for the pathologist was made. The kidney was split from pole to pole. There was no evident lesion of the kidney that called for its removal. The kidney was sutured back in place, decapsulation having been performed. The frequency in urination and tenesmus disappeared and for eighteen months she was perfectly comfortable. Then hematuria again appeared and was very profuse, undermining her health. The kidney was again exposed and was found to be imbedded in a dense adherent capsule. Nephrectomy was performed. On section the condition was found to be a typical case of essential hematuria with chronic arteriosclerosis. What had occurred in this case? The tension had been relieved by the decapsulation. Adhesions had then formed and bound the organ so tightly that it acted as though possessed of a fresh capsule. The decapsulation operation was merely palliative and resulted well until the adhesions and fibrosis formed. A second case was very similar and decapsulation was also done. There was a unilateral bleeding. The patient was relieved for two years when there was a recurrence of the symptoms. The report of these cases did not prove anything conclusive, but he believed that with more experience with decapsulation they would learn it to be a palliative operation and not by any means a curative one.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held November 18, 1913.

DR. LINSLEY R. WILLIAMS, IN THE CHAIR.

The Relation of and the Lesions Produced by the Members of the Streptococcus Group, with Special Reference to Endocarditis and Rheumatism.—Dr. E. C. ROSENOW of Chicago presented this communication. He gave a demonstration of specimens and showed on the screen many photomicrographs. After expressing his appreciation of being able to attend the meeting he said that some believed, as the result of much study and investigation, in the entire specificity of the streptococcus group, while others believed that there were certain degrees or modifications as a rule. So far as he knew, for instance, there was no absolute proof that pneumococci could be converted into hemolytic cocci. After working for one entire year he found that streptococci could be transformed into pneumococci and *vice versa*. Dr. Rosenow's part of the evening was devoted to a lantern slide demonstration.

Dr. AUGUSTUS WADSWORTH said that six years ago, in a paper read before the New York Academy of Medicine, he had reviewed previous studies of malignant endocarditis and emphasized the bacterial nature of many forms of endocarditis and their relation to the malignant forms of the disease. In the discussion the late Dr. Edward G. Janeway said that he had only seen one case of malignant endocarditis which recovered. This was both interesting and instructive in the light of their recent conceptions of endocarditis. All of this was due to the study of the different streptococci found in these cases, although attempts to clarify these different streptococci had never been satisfactory. Intermediate strains had always been found. Dr. Wadsworth was, therefore, especially interested in Dr. Rosenow's real achievement, the changing at will of pneumocci into streptococci and of streptococci into pneumococci. Dr. Wadsworth was also particularly interested in the lesions Dr. Rosenow had obtained experimentally with the different types of streptococci and pneumococci. In his own work he had studied chiefly the pneumococcus. In pneumococcus infection of the rabbit he had frequently seen lesions which were the counterpart of those presented in Dr. Rosenow's specimens of "experimental rheumatic myositis" in the rabbit. The records of Dr. Wadsworth's experiments showed that these were pyemic foci obtained only under certain conditions, namely, in immunized animals. With extremely virulent pneumococci in the very susceptible rabbit, hemorrhagic foci of similar distribution in the muscles were found.

Dr. N. E. BRILL said that the very important observations of Dr. Rosenow tended to modify materially our views as to the conception of the pathogenesis of streptococcic invasions of the heart valves, especially in so-called rheumatism and in the distinctive form of bacteriemia called chronic infective endocarditis, which was, in almost all instances, due to the strain of streptococcus known as either *Streptococcus mitior* or *Streptococcus viridans*. However, his views as to what he called rheumatism seemed to him to require modification. The term rheumatism was a general one and should be absolutely confined to what was known as "rheumatic fever." This specific disease had all the earmarks of a general infection of the circulating body fluids, though up to the present time no infectious agent had been discovered in the blood. It was, however, in the other conditions also termed rheumatism that a bacteriemia had frequently been demonstrated. Clinicians could differentiate three distinct types of infectious disease associated with acute non-suppurative arthritic changes, with fever and endorcardial involvement, to all of which the term rheumatism had been applied, namely, the well-defined form known as "rheumatic fever" and acute articular rheumatism, in which blood cultures had been invariably negative; secondly, a form, not at all uncommon, associated with definite attacks of tonsillitis, involvement of many points, both the large and small, but more frequently the small, accompanied by skin manifestations such as erythema, erythema multiforme, erythema nodosum, purpura and numerous petechiæ, the peliosis rheumatica of Schönlein, at times accompanied by signs of renal involvement and occasionally with lesions in the gastrointestinal tract, giving rise to abdominal pains, hematemesis and melena to which the name of erythema of the visceral group has been given by Sir William Osler. The lesion of the gastric mucosa produced experimentally by Dr. Rosenow, by the artificial injection of a certain strain of streptococcus, would appear to shed some light on this

second group, and because it was just in this group that a bacteriemia had, not infrequently, been established, first by Poynton and Paine and by Meyer, who gave the name of *Streptococcus rheumaticus* to this organism, though they believe that the organism was the infectious agent of the disease known as acute articular rheumatism. Lastly, a third group, also accompanied by fever, endocarditis and arthritis, which was the subject of discussion and which had been called subacute or chronic infective endocarditis. Dr. Brill limited his discussion therefore to this form alone. Let them call the last disease "chronic infective endocarditis" and not "sub-acute," because the most of the cases had no acute stage and lasted longer than the acute infections, varying in duration from a couple of months to as many years, even exceptionally to three, possibly four. These cases started, like all chronic diseases, insidiously, and were chronic from their incipiency, just as a small granular contracted kidney was chronic from the start. It was this form which seemed to be a definite entity and was produced by the entrance into the blood stream of the organism first described by Schottmüller and called by him the *Strcptococcus mitior*, also known as the *Streptococcus viridans*, and the attenuated streptococcus. Dr. Brill called attention to an etiological factor in this disease which had not been mentioned or generally described, and that was the common occurrence of previous and repeated attacks of tonsillitis in an extremely large proportion of these cases. He had seen a relatively great number of patients with chronic infective endocarditis and had been struck, on careful inquiry, as to the antecedent disease, with the very general confession in these patients of previous attacks of tonsillitis, recent as well as old, so that he had come to look upon an infection of the mouth, particularly of the tonsil, as the important portal of entrance to the *Streptococcus mitior*.

The symptomatology of chronic infective endocarditis might be summed up in symptoms due to the bacteriemia and those the result of the biological characters of this definite strain of organism. The former were the symptoms common to all streptococci and some other bacteriemias and therefore not characteristic of any type, viz., prostration, fever, chills, petechiæ, anemia, pains due to infarcts, pains and other symptoms due to emboli and mycotic aneurysms, joint pains and disturbances and the like. It was the specific biological character of the organism which gave rise to the pathognomonic or diagnostic features of the disease: the renal and skin emboli. Its particular biological feature was the tendency of the individual organism to tenaciously cling to each other to such an extent that shaking them in fluid cultures in a test tube would not disseminate the individual organisms; they stuck together in clumps. It was on account of this that clumps were arrested in the peripheral capillaries and in the terminal vessels of the extremities and of the kidneys. This arrest gave rise to the characteristic red, painful, tender nodes on the ends of the fingers and toes to some petechiæ, especially those with white centers, and to the characteristic malpighian tuft emboli in the kidneys, though the latter could not be determined during life. The toxic hemolytic influences of this organism gave rise to the progressive anemia, to the ordinary petechiæ, to the enlarged spleen, and to the tender sternum. In the absence of the painful tender skin nodes it might be at times almost impossible to make a clinical diagnosis without the aid of a blood culture. The latter, when positive, could alone clinch the diagnosis with certainty under these circumstances. As to the group of cases whose blood culture remained negative, they need not necessarily, on account of negative blood cultures, be bacteria free, for it occasionally occurred in them that cultures after death from the breast blood and the viscera demonstrate the existence of active organisms. On the other hand, negative blood cultures might indicate that the vegetations on the heart valves were undergoing regressive and separative changes by which the bacteria had been destroyed and were no longer fed to the blood current. He did not believe that it was always possible in such cases to make a positive diagnosis of the existence of such a condition, though he was aware that Dr. Libman insisted that he could. One might suspect the existence of the disease in the bacteria-free state, from the history. The signs which Dr. Libman regarded as characteristic in this stage, to his mind, were not conclusive, namely, the brown discoloration of the face, *café-au-loit* color and the sternal tenderness. In fact, he had repeatedly demonstrated the existence of these two signs in the course of ordinary chronic valvular disease, especially of the mitral valve, when associated with cyanosis and venous stasis. Chronic defect of this valve might give the signs of renal involvement, sometimes a large spleen and not infrequently evidence of bone marrow stimulation manifested by a polycythemia and tender sternum. Two such cases had been diagnosed by Dr. Libman as cases of healing lesion of chronic infective endocarditis, and on autopsy the heart showed not the slightest evidences of having been the seat of invasion by the *Streptococcus mitior*.

Dr. Morris Manges called attention to the extensive hemorrhages that sometimes occurred in the ventricles of the brain as shown in the specimens that were presented. Embolism was very frequent. In his experience he had never encountered, however, gangrene of the extremity or an embolus of some size. Congenital heart lesions should also be considered in the differential diagnosis of this condition. Such a lesion would predispose to the disease as would the acquired cardiac lesions. Dr. Manges referred to a case of Dr. Schmall, where the diagnosis was not made; this was one of a congenital heart lesion. That it was not so very infrequent was evidenced by the fact that it occurred three times in the 150 cases collected by Hordt. The tender nodes were very important, even if they were not as frequent as claimed by Sir William Osler, *i. e.* 70 per cent. When present in a case with fever and cardiac lesion the diagnosis of infectious endocarditis was warranted even in the absence of a blood culture. They were absolutely characteristic; in painfulness and appearance they could not fail to attract the patient's attention. In some cases they simulated the beginning of a panaritium.

Dr. W. Thalhimer said that in the past year Dr. M. A. Rothschild and he had been interested in the *Streptococcus rheumaticus* and *Streptococcus mitis** from a somewhat different point of view than that of Dr. Rosenow. They had been interested in these organisms, first, because of their possible relationship to Aschoff bodies, and, secondly, because of their similar cultural characteristics. From the reports of a number of observers, organisms had never been found in relationship to Aschoff bodies, which had also been their experience. Also in none of the cases of subacute bacterial endocarditis which they had examined so far, except the one case of Dr. Libman, of a combination of verrucous mitral endocarditis and aortic subacute endocarditis, had they found Aschoff bodies. They had never produced Aschoff bodies by intravenous injection of animals with either of the organisms above mentioned. They had produced, however, focalized myocardial lesions which were subacute and inflammatory in type, and in which organisms were not present. In addition, 53 per cent. of the animals injected intravenously with *Streptococcus mitis* had developed arthritis, and in a small series of animals injected with five different strains of streptococcus only 45 per cent. developed arthritis. Three of these strains of *Streptococcus rheumaticus* were obtained through the kindness of Dr. C. E. Winslow, of the Museum of Natural History, and the second through the kindness of Dr. Rosenow. The strains of *Streptococcus rheumaticus* had been in artificial cultivation for some time, but the strains of *Streptococcus mitis* were some of them recently isolated, and others of them, older cultures, had been under artificial cultivation for varying periods of time, one having been isolated several years previously. Consequently it would seem that their results were somewhat at variance with those of Dr. Rosenow, and had led them to the conclusion that the affinity of a strain of streptococcus, when injected into animals, for either the heart or joints, was not sufficient to determine this organism as a special type.

Dr. Paul W. Aschner said that he was especially interested in Dr. Rosenow's discoveries concerning transmutation of organisms of the pneumococcus-streptococcus group and their inter-relationship, as he had arrived at a somewhat similar conception from cultural studies. While the majority of these organisms as encountered in routine bacteriological work adhered to certain well-defined types, many observers had met with organisms varying from the type in greater or lesser degree. Some of these atypical forms partook of the characters of two types and might be regarded as transitional forms caught in the process of evolution. The organisms of the pneumococcus-streptococcus group were best divided into four classes: (1) *Streptococcus mucosus capsulatus;* (2) pneumococci; (3) non-hemolytic streptococci; (4) hemolytic streptococci. He conceived of these bateria as forming a continuous chain which might be represented in a graphic manner, showing that there were types and transitions between types; that there were saprophytic pneumococci and parasitic non-hemolytic streptococci. The non-hemolytic streptococci included such a variety of or-

*This term is synonymous with *Streptococcus viridans, Streptococcus fæcalis, and Streptococcus salivarius.*

ganisms that a type could hardly be said to exist. This class had been the cause of much confusion, for it contained bacterial forms found in the mouth, throat, and intestinal tract of normal man leading a purely saprophytic existence and formed culturally indistinguishable from these, but possessing a low grade of pathogenicity for man and animals. These had in the course of evolution acquired the property of parasitism. While they might be found in localized infections in man they were rarely found in the blood stream except in the disease known as subacute and chronic malignant, infective, or bacterial endocarditis, or endocarditis lenta. This organism was called *Streptococcus mitior seu viridans* by Schottmuller. He isolated a non-hemolytic streptococcus from the blood in a case of osteomyelitis of the mandible, the infecting organism coming no doubt from the mouth, where *S. salivarius* was found. In a case of post-abortion infection, obtained from both the uterus and the blood, the *Bacillus coli* and a non-hemolytic streptococcus. Here the infection was undoubtedly intestinal in origin. The *S. salivarius* and *S. fæcalis* were non-hemolytic streptococci. Whatever the biological and scientific importance of the transmutation of organisms, it was still a fact that when the organisms of the pneumococcus-streptococcus group were isolated from the blood there was no difficulty in distinguishing the various members culturally, as shown in the appended table. Whenever a non-hemolytic streptococcus was recovered from the blood stream by the usual blood culture technique, and other foci of infection could be ruled out, it was safe to assume that the organism was localized on the endocardium. The diagnostic value of the blood culture in clinical medicine remained unimpaired.

He had had for study cultures of the rheumatic cocci of Poynton and Paine, Beattie, and Lintz. These organisms were not freshly isolated and their characteristics might have changed, but by their methods they belonged to the class of non-hemolytic streptococci. While the *Streptococcus mitior* had only twice been found encapsulated, two of the three rheumatic cocci showed pneumococcus type capsules. None fermented inulin, and all produced large amounts of acid, as seen by the intensity of precipitation on glucose serum agar.

	Buerger Capsule Stain	Glucose Bouillon	Precipitation	Inulin	Bile Test	Blood Plates
Streptococcus mucosus capsulatus	Typical Atypical None	Clouded	0	+	Dissolved	Mucoid, Green
Pneumococcus	Typical Atypical None	Clouded	0	+	Dissolved	Green
Non-hemolytic Streptococci	Pneumococcus type Atypical None	Clouded Clumps Granular growth	+	+ +	Not dissolved	Green Gray White Colorless Slight, late, clearing
Hemolytic Streptococci	Atypical None	Granular growth	+	0	Not dissolved	Marked clearing in 24 hours

Perineal Ectopic Testicle.—R. A. Milligan reports the case of a boy aged seventeen years who sought advice on account of a lump in the perineum which at times swelled and became painful. Examination showed the scrotum to be empty. The right testicle was situated in the inguinal canal, while the left formed the lump complained of in the anterior part of the perineum.—*Proceedings of the Royal Society of Medicine.*

Functional Aphasia.—H. Mackenzie reports the case of a woman aged 35 whose husband had been admitted to the hospital with a right-sided hemiplegia and complete motor aphasia of two hours' history; since then she had worried considerably and had not slept. On April 23, on getting up, she found she could not speak at all. The author saw her on April 25, when there was complete motor aphasia. On April 27 she was better, and could talk fairly well; on April 28 she was talking normally, but in the evening was upset at home, and the aphasia again became complete. When outside the hospital she was talking quite normally. On eight or nine previous occasions, the first being two years and the last two weeks ago, she had similarly been aphasic, but never for more than a few hours at a time, the attacks always occurring after some special worry. She seemed of a very nervous disposition, but her past history did not otherwise present any special features. —*Proceedings of the Royal Society of Medicine.*

Miscellany.

Advice to the Prospective Automobile Purchaser.—H. Massac Buist presents a number of practical points that should guide the medical man in the selection and purchase of a motor car. Certain pitfalls in demonstrations should be guarded against. In the case of a demonstration car, one should know whether the carburetor has a larger jet orifice than in the vehicle as it will be supplied to the buyer; also the amount of gasoline that is being used in the demonstration car. One should observe systematically the manner in which the car is being demonstrated; whether the driver is manipulating the clutch when he is showing what can be done on the direct drive, and whether the clutch has been oiled so that it will slip somewhat. In some cases one can disregard the speedometer on the demonstration car. The writer has come across more than one that has been adjusted to register higher than is correct. When hill-climbing qualities are being displayed, one should be careful to observe how each rise is approached. There is no credit in climbing any rise without changing gear if one has to rush at it, any more than there is in demonstrating fast speed qualities on the flat if the machine has to take a long time to get into its stride. The medical man, indeed, should be particularly mindful not to succumb to the top gear or through-drive mania when he is making up his mind concerning the choice of any particular car. On the contrary, he particularly wants a machine the gears of which will be easy to change, and the motor and clutch details of which will not cause a jerk every time the gears are changed, whereby the machine is racked and tires are destroyed. The journeyings of a medical man are not confined to main routes. Accordingly many doctors are limited as to the size of car they can take by the necessity of negotiating tortuous and narrow country lanes, such as call for an ample wheel-lock and a limited over-all length of car, also, in many cases, for a wheel-track of not too great width. The car, however, should be always proportionately wide for its size and height from the ground if it is to be stable and safe on the road. Under this head mistakes of design have been made in certain light car patterns that are too narrow, and the center of gravity of which is accordingly too high. Another feature to which attention is drawn is the design of the brakes. The rubbing surfaces should be of proportionately large area, and the means of application should be easy, so that only a light touch is needed by foot or hand, with no consequent skidding or squeaking sounds; in point of fact, these are by no means as yet eliminated from certain constructors' brake systems. Means of adjustment should be accessible; on the other hand, a type of brake that is always in need of adjustment should be avoided, and one chosen that makes ample provision for wear, so that no appreciable degree of wear occurs for lengthy intervals.—*British Medical Journal,* November 8, 1913.

The Doctor and the Drama.—W. Sampson Handley notes that no actor on the English stage can give advice to youth in difficulties with such suave yet overwhelmning authority as Sir Charles Wyndham. His celebrated "It won't work" speech in the last act of "The Liars" is perhaps the best instance that can be quoted. It is the physician in him coming out, for Sir Charles, now an acknowledged head of the dramatic profession, is a qualified medical man.—*Lancet,* October 4, 1913.

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A FEW PRACTICAL OBSERVATIONS THE RESULT OF 8000 EXAMINATIONS OF URINE.*

BY WILLIAM MUHLBERG, M.D.,

CINCINNATI, OHIO.

ASSISTANT MEDICAL DIRECTOR UNION CENTRAL LIFE INS. CO.

SINCE May, 1907, the Union Central Life Insurance Company has followed the plan of having all microscopical examinations of urine performed at the home laboratory of the company. Samples are required, when the amount at risk is over $10,000 or where certain facts in the insurance or personal history of the applicant indicate some urinary lesion. An average of over 1,000 samples a year, and during the past year 2,000 samples, have been examined. Two ounces of the last half of the afternoon urine are voided in the examiner's presence, who testifies to the authenticity and personally forwards the vial to the laboratory. Four grains of boric acid are used as a preservative. The microscopical examination is made of the entire sediment from 15 c.c. of the urine after centrifuging for five minutes in a Purdy centrifuge. Chemically all the tests recommended by this association are employed. Our work has brought to light some noteworthy facts and the presentation of our more important deductions may be of interest to this society.

The laboratory was originally established on account of a well-founded suspicion on the part of the medical director that very few of our examiners were capable of performing a satisfactory microscopical examination of urine—but we were greatly chagrined to learn that perhaps not more than 1 per cent. of our examiners can be relied upon to do satisfactory chemical analysis. The reason for this is twofold. The subject has not been properly taught in our medical schools, and even in our best institutions the time devoted to the subject is inadequate to instil properly the finer technical points. I know this to be true from personal experience. For several years I taught this subject at a medical school in Cincinnati, and, although I devoted more time than is customarily given to this branch, I always felt that only a minority of the class of students had really grasped the subject. Secondly, physicians have the impression that uranalysis is one of the easiest of laboratory operations. The fact is that it is perhaps one of the most difficult because we are dealing with the detection of substances, albumin, sugar, acetone, etc., that normally occur in minute traces in the urine and for which furthermore the tests are not truly specific. As a result, not only is great care required in the technique but sound judgment is needed in the interpretation of borderline cases. Were the quantitative findings a true index to the pathological condition, this would not be of great moment, but, unfortunately, in the matter of albumin at least, minute traces, verging nearly on normal amounts, are indicative of the most hopeless and insidious form of Bright's disease. In consequence of our shaken confidence in the ability of our examiners to meet our requirements in the field, the Union Central Life Insurance Company is seriously considering the plan of requiring samples of urine to be submitted by every applicant irrespective of amount, age, or previous history.

As already stated, samples are requested where certain conditions exist or have existed in the personal history of the applicant, and we have been astonished at the number of risks suffering from diabetes or nephritis that have been discovered in this way. The conditions most frequently sought after, as indicating a possible existence of these diseases, are a history of boils, carbuncles, hematuria, kidney-stone, attacks of vertigo, and recent infectious diseases such as scarlet fever, and particularly have we been impressed with the value of the question: "Do you get up at night to void your urine?" On several occasions decided traces of albumin and as much as 1 per cent. of sugar have been found in our home office analysis, where medical examiners, in whom we had reposed much confidence, had pronounced the urine normal. It is of value also in detecting cases of polyuria due to interstitial nephritis with low specific gravity and hyaline casts.

The Sample.—The medical department always insists that this be voided in the afternoon in the presence of the examiner, in two glasses, and that a portion of the second half be immediately placed in the vial which contains two tablets of two grains boric acid each, and that the mailing tube be posted by the examiner himself. The examiner is required to certify to the proper performance of this rule by signing a slip attached to the bottle which reads: "This is to certify that this is authentic . . . P.M. urine, voided in my presence by (Applicant's name) of (City) and (State). Signed by Blank, M.D." We insist on an afternoon sample. In several instances specimens of urine free from albumin, casts, or sugar in the morning, have been found to show decided traces when afternoon samples were subsequently examined. Sugar particularly is likely to be absent in the morning urine of persons suffering from mild diabetes, and the same is true to a lesser degree of albumin and casts. A second half of the sample is preferred because a considerable proportion of men suffer from chronic latent urethritis and the pus cells derived from this source are washed away with the first half and are of course of no significance. The

*Read at the twenty-fourth annual meeting of the Association of Life Insurance Medical Directors, Philadelphia, October 24 and 29, 1913.

urine must be immediately placed in the vial for two reasons—not only is preservation assured in this way but casts are more likely to be detected. We have found through experiment that if urine loaded with casts is permitted to stand a few hours, the upper half of the urine will be absolutely free from all organized sediment through the gradual precipitation and contraction of the nubecula which separates in the urine and settles to the bottom of the vessel. The supernatant urine if poured into a vial will not only be devoid of casts, but also of the normal epithelial cells. Samples received by us that contain no, or very few, epithelial cells are rejected under the suspicion that the urine was not placed immediately into the vial after voiding. The company pays postage and a fee of fifty cents for every sample sent to home office. The reason for insisting on our examiners' posting the sample is obvious. Were this done by the agent, the authenticity could not be vouched for by the examiner.

Examination for Albumin.—The tests employed by our laboratory for the detection of albumin are those recommended in the excellent paper submitted by Dr. J. B. Ogden at the eighteenth annual meeting of this society. No doubt this is the best method, but after all it has its imperfections. Practically we have found that our poorer examiners fail to detect albumin as of old, in spite of repeated instruction and insistence on the use of these tests; and in the other direction, our better examiners are inclined to find albumin where it actually does not exist in pathological amount. Checking up our own work, we have arbitrarily divided the cloudiness obtained by salt heat and acid test into four degrees. 0 represents absolutely no cloud, 4 represents a cloud which on checking up with nitric acid ring tests gives a positive trace, the intermediate figures 1, 2 and 3 represent intermediate degrees of opaqueness which are visible when the test tube is held against a dark background in a good light. Such samples do not give a reaction to Heller's nitric acid test. We believe the heat-salt and acid test if done carefully is too delicate for practical insurance examinations, and we consider the amount of albumin sufficient to call it an impairment only when there is a faint ring with Heller's test. We use the heat-salt and acid test regularly on every sample, for owing to its delicacy it places one on the lookout for definite traces of albumin which might otherwise be overlooked. Every cloud obtained with salt-heat and acid test is checked up by Heller's ring test. In the last 1,000 examinations these reactions occur in the following percentages:

0	=	49.3%
1	=	32.9%
2	=	8.1%
3	=	2.9%
4	=	6.8%

It will be seen from these figures that the reaction must be checked up quite frequently with the nitric acid ring test, which unfortunately most examiners will not do. It would be impossible to inculcate into the examiners in the field the exact degree of cloudiness acceptable for insurance work. I doubt very much whether the same interpretation is followed by any two companies—hence, in justice to the agency force, we insist on having samples sent to the home office where the examiner finds albumin, so that we may judge the matter by our own arbitrary standards combined with a careful microscopial examination. Our experience seems to indicate that albumin is found with increasing frequency in the urine of young men. No doubt the source is renal and attributable to temporary congestion of the kidney or to errors in proteid diet or in metabolism, but we have found that occasionally the albumin is derived from the prostate or Cowper's gland. It is not unusual that abstemious, unmarried young men, complain of a discharge of a clear sticky fluid from the urethra, especially after defecation. A chemical analysis of this substance discloses the interesting fact that even when highly diluted with urine there develops a typical ring with the nitric acid test, indistinguishable from that due to serum albumin. The heat and acid test with or without salt, on the other hand, is negative. Further investigations have shown this substance to be in all probability a mucin,—that is a glycoproteid rather than nucleoalbumin—although it gives some of the reactions of protamine or histones. Urine containing this secretion may or may not contain a few spermatozoa. This again shows the advantage of obtaining the second half of a specimen as it is less apt to be contaminated with this secretion.

Casts and Cylindroids.—Casts like albumin are of importance only in a quantitative sense. Examinations by our methods, show that in the last 1000 examinations hyaline casts were found as follows:—

No casts	=	72%
1 or 2 hyaline casts	=	23%
3 to 5 hyaline casts	=	2%
Over 5 hyaline casts	=	3%

The number that is obtained, however, depends upon the technique employed and the judgment of the microscopist. The amount of urine centrifuged, and the quantity of sediment examined will necessarily affect the findings. So, also, will the number vary in accordance with the criterion adopted for differentiating casts from cylindroids. We have adopted the plan of recognizing as a hyaline cast only a well-defined, slightly striated or non-striated cylinder with rounded or sharply cut ends. Marked striations, long tapering tails, or split extremities are placed in the category of cylindroids. The differentiation however is purely artificial—and must for practical purposes be more or less arbitrary. Fully 55 per cent. of the samples examined by us contain a few typical cylindroids—but as a rule there are only four to eight or ten to the entire sediment. In our opinion there is no question that the typical cylindroid like the typical cast is of renal origin. The so-called prostatic cylindroids or plugs do not resemble them either in thickness, texture, or clear contour. It is furthermore a significant fact that cylindroids are more frequently encountered in urines of lower specific gravity, indicating a possibility that they were washed out of the renal tubules before reaching their maturity as true casts. This question is of importance because every company must decide for itself how many casts to accept, and what line of demarcation to draw between casts and cylindroids. We have as a result of keeping careful record of our microscopical examinations adopted the following plan: One or two hyaline casts are acceptable, provided the urine is not of low specific gravity. Three to five hyaline casts call for two or more samples; if the same number of casts is again found, the risk is rejected. More than five hyaline casts in the sediment of 15 c.c. of urine are not accepted. Unfortunately our experience is not sufficiently extensive to enable us to investigate the mor-

tality experience of cases grouped according to the number of casts found. This study, however, will be made in the future. We are convinced from the subsequent history of the limited number of applicants showing more than five hyaline casts in the urine by our technique, that they are not good risks. Of the significance of cylindroids and mucin threads, we know practically nothing, but we have found that where they occur in excess, as they do in about 5 per cent., subsequent samples will often disclose numerous casts and traces of albumin. We have under observation at present, a patient suffering from undoubted nephritis, in whom at times the casts, which are usually very numerous, will be almost entirely replaced by typical cylindroids and a dense network of mucin threads. This experience has taught us forcibly that uniformity of results in microscopical examinations can be obtained only where the work is done according to a fixed standard—and this can be obtained only through home office laboratory examinations.

Sugar.—There is no doubt that diabetes is increasing in prevalence. This may be attributed partly to the increased nervous strain and stress of modern life and partly to the tendency towards overeating and lack of exercise. The mortality statistics issued by the Department of Commerce and Labor—Bureau of Statistics—indicate this very clearly. The death-rate from this affection has gradually crept up from the year 1900, during which year the deaths are represented on a 100 per cent. basis, to 142 per cent. during the year 1909. And this has occurred in spite of the earlier recognition, the marked results from improved therapeusis and gradual unfolding of the true pathology of this affection through the splendid researches of our pathologists and clinicians. Like arteriosclerosis, diabetes seems to be making its ravages among the better element of the population and therefore is particularly noticeable among insurance risks. We have noticed this tendency in our laboratory work. Sugar is found in a greater percentage of samples at present than six or seven years ago. Unfortunately the same criticism that was made of the tests for albumin applies to those for detection of sugar. We employ the Fehling method recommended by Dr. Ogden and in our opinion it is the best. In spite, however, of our careful instructions, we find that even our best examiners will fail to detect sugar in urine containing less than ½ per cent., and the difficulty arises from imperfect technique and the confidence that most examiners have that the operation is too simple to admit of mistakes. It must be confessed that the detection of small amounts of sugar varying from 1/10 to ¼ per cent. is not easy, especially since concentrated normal urine, sugar free, will at times show a reduction of Fehling's equivalent to ¼ per cent. of sugar. We have practically discarded the phenyl hydrazin test as a check against our Fehling's. For some reason or other—and this observation is not at all original—phenyl hydrazin will occasionally fail to precipitate the typical osazone crystals even where pathological amounts of sugar are present. In our experience, the osazone compound is probably formed but fails to crystallize and the absence of the typical crystals leaves one in doubt. Instead, we are using the fermentation test. It, too, has its shortcomings, inasmuch as the degree of acidity of the urine and the presence of sugar in the yeast itself slightly influence the findings. But we have found that it is sufficiently delicate—less than 1/10 per cent. can readily be detected thereby. Our method is as follows: An ordinary bacteriological fermentation tube is filled with urine in which a piece of Fleischman's compressed yeast, the size of a pea, has previously been macerated. This is poured into the tube and a few minutes are allowed to intervene so that bubbles formed by the maceration may be permitted to escape from the tube. Enough mercury is then introduced to flood the elbow of the tube which is then placed in the incubator for twelve to twenty-four hours. A bubble, the size of a split pea, indicates, according to our experiments, less than 1/10 per cent. of sugar and is accepted. The method is easily performed, sufficiently delicate, somewhat time-consuming, and more quantitatively accurate than the osazone test. In addition, pentoses and free glycuronic acid are not disturbing factors since they do not ferment.

Acetone.—The relationship of acetone to glycosuria is an interesting one and we believe from the insurance standpoint an important one. Without attempting to go into the pathology of this condition, or even to hazard an opinion on the technical pathological points under controversy in connection with it, it might be well to preface our remarks by sketching some of the accepted facts bearing on acetonuria. In a general way, it may be said that acetone appears in the urine whenever there is an interference with the proper combustion of carbohydrates in the body. This can be brought about either by curtailing the ingestion of starches or sugars, as occurs in starvation, fevers, etc., or by the inability of the tissues to metabolize the glucose circulating in the blood, as in diabetes. Normal persons will suffer from acetonuria if the amount of carbohydrate in the diet is reduced to 75.0 grams per diem—which represents about 30 per cent. of the average daily intake in the usual diet. A few substances like alcohol, etc., possess an antiketogenic function of partially neutralizing the acidosis. In diabetes, acetone begins to appear in the urine particularly when the patient cuts down his carbohydrate food. In the milder forms, where 100.0 grams of starch may be consumed without production of glycosuria the urine, of course, will be free of acetone. But in the medium or severe grades of diabetes, the urine will never be either sugar free or actone free at the same time. Care in the selection of the diet, and alkaline treatment and consumption of anti-ketogenetic substances may limit it somewhat, but practically, this may be disregarded. Therein lies the importance of acetone test from the insurance standpoint. We know two persons in Cincinnati, diabetics for years, who have obtained large lines of insurance since they have become cognizant of their conditions. In both instances, their physicians assure me that rigid diet rendered the urine sugar free, but acetone was always present. We have every reason to suspect that we have unearthed five or six cases of a similar nature through our search for acetone. We make a routine practice of doing this test particularly where it appears that sugar has previously been found in the applicant's urine and while the effort to frustrate one attempt to defraud, among perhaps a thousand bona fide samples, may seem like the rewinnowing of old chaff, we believe, especially in larger applications, that the results justify the extra work.

Test for Acetone.—We have found that the test ordinarily employed by physicians to detect acetone, to be of no value, unless the urine is distilled.

Neither Legal's, Chautard's nor the iodoform test will detect small quantities of acetone when performed with urine without distillation. After distilling, the iodoform test (Lieben's) is very satisfactory provided the detection is made by examining microscopically for crystals in form of hexagonal plates or small stars rather than by the odor of iodoform. We have found that 15 c.c. of urine suffice. 2 c.c. of the distillate is treated with dilute of potassium hydrate solution and Lugel's solution, permitted to stand about fifteen minutes and examined microscopically. Normally, urine will show about five or six iodoform crystals at the most to the high power microscopical field. This we have ascertained by performing the test several hundred times. As a rule, when true diabetes exists, the crystals are very numerous. This test although reliable is time-consuming and recently we have experimented with Frommer's test which may be applied to the urine direct. This test is described by Dr. Jacob Rosenbloom in the *American Medical Association Journal*, date August 10, 1912, as follows:

"About 10 c.c. of urine are treated with about 1 gram of sodium hydroxide in substance, and, without waiting for it to dissolve, ten or twelve drops of a 10 per cent. solution of salicyl aldehyde in absolute alcohol are added. The mixture is heated to 70° C. In the presence of acetone a marked purple red color develops at the zone of contact with the alkali. Frommer asserts that this test can indicate the presence of 0.000001 gram acetone in 8 c.c. of water."

We have found that unless the urine is diluted so that its specific gravity is reduced to about 1010, confusing colors occur that render interpretation difficult. When properly diluted, however, urine containing only minute or normal quantities of acetone will give after ten or fifteen minutes standing only a straw or faintly pink color. Checking the reaction against the iodoform test it has been found very reliable. The advantage of course lies in its simplicity, delicacy, and the rapidity with which it can be done when applied to urine direct.

In conclusion we wish to emphasize the importance of having samples examined at the home office laboratory by a trained expert, where uniformity of methods employed enable the medical directors to have thorough confidence in the findings as given in the report.

In presenting this paper, I take pleasure in acknowledging the collaboration of Dr. Wm. O. Pauli, who for the past three years has conducted our laboratory work.

SOLVING THE MYSTERY OF BRIGHT'S DISEASE.

A PRELIMINARY PAPER.

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Instead of an excuse for presenting a condensed paper on Bright's disease, it will be in order to advance certain reasons, as follows: (1) Increasing frequency of the disease; (2) A novel hypothesis as to the causation; and (3) A summary of the effects of treatment in typical cases.

Prevalence of the Disorder.—This study was begun in 1898, at which time personal letters addressed to the proper officials in different cities brought eight replies, the data for ten years preceding being recorded in Tabulation I. Several months ago a letter addressed to the United States Census Bureau, Washington, D. C., brought a communication from Dr. Cressy L. Wilbur, Chief Statistician, together with the statistics embraced in Tabulation II, covering the period from 1900 to 1911, inclusive.

A casual glance at these tables shows such an enormous increase that comment is withheld for the present. To assume that this alarming condition of affairs is due to advanced methods in diagnosis would be a gratuitous insult to the medical profession—but there is a reason. To develop more fully the increasing frequency of kidney disease, as shown by the mortuary statistics, Tabulation III has been added. Thus, comparing the first period with the second, we find the increased percentage of deaths ranges from 217 in San Francisco to 539 in Cincinnati, the average for the eight cities being 370 per cent., a rate altogether out of proportion to the normal increase in population.

Causative Factors.—A critical study of such a complex problem as Bright's disease should include an inquiry into the causative factors—in order that our deductions relating to treatment shall be in line with recognized anatomic, physiological and chemical principles. The early investigations of Dr. Bright (1827) were comparatively meager in respect to pathology—the presence of albumin in the urine and usually the coincident dropsy. He recognized two types or varieties, the acute and chronic, the first being inflammatory, the latter the degenerative form of kidney disease. Precisely the same conditions obtain to-day; hence, it is no disparagement to Dr. Bright when it is stated that he merely discovered one of the defects arising from disordered metabolism. Thus, while the name Bright's disease is still retained as a generic application, it by no means covers disorders of the kidneys as completely as nephritis, the latter being found under a multiplicity of varying conditions, acute and chronic, with and without albumin or dropsy.

It would not be profitable to discuss here the character or peculiarities of the histological changes taking place in nephritis, nor the associated symptoms and complications, because this information is available in text-books and special monographs. The object of the present paper is to discover and demonstrate a fundamental basis for the evidence elicited by microscopic investigation in all cases of nephritis—in other words, to solve the mystery of Bright's disease. For example, the protoplasmic cell is now acknowledged as the physical basis of life—and it possesses or presents the peculiar characteristics, namely, nutrition (assimilation), excretion, motility, reproduction, and response to stimuli, each and every one of these life characteristics being attended with or dependent upon demonstrable chemical changes.

Following up this inquiry, it must be apparent that the potentialities of the chemical basis of life far exceed in importance the purely physical features. From the chemical viewpoint, life consists of synthesis and decomposition, hydration and dehydration—in short, life is oxidation, and, therefore, we can assert that life has also a gaseous basis, since none of these changes can take place without oxygen. To condense the argument, we may say the protoplasmic cell represents the unit in both animal and plant life, the physical as well as the chemical basis. Whatever is true or demonstrable as regards protoplasm, in respect to func-

I—STATISTICS—DEATHS ATTRIBUTED TO BRIGHT'S DISEASE (NEPHRITIS)*

City	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	Total	Average
Boston	170	155	134	148	158	168	134	143	119	130	1,459	145.9
New York	1147	1763	2024	2116	1991	2071	1879	2019	2195	2059	19,264	1926.4
Philadelphia	396	397	468	541	539	549	467	463	463	468	4,751	475.1
Chicago	192	194	245	249	249	257	344	511	656	936	3,813	381.3
St. Louis	255	253	279	245	245	258	245	296	396	397	2,869	286.9
Cincinnati	68	81	84	100	116	103	102	72	81	76	833	83.3
New Orleans	199	224	243	260	276	307	281	368	353	368	2,879†	287.9
San Francisco	132	142	232	212	197	211	189	192	216	248	1,971	197.1
Totals	2559	3209	3709	3871	3771	3924	3641	4064	4479	4682	37,839	.....

*Data received direct from city officials.
†Colored, 980, included.

tion and structure, therefore, is equally applicable to an organ, to selected tissue, including nerve tissue and to the body as a whole, because we cannot draw a line of demarcation showing where cellular activity is supplanted by somatic or body function.

Such being the case, it follows that both function and structure may be impaired by or through chemical changes involving the protoplasmic cell. Thus, digestion is a chemical as well as a "vital" process; the same is true of metabolism. Both are dependent upon the functional activity of cells and all function is, in turn, vitally affected by organic and inorganic chemical changes. Experimental and pathological investigations have enabled us to determine with a considerable degree of accuracy the daily intake as well as to the daily outgo of the body, so that we can estimate the percentage of deficiency when certain organs are diseased. This is notably true in the case of kidney diseases, although, unfortunately, kidney diseases are treated as if they were confined to that organ alone.

The modern conception of nephritis is rather hazy, when studied from the scientific viewpoint, because it assumes the presence of poisons which are non-existent. While it is not denied that toxins, both intrinsic and extrinsic, may set up a nephritis, there is ample proof to demonstrate that the vast majority of cases arise from certain chemical deviations in the body fluids—blood and lymph—and tissues, all of which is outlined in the accompanying diagram. An effort has been made to indicate in the order of their occurrence the causative and consecutive factors, and also the ultimate effects.

A brief explanation is in order to explain the term *"acid excess."* It is employed provisionally to designate a diminished alkalinity of the blood—in fact, acidemia might be used instead. And here, again, we run counter to the chemical function of the protoplasmic cell—it possesses the capacity of eliminating urea, carbon dioxide, phosphoric and sulphuric acids—all normal products of tissue respiration. Add to this the acids arising from muscular activity, voluntary and involuntary, together with the acids incident to impairment of the digestive capacity, such as indican and bacterial toxins, and we have a formidable array of possible chemical deviations in the body fluids and tissues. The ultimate effects of acid excess must be taken into consideration, therefore, in the treatment of all diseases, acute and chronic, functional and organic, whether infectious or non-infectious.

Although brought to my attention only a few days ago, it is gratifying to announce that the celebrated Pasteur had anticipated my findings as regards the deleterious effects of acids. When the wine-producers of France reported that their wines decomposed without apparent cause, Pasteur's investigations showed that decomposition was due to the presence of acids—which permitted or favored the growth of microorganisms. By sterilizing the wine in a vacuum, decomposition was prevented, while the palatability and bouquet were unaffected. The admission of atmospheric air, however, was fatal to the quality. The outlook was so favorable that Pasteur, in 1865, took out a patent on his process, but later released it, when it was found that fermentation could be conducted successfully without permitting the acid formation. So, in this instance, prevention was better than cure—and the writer believes the same tactics in Bright's disease will solve the mystery of its onset, since neutralization of acid excess in the human economy suffices to arrest its progress.

II—DEATHS FROM BRIGHT'S DISEASE AND NEPHRITIS*

City	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	Total	Average
Boston	456	469	454	497	482	492	552	545	551	568	603	681	6,350	529.2
New York	5466	5755	5690	6020	6648	6419	6824	7127	6319	6753	6842	7079	76,942	6411.8
Philadelphia	1762	1817	1830	2051	2228	2348	2432	2604	2396	2429	2672	2599	27,168	2264.0
Chicago	1260	1258	1551	1858	1931	2217	2402	2496	2138	2273	2500	2460	24,344	2028.7
St. Louis	685	653	704	684	772	729	755	814	864	927	1140	1031	9,758	813.2
Cincinnati	354	400	387	413	450	422	503	449	450	513	500	548	5,389	449.1
New Orleans	550	477	499	645	600	622	631	672	718	729	811	840	7,794	649.5
San Francisco	363	346	360	457	444	449	378	409	451	484	472	523	5,136	428.0

*Data furnished by Dr. Cressy L. Wilbur, Chief Statistician, Division of Vital Statistics, Bureau of the Census, Washington, D. C.

III.

TABLE SHOWING THE RELATIVE INCREASE OF BRIGHT'S DISEASE

First Period, 1888 to 1897; Second Period, 1900 to 1911

City	1888 to 1897 incl.		1900 to 1911 incl.		Increase, Per Cent.
	Total	Average	Total	Average	
Boston	1,459	145.9	6,350	529.2	362
New York	19,264	1926.4	76,942	6411.8	332
Philadelphia	4,751	475.1	27,168	2264.0	476
Chicago	3,813	381.3	24,344	2028.7	532
St. Louis	2,869	286.9	9,758	813.2	283
Cincinnati	833	83.3	5,389	449.1	539
New Orleans	2,879	287.9	7,794	649.5	225
San Francisco	1,971	197.1	5,136	428.0	217

With these explanatory remarks, the reader will be able to grasp the significance of the data presented to the accompanying tabulation, intended to show the causative and consecutive factors incident to the development of the malady.

IV—DEVELOPMENT OF BRIGHT'S DISEASE NEPHRITIS)

DIAGRAM SHOWING THE CAUSATIVE AND CONSECUTIVE FACTORS WITH ULTIMATE EFFECTS

Causative ..... { *Toxins* ... { Suppuration (Catarrh); Infectious diseases (Bacteria, etc.); Autoinfection (Cytotoxins) } ; *Disordered Digestion* ..... { Sloppy dietary; Nitrogenous foods; Magnesium excess }

Consecutive..*Acid Excess* ... { Diminished alkalinity of the blood and lymph; Demineralization (Calcium depletion); Impaired metabolism (Tissue-change) }

Ultimate Effects..*Magnesium Infiltration* .... { Simple replacement; Chemical transformation; United with calcium }

The ultimate effects in the form of magnesium deposits will be understood by reference to the above tabulation. For example, it must be evident to the most casual observer that a sloppy dietary will seriously impair the digestive capacity. Again, nitrogenous foods (meats), are recognized as being responsible for acidosis. While there is no literature relating to the deleterious effects of foodstuffs containing magnesium in excess, it requires but little investigation to prove that such foods seriously affect the digestive apparatus, because they obtund sensation. We have an excellent illustration of this in the employment of calcined magnesia for the relief of acute bowel troubles in children—it relieves pain by obtunding sensation.

Next in order we must study the effects of a diminished alkalinity of the blood; it leads to demineralization—and the pivot upon which demineralization turns is centered upon calcium depletion. For example, when calcium depletion takes place as a result of acid excess, there is coincident or consecutive substitution by magnesium—sulphate, phosphate, carbonate, oxide. The presence of magnesium in excess impairs metabolism; that is to say, it hinders tissue change or tissue respiration. So far, my investigations warrant the claim that magnesium infiltration or substitution occurs under three separate conditions when studied from the chemical viewpoint. In the case of children suffering from acute bowel troubles, the calcium depletion permits replacement; in the case of neuritis, neuralgia, neurasthenia, and heart disease, we have a chemical transformation, a union of magnesium with the colloid structure of the nerve, and, of course, this chemical transformation extends to the protoplasmic cell.

In studying the effects of magnesium infiltration upon the heart mechanism, I have designated this heart trouble *the magnesia heart*. On the same principle, we might refer to Bright's disease and nephritis as *the magnesia kidney*, because in every instance a diminished alkalinity of the blood, together with the highly acid urine, has led to calcium depletion with the substitution of magnesium. Proof of this is to be found in the results of treatment conducted for the purpose of promoting magnesium dissociation.

In this connection it would be interesting to study the third division of the classification adopted, magnesium united with calcium, because we so frequently find this condition present in the kidney of those who have long been under specific treatment, in which mercurials constitute the principal ingredient. Mercury depletes the lime from the bones, and there is a tendency to its accumulation in the kidney structure, so that we have various forms of calculi. Of course, it will be difficult for the general practitioner to understand this theory of magnesium infiltration, and it would be equally difficult for him to conduct treatment in a case without careful study of the physical and chemical principles advanced, but Pasteur had the same difficulty. Some years after the occurrence previously mentioned a committee of medical men and scientists was appointed by the British government to visit Pasteur's laboratory in Paris and learn something definite from personal observation as to the correctness of his deductions on the subject of germs. Every member of this committee was at that time a non-believer in the germ theory; they were not only skeptical, they were prejudiced, and regarded the proposed trip as utterly useless. However, after a thorough inspection of Pasteur's work, the committee returned to London, every man being thoroughly convinced that Pasteur's solution of fermentation was complete and unassailable. And, so it is hoped, will be the fate of the working hypothesis of magnesium infiltration.

Treatment.—The hypothesis of magnesium infiltration simplifies the medical treatment of kidney diseases in a marked degree—inasmuch as we assume a common pathology. In fact, there is no essential difference between the treatment of "magnesia kidney" and that of "magnesia heart," aside from medication conducted to counteract the effects of bacterial invasion. Hence, a summary of the treatment outlined for the "magnesia heart" ("The Chemic Problem in Nutrition") will afford a fairly complete exposition of the plan, as follows:

(1) *Restore the digestive capacity* by a suitable dietary, together with the employment of appropriate remedies for the purpose of correcting functional defects, sepsis and excessive bacterial flora. This is not a difficult problem to solve—the dietary should be limited rather than restricted; it should not be "sloppy," and unless the taste is perverted by narcotics, or the mind diverted by advertisements, we can trust the stomach to select a "balanced ration," in respect to proteins, fats, and carbohydrates.

(2) *Neutralize acid excess,* the chemical deviation, the consecutive factor which is responsible for the calcium depletion and impairment of metabolism—easily accomplished by the administration of suitable alkalies. Apparently, it is a very simple proposition, dealing with physiological chemistry, but we must not overlook, or be misled by, nature's efforts in this direction—when nitrogen in the form of ammonia is drawn from the body fluids and tissues to correct the acid excess and *make the cells work.*

(3) *Promote magnesium dissociation* by the internal employment of calcium salts, carbonate, phosphate, or sulphate—alone or combined with iodine to act as an alterative upon the organic deposits which impede, hinder, or destroy the capacity of the nerves for the uninterrupted transmission of impulses. The average daily intake of calcium for adults ranges from 10½ to 15 grains, but a sloppy dietary, or a dietary which impairs digestion and produces "acidity" will cause a daily loss of as much or more. Perhaps this will account for prolonged convalescence, for many acute ailments, for "nervousness," for insanity, because it does explain the cause of Bright's disease—calcium depletion and magnesium infiltration are the ultimate effects of acid excess.

V—INTERSTITIAL NEPHRITIS (BRIGHT'S DISEASE)—URANALYSES*
TABULATION SHOWING RESULTS OF TREATMENT ON THE HYPOTHESIS OF MAGNESIUM INFILTRATION

Date, 1913	Reaction	Specific Gravity	UREA		Albumin	Sugar	Indican	Remarks
			Per Cent.	Ounces				
February 24..	Alkaline	1.026	2.3	11.5	Trace	None	Little	Over 5,000 granular and hyaline casts to the ounce.
March 14..	Acid	1.033	3.1	15.5	Trace	None	Little	Casts—2,000 to the ounce. Considerable pus—vaginal (?)
April 4..	Acid	1.034	3.8	19.0	Trace	None	Not much	Many waxy and hyaline casts—some granular—2,500 to the ounce.
May 7..	Acid	1.026	3.0	15.0	Trace	None	Not much	Total in 24 hours, 80 ounces, making urea output 1,200 grains daily. Over 500 casts to the ounce.
May 29..	Faintly alkaine	1.024	1.9	9.5	None	None	Little	No casts—no albumin.
August 1..	Acid	1.020	2.7	13.5	Trace	None	Not much	Not over 100 hyaline casts to the ounce.
September 8..	Acid	1.024	2.3	11.5	Trace	None	Not much	Over 100 casts to the ounce—hyaline; some with epithelia; others, coarse, granular matter.
October 9..	Alkaline	1.026	2.3	11.5	Trace	None	Not much	No casts; sediment mainly mucus.

*Examinations made by Paul H. Langner, Ph.G., Clinical Chemist, Philadelphia, Pa.

In the treatment of nephritis we have *three reliable landmarks,* not only in regulating medication, but also in determining progress—also valuable prognostic aids. For example, the subjective symptoms are notably significant—if the patient *feels* better from time to time, the outlook is favorable. However, we can check up the objective symptoms, such as the condition of the digestive apparatus, acton of the heart and character of the pulse, and if deemed necessary, the blood pressure—and last, but not least, the salivary and cutaneous reactions, and the reflexes, the knee-jerk for example. Finally, we have the examination of the urine, showing diminished loss of albumin, increased output of urea, while the casts rapidly decrease in number—and in typical cases disappear altogether.

The above tabulation shows in the most graphic manner the clinical evidence in favor of the hypothesis advanced. The patient is a female, age fifty, married, no children, and had been under medical treatment for three years. There were present all the usual symptoms—nervousness, cardiac embarrassment, insomnia, neuritis; in short, general debility, while the urinary test showed over 5,000 hyaline and granular casts to the ounce, with but a trace of albumin, and alkaline reaction. Edema of the extremities was but slight. Notwithstanding the unpromising outlook within two weeks the urea output had increased 50 per cent., while the casts were reduced to 2,000 per ounce—and within three months had entirely disappeared. The reappearance of casts and albumin should not be charged against the plan of treatment. Rather, it is offered as a crucial test, since this patient has been in almost constant attendance upon her mother, slowly dying from a malignant disorder. And besides, we must bear in mind that it is rare to find normally acting kidneys at the age of fifty years.

1305 ARCH STREET.

THE TREATMENT OF PNEUMONIA BY BACTERIAL VACCINES.*

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PNEUMONIA pathologically is a septicemia. It is a systemic disease and not merely an inflammation of the lungs. The infecting organism, the pneumococcus, multiplies in the circulating blood. All the symptoms of a pneumonia, even the dyspnea, may be present in a pneumococcus infection without any lesions in the lung. They are due to the endotoxins set free from the pneumococci acting upon the nerve centers, heart, etc. When mice are experimentally inoculated with the pneumococcus, they develop an intense fatal septicemia with dyspnea, etc., but consolidation of the lungs does not occur. The human lung is still solid when the crisis occurs but the dyspnea stops because the pneumococci have disappeared from the circulating blood and the endotoxins have been neutralized by the antibodies manufactured by the body. The battle between the body and the pneumococci is at an end, the battlefield being cleared up later.

The most frequent first symptom of lobar pneumonia is a rigor. *X*-ray pictures have shown that the rigor occurs before any consolidation of the lungs. The rigor is an indication that the pneumococci have developed in the blood of the patient, having entered generally through the upper respiratory tract, to a sufficient point of saturation to cause a reaction on the part of the body. The pneumococci cause actual injury to the cells of the body, so that the body must rally her forces to her defense or be destroyed. Who can say how often a few pneumococci, which are so very common in our respiratory tract at this season, do actually get into our blood and are killed by the phagocytes before they reach a sufficient concentration to cause any definite reaction on the part of the body.

Pneumonia does not develop, because the body is able to cope with the invading pneumococci without making any great fuss about it, *i.e.* without being forced back to her last line of defense, the production of the lesions in the lungs.

Pneumonia is a battle between the body and the pneumococcus which has invaded the blood of the victim. The body, being the challenged member of the duel, can choose the weapons and the site of the battle. Therefore it chooses the lungs which are an ideal site, for all the blood must time and again pass through the lungs. The pathological changes that now occur, congestion followed by consolidation, indicate nature's attempt to localize the infection in the lungs. The bacteria are filtered out of the blood current and held enmeshed in the fibrin precipitated from the blood serum, so that the ever vigilant leucocytes can crowd out among the imprisoned pneumococci and devour them. This is much more to the advantage of the leucocytes than in the swiftly moving blood current. The leuco-

*Read before the Richmond County Medical Society, October 8, 1913, as part of a symposium on the management and treatment of pneumonia.

cytes are the soldiers in the fight, a great standing army of forty or fifty thousand million in the average person and able to be doubled or quadrupled at a short notice. But the soldiers must have weapons. If some bacteria and washed leucocytes are mixed, nothing happens; but add some normal blood serum, which contains a substance called opsonin, and under the microscope the leucocytes can actually be seen eating up the bacteria. Opsonins are necessary to so prepare the bacteria that the leucocytes can devour them. The blood serum constantly contains to combat the various bacteria more or less of opsonins, either inherited or acquired as the result of previous infections, perhaps very mild ones that have passed unnoticed. But these are not sufficient in case of such an invasion as a pneumonia and the body must hasten and manufacture more or the defense will fail. This is, no doubt, what occurs in some fatal cases in which the leucocyte count is high and the opsonic index low, showing a large number of soldiers but these imperfectly armed. Then after the production of sufficient opsonins, proper phagocytosis, etc., the body must, in addition, manufacture antibodies to neutralize the endotoxins set free by the disintegration of the pneumococci or again the defense will fail. These antibodies seem to be inoperative until they reach a certain degree of concentration. This is what happens when the crisis occurs; the endotoxins are suddenly neutralized and all the symptoms rapidly disappear. These opsonins, antibodies, etc., are manufactured chiefly by the fibrous tissues of the body under the stimulation of toxins, vaccines, etc. This is our cue in the treatment of pneumonia by the various biological products—vaccines, sera, leucocytic extract, etc. We are attempting to assist nature along her own chosen line of defense.

Antipneumococcus serum is not like diphtheria and tetanus antitoxin for it is not antitoxic. The difficulty is that the pneumococcus does not produce a soluble extracellular toxin as do the latter, which can be injected into some animal and cause the production of antitoxin, which being recovered from the animal can be used therapeutically to produce a passive immunity to the disease. This is an ideal procedure. Our present pneumococcus serum is bactericidal not antitoxic, but it should assist the body in killing off the pneumococci. It has the advantage that it can directly attack the pneumococci and not simply stimulate the body to do so as a vaccine does. The perfect serum would be one both bactericidal and antitoxic. In desperate cases it should be tried as it promises more then than does a vaccine which would not have time to work.

Reports as to the treatment of pneumonia with leucocytic extract are very encouraging. It acts chiefly by increasing phagocytosis. The disadvantages are the expense of the treatment, the large doses necessary, and the pain produced by the inoculations. The great advantage is that it is suitable for any infection and always ready for use without requiring any bacteriological skill as does vaccine treatment.

Vaccine treatment is based upon the fact that the injection of a proper vaccine causes the production of an active immunity to the corresponding infection. It stimulates the body to increased production of opsonins and antibodies and therefore is a proper scientific treatment, for it is a direct imitation of nature's methods. Recovery from a pneumonia requires the destruction of the invading pneumococci and the neutralization or elimination of the endotoxins set free by the disintegration of the pneumococci. This is just what a vaccine assists the body to do. Some observers state that vaccine treatment has no place in the treatment of a systemic infection and should be used only in case of localized infections. They argue that in a general infection the body is already overwhelmed with the bacteria and their toxins, and how can the injection of a little more of the dead bacteria help out the situation? Naturally the results are not as good as in cases of localized staphylococcus infections, where the treatment is practically specific, for we have a worse situation to deal with. The object of treatment by bacterial vaccines is to stimulate the increased production of opsonins and antibodies and, as stated above, it is the fibrous tissues of the body that are particularly active in doing this. There are no other means that can do this as well as the injection of a proper dose of a proper vaccine. Particularly as it is injected into the subcutaneous fibrous tissues, which is very active in this respect. Also these tissues, not being actually engaged in the contest, are in a better condition to respond and flood the blood serum with the necessary opsonins and antibodies. The site of the lesion, the lungs in this case, are more or less overwhelmed by the toxins and therefore not as well able to produce the opsonins and antibodies as a distant part of the body. It brings new tissues into the fight as reinforcements. The fact remains that the increase of opsonins, antibodies, agglutinins, etc., after the injection of a vaccine, can actually be measured. And these measurements afford an exact record of the measure of resistance of the patient to the disease. In addition, the injection of a vaccine increases the production of leucocytes, thus adding reinforcements to nature's forces. This can but do good by increasing the soldiers available for the fight. A lack of leucocytosis is a very bad prognostic sign in pneumonia.

An autogenous vaccine, that is one made from the patient's own particular infection, is naturally better than a stock vaccine, for there are many varieties of the pneumococcus and the opsonins are specific even to the subdivisions of an organism. A polyvalent stock vaccine gets about this difficulty to a certain extent but imperfectly, as the dose of the right variety, if present, would be too indefinite. It is to be remembered that the pneumococcus is a close relative of the streptococcus and in many cases is associated with it. Many of the cultures show both and sometimes it is not easy to distinguish between them. Therefore in treating pneumonia with stock vaccines it is advisable to give both.

The keynote of the treatment of pneumonia by vaccines is early administration. It is not a method suited for late desperate cases. If given early the body is stimulated to produce an excess of opsonins and antibodies, the leucocytes are probably already adequate or the vaccine will help make them so and the pneumococci can be killed before they reach such tremendous numbers that in their destruction such amounts of endotoxins are set free as to greatly injure the heart, kidneys, nervous tissues, etc., before they are neutralized or excreted.

The early administration of a proper vaccine can hardly fail to be productive of good in a large percentage of the cases. The writer has had a number of cases where the vaccine was given within a few hours of the initial chill and, though the diagnosis was beyound question, the whole process was

over in 48 or 72 hours. Many other observers have reported similar occurrences. The patient, in such cases, has a pneumonic infection as shown by positive blood cultures, alveolar sputum alive with pneumococci, etc., but a real pneumonia does not have time to develop to the stage of consolidation; for the body is able to kill the invading pneumococci without being forced back to her last line of defense —the production of a pneumonic process in the lung, which, in so many cases, fails of its purpose, the victim being destroyed in the attempt. The other biological products should act in the same way, as do strictly medical measures at times. Many physicians no doubt have had cases in which they have felt certain that they had aborted a pneumonic infection but hardly dared call it a pneumonia as consolidation did not have time to occur, the lesions in the lung merely reaching the stage of congestion. I maintain that we should make this occur more often than it does by every means at our disposal, not the least of which is the proper use of a vaccine. Our early eliminative procedures and supportive measures tend to help nature to accomplish this purpose but they do not succeed often enough. If someone could discover a specific chemical substance for the pneumococcus of the nature of salvarsan, the early administration of this would abor our pneumonic infections before a pneumonia developed.

The best method of procedure, though all observers do not agree to this, is to administer a polyvalent stock vaccine of the pneumococcus and streptococcus, of each thirty million, at as early a date as possible. Make sputum smears and cultures, blood cultures in early cases, lung puncture in late ones, and proceed to the preparation of an autogenous vaccine. If there is no definite response in 24 or 48 hours, repeat or preferably give an autogenous vaccine. If there is no response in 36 or 48 hours, double the dose. If there is a response, as evidenced by improved clinical symptoms and signs, increased well-being of the patient, etc., defer reinoculation three days or until the first symptoms of retrogression in the general condition or the physical signs occur. Maintain the dosage or increase it every two or three days until the patient is entirely well. Generally about three doses are necessary.

As to results, they are certainly an improvement on all other methods of treatment. For we should use all other means that we have found of benefit in conjunction with the vaccine treatment. Vaccine treatment, properly carried out, is capable only of good. Hundreds of cases have been reported with an average mortality of 5 to 10 per cent. The mortality from the old routine treatment is still 16 to 20 per cent. and in alcoholic cases, nearly 50 per cent. in some epidemics. In twenty consecutive cases, seen by the writer in private practice, there was but one death. In hospital practice, as a rule, the cases are not seen early enough and a pneumonia is well developed before we can see them. Still last winter at Smith Infirmary, in the service of Dr. Mord, where we used it in every case, we had many remarkable cases and many recoveries where the prognosis seemed very bad. Figures are of little value unless they consist of a great many cases and the writer can not quote enough of his own cases to sound very convincing. But I feel assured that in considerably over a hundred cases so treated, I have observed that the disease runs a shorter course, the patients are less toxic, there is less fever, and generally no delirium occurs except in alcoholic cases. Convalescence also is shortened and the danger of complications is lessened. Best of all, more of the patients get well.

One should remember the advice of Wright, the originator of the method of treatment, to give citric acid in severe cases of infection. A certain amount of increased viscosity of the blood is a good thing but, as in many other cases, nature sometimes overdoes a thing. In the bad cases of pneumonia, the viscosity of the blood becomes too great, resulting in impeded circulation, lymph stasis, etc. Hence in these cases, large doses of citric acid are necessary to diminish the viscosity of the blood and lymph. Twenty to thirty grains may be given every two to three hours.

In conjunction with the vaccine treatment, emphasis should be made upon the importance of supporting the patient by proper nourishment, judicious stimulation, good nursing, etc. Of assisting elimination of the toxins by the bowels, kidneys, skin, etc., of keeping up the blood pressure, of sparing the heart from needless strain, and carefully tiding it over the period of greatest stress. For the immunity produced by vaccines is an active immunity. They simply stimulate the body to manufacture the necessary opsonins and antibodies, so that the body must be kept in as good condition as possible to do it.

46 Franklin Avenue.

THE DETERMINATION OF CHANGES IN THE PAIN SENSATION.

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Pain is defined as "suffering," "a disagreeable feeling," as "distress." How inadequate these synonyms, these groups of words! Who can in terms express or describe it? Subjectively any one of the above phrases will to some extent cover the significance of the feeling as expressed by any one who has a subjective phenomenon which he describes as painful. Here, however, we are dealing with a cutaneous manifestation, a condition induced by the action of certain physical stimuli on the skin of the individual and either recognized as an entity by the observer, or denied as such, and declared as part and parcel of common sensation.

We would, however, consider the subject as divided into two and attempt to separate the pain sensation as such, from a group of painful (disagreeable, distressing) sensations, and point out certain fallacies in the determination of the pain sensation, and to advocate a specific and constant method of its determination. For simplicity of study the following classification will be of assistance.

A. *Painful Conditions* (where painful means unpleasant, distressing, disagreeable): (1) Increased tactile sensations becoming painful. (2) Increased thermal sensations becoming painful. (3) Increased pressure sensations becoming painful. (4) Increased electrical sensations becoming painful. (5) Increased chemical sensations becoming painful. (6) Muscular and arthritic painful conditions. (7) Visceral painful conditions. (8) Painful conditions in bone and periosteum. (9) Painful conditions in the nerves.

B. *The True Pain Sense* (cutaneous sensibility of pain), which does not correspond in any sense, except painfulness, as meaning distressing, etc., with "painful conditions."

The question now arises whether the "painful" (unpleasant, disagreeable) sensations are identical with, or a separate entity from the cutaneous pain sense as known by the neurologists. We would hold distinctly that this is not the case, and that both should be separated distinctly.

Of the painful conditions mentioned, the first three, painful tactile, thermal, and pressure sensations will here, for brevity, be considered together, but under no condition must it be understood that these three sensations are the same or even transmutable into each other. In some conditions it is of assistance to employ the words of our patients. In all three conditions they will exclaim "it hurts," not "it pains" or "it feels sharp or dull." In one they say it doesn't hurt exactly, but it feels unpleasant; in the second they most frequently and constantly exclaim, "it burns, it freezes," making a distinct separation of the sensation produced from that of pain; in the last they declare that "it squeezes terribly," that "it presses so that it hurts." No declaration here of pain, of sharpness, of dullness; no reference in any way to the sensation we attempt to obtain when we prick our patient with a pin or pinch his skin (which method of eliciting pain is to be discussed later). If then our patient's minds act unconsciously in this manner, and separate each of these sensations, why should we declare them to be one? And yet some one will declare that it is the ocular or aural knowledge of what is being done which assists them in making the differentiation. This is not so. Let a rapidly rotating brush strike a patient's skin without his seeing it: does he declare the unpleasant tactile sensation to be a "pain" in the sense of a disagreeable sensation or as a distinct pain sense disturbance? Invariably the former is the case. Apply the ethyl chloride spray to the back of a patient—does he complain of the pain as such or of a painful sensation which he describes as "freezing"? Let the Paquelin cautery run along the most painful sciatic nerve area; is it pain that the patient objects to, or the sense of burning? Apply a tourniquet around the arm of the salvarsan patient too firmly, and he complains, not of pain, but of a painful sensation of tightness; he tells you that it binds. Certainly in none of these conditions can the identity of the pain sense and painful (distressing, unpleasant, etc.) sensations be affirmed. Pain is a subjective condition, and who, better than the individual suffering therefrom, can distinguish between its varieties (that is if we use the term loosely as it is commonly applied).

And how frequently in examining a patient do we ask him to differentiate its varieties. "Is it a sensation of tightness?" we ask. "Does it feel like something pressing here or there?" we inquire. "A feeling of pins and needles?" perhaps we ask. We are here distinguishing, not between pains, but between distressing, disagreeable, or so to say, "painful" degrees of other senses than the pain sense. If this be true, why employ the terms so loosely? Far better would it be to differentiate and to classify these sensations under headings such as are here suggested.

The unpleasant feelings produced by electricity present a more complex problem. As yet we know not its nature, nor the nature of its action. Certain it is, that the electric current stimulates both sensory as well as motor nerves and muscle tissues. Has the current a selective activity for the pain sense? We do not know. It would seem, though, that its stimulating effect is general on all the superficial nerve-endings, and, as such, the painful, distressing, unpleasant feeling would be an admixture of all; and to say that the electric brush is a test for the pain sense as such would seem manifestly unfair. Besides this, the fact must be considered that the current, especially the faradic, causes contraction in the muscles, and a part of the painful sensation produced may well be attributed either to pressure on the nerves within the muscles (deep muscular sense overestimated), or to the accumulation around the nerve-endings within the muscle of chemical products excrementitious in character, from the frequent contractions. This is a field of conjecture, and unless it be cleared definitely, electric painful sensations should not be regarded as pain sensations.

The field of increased painful chemical sensations had best be viewed from two aspects. The substances of irritative effect may be classified as endogenous and exogenous, and the effect of each must be noted.

The exogenous chemicals are those which if applied to the skin produce painful sensations. Here again we know only that the peripheral nerve-endings are stimulated by the substance employed. The sensation is most frequently described as smarting, "it seems to eat in" is a common description. Are there nerve-endings especially for chemical products? It is certain that the tongue contains papillæ with a specific selective activity for chemicals in solution. Yet we do not feel disposed to this view as far as cutaneous sensation is concerned, but are inclined to believe that the painful sensation produced is a combination of the irritative effects of the chemical, of dehydration, tissue destruction, etc., on all of the terminal filaments and special end-organs in the skin. This then is not the true pain sense, but rather a mixed "painful" sensation.

Endogenous substances are such substances as are produced in the body of the individual in disease or health, and in this instance act specifically on the nervous mechanism. Of such bodies one must consider the products produced in infectious diseases (beriberi, typhoid fever, diphtheria, syphilis, leprosy, etc.) in protozoan processes (malaria, etc.), in metabolic disturbances (gout, rheumatism, diabetes, etc.), in intestinal and other autointoxications, and organic poisons inhaled, ingested, or absorbed (lead, arsenic, mercury, phosphorus, etc.). In all of these one hears of neuritic processes which are described as painful. Let us investigate some of these and note whether they are painful sensations or disturbances of the "pain sense."

In the infectious fevers, typhoid, leprosy, beriberi, etc., the pain sense as such is definitely involved and as such both the subjective symptoms as well as the objective signs are present. In all, the motor power may be, and frequently is, involved, as well as the other cutaneous sensibilities, so that in testing one must specifically isolate the disturbance of the pain sense from the painful disturbances of the other senses.

In all the endogenous poisonings with sensory symptoms, one or all of the cutaneous senses may be affected, and as our investigations should lead to a definite separation of these senses a proper method must be observed.

Of the muscular and arthritic, of the bone and periosteal, of the visceral painful sensations, it is hardly within the scope of this paper to enter the field of discussion. Have these organs a specific

pain sense or are the sensations due to disease processes, etc., merely distressing (painful) and exaggerated and unpleasant muscle, bone, etc., sensations, if these be present. For fear of a misunderstanding at this point we do not desire this to be interpreted as a transmutation of these sensations into "pain sensation." The patient, for example, does not describe a rheumatic (used advisedly) joint as paining in the sense of pain sensation but rather as "anguishing," "distressing," as "indescribable." And this is true for the other inflammations, each has its own distressing, painful condition, taken only in this sense and not as disturbance of the true pain sense. Frequently, too, (Head) visceral distressing conditions are reflected to the skin areas as pain, and in these conditions undoubtedly the pain sense in the skin over the segmental areas affected is involved, as can be proven by the proper tests for that sensation. Yet even here how different is the painful sensation which the patient describes spontaneously, from the objective disturbance in the local "pain sense."

There yet remains the painful condition along the nerves. Certainly the fibers conveying the "pain sense" may be acted upon anywhere in the course of the nerve by toxic products, trauma, pressure, etc. It remains to be proved that these fibers can be stimulated along the course of the nerve to produce a disturbance in the pain sense or merely "painful sensations." Both conditions are possible. One frequently sees a neuritis with a distinct disturbance in the "pain sense" (numbness, hyperalgia), with few or no "painful" or "distressing" symptoms; on the other hand, however, the reverse is often true: the patient may complain bitterly of distress along the course of the nerve with no disturbance in cutaneous pain sense. In the nerves themselves there seems, therefore, to be a definite separation between the general disagreeable, so-called "painful sensations" and the "pain sense."

The question now arises, can such a definite pain sense be proved? Two diseases help distinctly to demonstrate its existence. While these are mentioned here it is not forgotten that the reader is cognizant of both, and he will therefore bear with a repetition of common knowledge.

In locomotor ataxia the tactile and deep muscular senses are lost, but the pain sense remains. Pathologically the loss of tactile and muscular sensations means a destruction of definite fibrils, means a sclerosis of the posterior columns and a sparing of other definite fibers which convey the pain and temperature sensations.

In syringomyelia the tactile and deep muscular senses remain (intact) and the posterior columns are uninvolved, but pain and temperature sensations are dulled, are gone, and specifically as such. Pathologically the nerve fibers in the anterior commissure are destroyed. There is then a definite disease entity, a definite destruction of pathways conveying pain and temperature sensations.

We have so far attempted to show a distinction between pain sense and "painful" (distressing, unpleasant, disagreeable) sensations and must now turn to a survey of the field of true "pain sensation."

Definitions are unsatisfactory, their purpose is elemental. So are synonyms for this condition. We have attempted so far to show what "pain sensation" is not; it is now necessary to demonstrate its physical cause, its manifestation and its method of elicitation.

If a sharp pin point be applied to the skin with its axis at right angles to the skin a normal individual will, as a general rule, state that he has a "sharp feeling," that something "pricks" him. This sensation is entirely different from the former sensations which are called painful or distressing. To this sensation (for we must adopt a standard) we would apply the name "pain sensation." Perchance this will seem a marked narrowing of our previous concepts of this sensation, yet, as will be shown later, it is the only fair and constant means of its elicitation and of judging its intensity.

Numerous are the methods suggested by various authorities. Dana suggests "pricking the skin with needles or the sharp points of the esthesiometer, or the use of the faradic current or the wire brush," and speaks of special instruments for pinching the skin. Raecke and Bing test with light and deep needle pricks and by pinching. Strümpell advocates a number of methods, *e.g.* pin-pricks (superficial and deep), firm pinchings, and strong heat stimuli; or the pin may be pushed through a fold of skin. P. Schuster advocates all of the above-mentioned methods, and mentions the fact that the pain sense varies in different individuals and in different parts of the body of the same subject.

It is this looseness of method, this failure to adopt some standard, which should be eliminated, and when we speak of variations in the pain sense we should have the same common picture. Certain it is that the majority of observers think of the pin-prick when variations of the pain sense are mentioned as the means of its study.

Yet even here inconstancy exists. The pin is stuck into the skin lightly and deeply, the pin or needle is inclined at any angle to the skin, folds of skin are transfixed or moved to and fro by the pinpoint. One uses an ordinary pin, another a fine steel one with a porcelain head. There seems no unanimity of method.

To come to a proper method, therefore, we must investigate the pain sense as such in the skin. In the first place we must recognize the fact that all areas in the skin do not have "pain-sense" endings, and these areas of absent pain sense are separated only by millimeters from those possessing it. This can be proved by taking an ordinary pin and applying it as described above to the skin; some spots will immediately feel the prick, the sharp sensation of the point, in others it can be pressed deeply down and, while slightly uncomfortable, in no way will the sensation felt be the same.

Dr. Hastings some years ago demonstrated this fact, and put it to practical use in giving intramuscular injections of vaccines. He directed the point of the needle perpendicularly to the skin, and also sought for the painless points before injecting. I have always followed this method in hypodermic medication, in cocaine and quinine, and urea local anesthesia, and find that in no instance does the patient complain of the initial needle prick, which certainly is not the case if the needle be directed into the skin at random.

It is now necessary to review the methods advocated and to discard such of them as are erroneous. The method of pinching the skin will first be considered. In no way does this elicit a pure sensation. Here are commingled painful tactile and pressure sensations, and perhaps (although this is a mooted point) the true pain sense. How hard should one pinch? How large a fold of skin should one pinch up? How many pain-sense areas are included in

such a fold? And how erroneous, when all these factors are considered, must such a quantitative judgment of the variations of the pain sense be. Instruments of precision (?) have been invented to test the pain sense in this way. What have they tested? Who can say? Only the degree of unpleasantness, if anything. We are therefore disposed to discard this method of testing painful (unpleasant) sensations, for certainly it does not help in determining the "pain sense."

Electrical and heat stimuli are also advocated. These must be removed from consideration at once. Is a "painful" heat sensation a disturbance of the pain sense? Perhaps both sensations are conveyed by the same fibers, but are the end-organs the same? We doubt it. I have on numerous occasions mapped out on normal individuals the so-called cold and hot areas of the skin, and find they do not agree with the pain-sense areas. As for electrical stimuli we have already attempted to show that we do not know what senses are stimulated. If this be so, can an electrical "painful sensation" be utilized as a fair measure of the "pain sense"?

There still remains the method which is most frequently employed in clinical work. It consists of picking up a fold of skin and attempting to push a pin through it. Here again we deal with a polysensation. But this is not all. One can easily demonstrate in a normal individual that a pin can be run almost painlessly through a fold of skin. In the first place the pain sense seems not to be stimulated as much by this lateral attack as by one at right angles to the skin. Secondly let one find a field which is painless on the skin by the method advocated, and in close proximity to it find a similar area (not too far distant); then if he run the pin into the first spot and out of the other no pain is produced, and no stimulation of the true pain sense. There is another source of error in this method. If the pin is inserted into the skin parallel to the long axis of the limb (in other words in the general direction of the nerves) the pain sensation will be far more acute than in a transverse pinprick (across the nerve fibers). This method then presents three sources of error, and when the finer distinctions in the variations of the pain sense are sought for it certainly does not give a constant result.

We have now attempted to show the fallacies in each method so far advocated and must, after destructive criticism, supplant these tests by a constant one. And this we feel prepared to do.

Pain sense should be tested for as follows:

(1) Pin-pricks. These should be made perpendicularly to the skin; at first superficial, then deeper. The pin employed should preferably be a steel one with a fine sharp point and a small porcelain or glass head.

(2) Areas in close proximity should be tested, so as to separate pain areas from areas having no pain sensation.

(3) If with superficial light pin-pricks no pain is elicited, press deeper; try, however, to be in an area of pain sensibility.

These maneuvers give a constant "pain sense," one which the patient recognizes as such, and one which the observer can measure. If under such circumstances we speak of diminished "superficial pain sense," "absent pain sense," etc., we will have a standard, and we will not wonder whether the "pain sense" or a "painful" variation of some other sense is meant.

There remains one point which will only be suggested at this time. When we call a sensation dull, *e.g.* that produced by the head of the pin, are we dealing with pain sensibility or tactile sensation as opposed to the pain sensation produced by the pinpoint? This seems to be the case, but we feel that our observations to date have not yet cleared this point, and as after all sharp, sharper, sharpest, are the best measures of the pain sense over different areas, it need hardly play an important part.

I have attempted here to point out certain fallacies. I have tried to establish a definite "pain sense" as (distinguished) from painful (distressing, unpleasant, disagreeable) variations of other sensations and essayed to bring forward an old method for its study, but employed in a constant way. It was with some trepidation that I entered the field, apparently so unimportant and so clear, yet it was a subject which even in my early days of psychological study seemed far from clear. Further study will either affirm or refute my viewpoint; painful sensations to me are not identical with pain sensation. The haphazard methods of testing either are confusing, and at least here there is room for much improvement. The method advocated may be proved at fault, but it is my hope that at least a constant may be determined upon.

220 Audubon Avenue.

THE PROGENY OF THE TUBERCLE BACILLUS.*

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Old tubercle bacilli alive in a moist, somewhat unfavorable environment, swell or elongate and become markedly granular, lose more or less of their acid-fast resistance, and fuse together into a poorly acid-fast granular or homogeneous matrix. Subcultures from this matrix on various media not quite suitable for tubercle bacilli develop poorly acid-fast or non-acid-fast bacilli or cocci, which have no longer the power of causing tuberculosis in injected animals, but have the power of increasing the virulence of simultaneously injected tubercle bacilli.

1. From this matrix of fused old tubercle bacilli can be developed bacterial forms similar to Much's coccal granules, Foulerton's streptothrical forms, Dixon's branching forms, and Ferran's rod forms. From this matrix it is possible to grow coccal and bacillary forms that vary in morphology, in acid resistance, and in chromogenic power, according to the variance in the age and vegetative energy of the tubercle bacilli that composed the matrix, and according to the variance in the technique to which the matrix is subjected.

All of these derivatives of tubercle bacilli are very tender. They need constant watching. Many of the first sub-cultures die without apparent reason. They are very sensitive to environment. After they have grown for a few generations at 37°, or at room temperature, they will not grow well at any other. In sub-cultures they all grow best on glycerinized media.

2. All non-acid-fest coccal and bacillary derivatives of the tubercle bacillus are, strange to say, gram-negative. Old tubercle bacilli, fusing into a

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matrix, gradually lose their gram-positiveness, and finally only a very few resistant granular rods remain in the gram-negative fields. The coccal granules enclosed in the still intact tubercle bacilli are, however, more markedly gram-positive than their enclosing bacillary capsule. Taken in connection with the clinical fact that so frequently in epidemics of cerebrospinal meningitis, many cases of pure tuberculous meningitis, and even some cases of mixed tuberculous and cerebrospinal meningitis occur, does not this observation give color to the suspicion that the meningococcus is a child of the tubercle bacillus?

3. One of the most striking and suggestive methods of developing the non-acid-fast or partly-acid-fast bacterial forms from tubercle bacilli is to grow the tubercle bacilli on glycerin-broth in air-tight flasks for two or three months at 37°, and at the end of that time to remove the seals, substitute sterile cotton plugs, and put the flasks at 22° or thereabouts. If the scum is so dense as to shut off the air from the supporting medium, it is desirable to break up the bacillary crusts by gentle shaking of the flask on a few successive days.

I have been working with six different strains of human tubercle bacilli—three from pulmonary tuberculosis, one from bone tuberculosis, one from scrotal tuberculosis, and one from glandular tuberculosis. From all of these strains, by the procedure here described, I have been able repeatedly to secure the coccal and bacillary non-acid-fast, gram-negative forms, that did not curdle milk, that usually crackled in the flame, and were identical in every way with the forms found in pure tuberculous sputum, and in the pus from tuberculous glands.

4. From none of these six strains of human tubercle bacilli have I been able to grow any of the fine large rosaries of streptococci that are so abundant in certain cases of apparently pure tuberculous sputum. But in the first cultures of coccal and bacillary derivatives of tubercle bacilli the water of condensation in the glycerin-agar tubes invariably contains some of the new organisms in chains. And when the coccal derivatives are grown in glycerin-broth or sugar-broth the tendency to grow in chains is very marked. In cultivating in liquid media the older, partly decapsulated bacillary derivatives, it is difficult to keep these granular rods from elongating into streptococcal filaments.

From tuberculous pus, which on microscopic examination showed only long granular tubercle bacilli, I have repeatedly grown pure cultures of a beautiful streptococcus, which at first contained in every chain one or more acid-fast granules, evidently akin to the granules in the tubercle bacilli of the pus. On sub-cultures these chains were entirely non-acid-fast. When injected into tuberculous guinea pigs, these streptococci caused marked focal reactions, and in two series of experiments pursued during the past year seemed to have some beneficial influence over guinea-pig tuberculosis.

On the other hand, in cases of non-tuberculous, so-called idiopathic asthma in which the sputum is almost a pure culture of stretpococci, the most marvellous improvement in symptoms can be frequently brought about by the administration—preferably by mouth—of a few doses of tuberculin.

5. You have probably noticed that so far I have said nothing of the yeast cells that are found in tuberculous sputum and pus, and you are tempted to ask me whether I consider that these yeast cells have any relationship to the tubercle bacillus. I prefer not to go into that question very deeply to-day. It is the most interesting question connected with the whole problem. Here and now I will merely say that I have not been able to grow any yeast forms from the matrices of old cultures of tubercle bacilli, in spite of the fact that very often these matrices, stained with either Ziehl-Nelson or Gram stains, contained very alluring promises of yeast formation. But the relationship of the yeast cells and large streptococci found in tuberculous pus to the disintegrating nuclei of the tuberculous pus cells is something that I am very sure of, and that I hope to be able to prove to your satisfaction in another year.

In view of these findings, I would to-day answer as follows the question concerning mixed infection that I raised* at the Conference in Brussels three years ago:

Mixed infection in tuberculous areas is caused, not by the invading of these areas by bacteria from the outside, but by the development in these areas of the bacterial progeny of the struggling tubercle bacillus.

APPENDICAL INFECTION, WITH ABSCESS FORMATION; SHOULD THE APPENDIX BE REMOVED AT PRIMARY OPERATION?

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This disease, its complications and definite mode of treatment, is one that is before surgeons of to-day in a truly emphatic light. In weighing the matter for judgment, by those who are conscientious, the treatment of the appendix with supervening abscess formation must surely be left to the decision of the skilled operator.

This question is one that cannot be answered without unlimited consideration and careful forethought. Just how the appendicitis might have been caused, what variety or varieties of organisms we are dealing with, the locality, position, and pathological condition of the appendix, to what extent the surrounding peritoneum has become involved, the duration of the illness, general condition of the patient, and numerous other questions must at once come to the mind of the surgeon.

Appendical abscess is the end-result of an acute attack primarily, or of an acute exacerbation of a chronic condition. It is comparatively rapid and progressive in formation. Therefore we know that the condition is not of the so-called cold variety. We are dealing with something which builds itself hurriedly and continues to spread in like manner, unless fortunately forestalled by nature.

When we consider that we are encountering that floor upon which the abscess must form, namely the peritoneum, we surely are meeting a delicate membrane. Histologically the peritoneum is constructed of a single layer of flattened epithelioid cells, which develop from the mesothelium lining the primitive body cavity (cœlom). Between these cells is poured out, from the lymph and blood stream, the natural lubricant of the peritoneum. In considering the resisting power of the peritoneum one must take the parietal and visceral layers as one.

*Medical Record, Nov. 12, 1910: "The Relation of the Acid-Fast Tubercle Bacillus to Other Forms of Bacterial Life."

The visceral layers, on the whole, have greater resisting powers than the parietal peritoneum, because the underlying organ or organs must act in part as an interference to ready, continual spreading of the sepsis. Again, we are aware that the pelvic peritoneum can withstand more contamination than that lining the abdomen proper.

The appendix, when in its normal position, is on the border line, having more sensitive surroundings below.

That an abscess may form from abnormal conditions in the appendix, we must have either the bursting of a primary abscess within the appendix itself, gangrene, or perforations without primary abscess. The latter might come from necrosis by enterolith irritation or other foreign body within the lumen of the appendix.

After this brief introduction leading up to the point under consideration, I will now quote the words of some authorities engaged in this line of work. In writing to them for opinions I asked this question: "In a case of appendicitis with abscess formation, should any attempt be made to remove the appendix at the first operation?"

Through their courtesy I will give abstracts from the answers:

Dr. William J. Mayo.—I think the appendix can usually be removed at the time of the opening of the appendical abscess by the experienced operator. It will occasionally happen to the most experienced that the removal of the appendix at the time of the primary operation will not be considered advisable on account of certain complications, and the inexperienced surgeon had better be content with opening and draining the abscess, unless the appendix lies free in the abscess cavity. Careful search should be made for fecoliths which have sloughed from the appendix into the abscess cavity. After all, it is a matter of personal equation, and no surgeon should go further than he can go safely.

Dr. J. B. Murphy.—The appendix should be removed only when it is very accessible, and the evidence of virulence mild.

Dr. Albert J. Ochsner.—In answer to your inquiry, I would say that in appendicitis with abscess we follow this rule: If we can remove the appendix without danger of infecting the surrounding peritoneum we always remove it at the primary operation, but if there is the slightest doubt in our mind we simply drain and remove the appendix later, at least six weeks or longer after the primary operation.

Dr. John B. Deaver.—The abscess being strictly circumscribed without accompanying peritonitis, the appendix not being visible or palpable, the abscess in my judgment should be evacuated, drained, and allowed to heal, taking out the appendix subsequently.

The late Dr. Maurice H. Richardson.—When the abscess of acute appendicitis can be drained without soiling that part of the peritoneal cavity thus far uninfected, I deem it the safest treatment simply to drain, without searching for the appendix. When the abscess cannot be drained without at the same time infecting unaffected peritoneal surfaces, then the chief harm is done, and it adds little, if any, risk to seek for and to remove the appendix.

The late Dr. Joseph Price.—In all acute cases the appendix should be removed. The non-removal results in general infection and retroperitoneal infection. Nothing but disastrous results follow imperfect work. Removal of the offending gangrenous appendix is what the operation is done for. It is good, complete, early surgery that gives a nil mortality.

Dr. W. S. Rodman.—After emptying the pus, a limited search is made for the appendix. I do not, however, break down adhesions and make an extensive search for it. I presume that I remove the appendix in about 25 per cent. of abscess cases. In the remaining cases it is removed at a subsequent operation. I am sure that this is the conservative way of dealing with pus cases. I have had nearly two hundred of circumscribed abscess treated in this way. All have recovered. I have the most positive convictions on this subject and cannot bring myself to believe that it is wise to remove the appendix in a majority, much less all, cases at the first operation.

Dr. B. F. Lund.—In short, I think it is better to get out the appendix at the first operation, when the abscess is opened, unless it presents so great technical difficulties as to endanger the patient's life. When the search for the appendix at the first operation is so difficult as to make it dangerous to the patient, it is much safer simply to open the abscess and wait until later for the removal of the appendix.

From the above quotations it will be noted that among those who have had unlimited experience with innumerable cases there still remains doubt at times as to which method to employ.

In dealing with appendicitis complicated by abscess formation we must consider that we are bound to try and master more than one situation. Primarily the appendix infection is at fault, while secondly the peritoneum and adjacent viscera must be protected from becoming too extensively involved. We must surely all agree that if the abscess be well walled off, the appendix deep and bound to the floor, it would be much safer simply to incise and drain, leaving the appendix unmolested. Trauma is one of the great evils to be avoided in abdominal surgery; the resisting power of the peritoneum is lowered by too great pressure, tension, and manipulation.

On the other hand, when the abscess is just below or within the abdominal wall, providing (as is often the case under these circumstances) few if any adhesions have formed and the appendix is easily accessible, we are doing nothing but justice to the patient in removing the latter.

As M. H. Richardson once said (personal communication): "Old cases, that is those of a week or longer standing, are more apt to have a well circumscribed cavity where drainage can be more satisfactory and the surrounding peritoneum left uncontaminated. In more recent conditions, one to three or four days, the abscess walls, if formed at all, are not so great a defense." Here it would seem that simple drainage with the least amount of manipulation would save tearing these feeble adhesions, allowing them to become thicker, and at secondary operation the appendix could be removed. In this way all enteroliths and sloughs could come away on the drain, extra pus could not collect, and the patient's opsonic resisting power would not be disturbed.

It seems reasonable to assume that the peritonitis could thus be kept well localized, and if light drainage, not abrupt packing, be introduced, no pressure necrosis would result.

Contamination of clean peritoneum is the thing to avoid. If we can prevent this we are most surely giving our subject the benefit of the doubt, and this the patient demands at all times.

From the theory of the opsonic index we learn that during the uprise and stage of maintained high tide of immunity we must not disturb the index by greater toxemia. When we consider that the average case is in one of these opsonic stages we cannot safely set aside the rule. If we recontaminate that portion of the peritoneum which is already soiled, and at the same time soil clean surfaces, we produce nothing short of an unwarranted spreading infection.

By this secondary traumatic infection we surely upset the already well established association between opsonis and complements accompanied by their agglutinating and digestive properties. In short, if we can leave opsonic and complement association undisturbed, produce a limited field within which phagocytosis can take place, and retain a localized involvement of the peritoneum, we have reached the height of our aim.

In the writer's opinion, with the one exception previously noted, such a high standard can always be reached by simply opening the abscess, using the muscle-splitting incision, setting free all pus that will come out with very light pressure, and then introduce a light cigarette drain and wait for nature to adopt her conservative course. Removal of the appendix could be done at a secondary operation, providing it had not already sloughed and come away on the drain.

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THE ACTION OF ACETIC ACID ON SYPHILITIC BLOOD STAINS.

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In a previous paper* we have referred to a series of experiments, concluding with a reaction which shows an increased resistance on the part of the red blood cells of syphilitics to antihuman amboceptor. To review briefly, this consists merely in placing in a test tube fixed quantities of luetic cells, antihuman amboceptor, and complement and comparing the resulting hemolysis with normal cells treated in like manner. It will be seen that in order to produce hemolysis in the former an amboceptor of greatly increased activity is necessary. For example, normal cells being hemolyzed by a 1/1,000 dilution, luetic cells may require 1/500 or even 1/200 to bring about the same result.

These experiments, it may be said in passing, were occasioned by certain well-known discrepancies in the Wassermann and Noguchi reaction and also by the Weil test, in which cobra venom is used as a hemolytic agent.

The constant results of these tests have suggested the use of other substances known to be destructive to red cells. The well known action of acetic acid recommended its use, as well as the use of other acids. However, for reasons hereinafter given, acetic acid has been the basis of the experiments which have culminated in the following test.

The purpose of this test is to demonstrate what we believe to be a relative increase of resistance of the red blood cells of luetic individuals to hemolytic agents, as compared with normal cells. For this purpose we use drops of suspected blood received on filter paper, controlled by normal specimens obtained at the same time and treated in an identical manner.

The apparatus used consists of a number of specially constructed test tubes, a rack for holding the same, filter paper of a uniform quality, a needle, pipette, thumb forceps, and scissors. The test tubes are made of ¼ or ⅜ inch glass tubing, tapered at the lower end and two and one-half inches long. The rack should have a capacity of twelve tubes in two rows, so arranged that each two successive tubes may be compared. For convenience the holes are numbered from 1 to 12, Numbers 1, 3, 5, 7, 9, and 11 being on one side and numbers 2, 4, 6, 8, 10, and 12 on the other. The most satisfactory filter paper we have found to be the Talquist hemoglobin papers, which may be obtained from any dealer. Any needle may be used for puncturing the skin, but a straight Hagedorn held in an artery forceps and used as a plexor is most convenient. The scissors and thumb forceps are used to cut and handle the specimens, as they should not be touched with the fingers.

The reagents used are pure methyl alcohol for fixing the specimens and acetic acid for demonstrating the hemolysis. The latter must be pure glacial acetic acid freshly solidified by cold and diluted with freshly distilled water. The dilutions being six in number, namely, 1/5,000, 1/7,500, 1/10,000, 1/12,500, 1/15,000 and 1/20,000, respectively. These solutions deteriorate with great rapidity and must be made every day. For convenience, the glacial acetic acid should be kept in the refrigator and a small quantity removed each day for making the dilutions. One cubic centimeter, it will be noted, is sufficient for a large number of tests.

Preparation of Blood.—The blood is obtained preferably from the finger, as the flow can be more readily controlled. It is received on filter paper in drops not more than three mm. in diameter. It is well to obtain a large number of drops and choose for the test the most desirable. Blood is obtained at the same time and in the same manner from the normal individual who acts as control. It is well to suggest that the papers should be marked at once to avoid confusion. The specimens are allowed to dry at room temperature. Twenty or thirty minutes is usually sufficient. However, if the atmosphere is humid it is well to allow a longer time. After drying, the specimens are fixed by saturating the filter paper with methyl alcohol, after which they are permitted to dry as before. Drying, in either case, must be thorough, but should on no account be hastened by the application of artificial heat. A rise of temperature above 60° C. is fatal to the test.

Technique.—The droplets are cut from the filter paper in such a manner as to show the drop in the center of a small square or oblong of the paper. This must be small enough to enter the test tube readily. Six such specimens are obtained from each paper and dropped into the test tubes by means of the forceps. The fingers must not touch the squares and the test tubes, needless to say, must be clean and dry. The suspected specimens are placed in tubes 1, 3, 5, 7, 9, and 11 and the normal in 2, 4, 6, 8, 10, and 12. The dilutions are now placed in the tubes by means of the pipette, beginning with the highest dilution, 1/20,000, which is placed in tubes 11 and 12, a sufficient amount being used to immerse the papers and an equal number of drops in each tube.

*U. S. Medical Journal, Vol. V., No. 6. "New Methods of Diagnosis in Gonorrhea and Syphilis."

The 1/15,000 dilution is then placed in tubes 9 and 10, 1/12,500 in tubes 7 and 8 and so on, the original number of drops being adhered to and the pipette washed in distilled water and thoroughly shaken out before the next dilution is used. The tubes are then slightly agitated to dispose of air bubbles and the rack is placed in a good light to observe the reaction. It will be seen that the action of successive dilutions on the normal and suspected specimens may thus be observed in adjacent tubes.

Result of the Test.—The drops of normal blood will begin to disappear almost at once in the stronger dilutions, while the suspected specimens, if positive, will retain their color in a degree corresponding to the activity of the luetic condition. Strongly positive specimens will not be acted upon by even the 1/5,000 dilution, while weakly positive ones will resist the 1/15,000 and perhaps the 1/12,500 dilutions, and so on through the various gradations. The reaction should be kept under constant observation for twenty to thirty minutes and the rack should not be agitated as the discoloration of the solutions by the hemoglobin is likely to cloud the appearance of the papers.

This difference in resistance may be very conveniently and specifically stated by dividing the titre of acetic acid with normal cells, *e.g.* 20,000, by the dilution necessary to produce hemolysis in a given specimen, thus giving what we have termed the Hemolytic Index. For example, if a dilution of 1/10,000 is required the fraction would be 20,000/10,000 and the index would be 2. If the dilution required should be stronger, say 1/7,500, the fraction would be 20,000/7,500 and the hemolytic index 2.66 plus, and so on. We have seen some specimens in which the index thus obtained was 4. and 5.

Discrepancies.—It must not be forgotten that discrepancies often occur in this as well as in many other tests. However, they may nearly all be explained as follows:

1. Acid of unknown or uncerain titre, that is, acid not freshly frozen or solutions not freshly made. Acetic acid is extremely volatile and the solutions must be made with the utmost adherence to the above technique. While this volatility may at first glance seem to be a serious hindrance to the use of acetic acid, further investigation shows it to be a strong argument in favor of it. Knowing that all acids deteriorate in greater or lesser degree, one whose volatility is marked and unquestioned and which can be easily standardized would be preferable to an unknown or doubtful acid.

2. Unclean or wet test tubes will, of course, cloud any reaction, and should be guarded against.

3. Impure water will likewise cause confusion.

4. Inexact technique, such as obtaining the control at a different time from the suspect; handling the squares with the fingers; in fact any deviation from the above regime will invalidate the results.

5. Syphilis existing in the control of course nullifies any results. This may be avoided by previous examination and, if necessary, mercurial medication. We are presupposing a willingness on the part of the experimenter to use his own blood as control.

6. Severe anemia in either patient or control will lower the hemolytic index. If the cause can be removed, as in the case of malaria, the efficacy of the test is not hindered. A blood examination should precede all suspected cases.

7. Climatic conditions will affect the absolute but not the comparative results. The hemolysis takes place more readily as the temperature rises and the titre of the acid varies within certain limits at different times of the year and different states of the atmosphere. Variations in altitude and barometrical conditions might also affect the results. On this account it is necessary to use the above-mentioned exact and elaborate controls.

The reason why this reaction occurs cannot at present be given, any more than can the Wassermann or Noguchi be explained. We are of the opinion that the blood serum of luetics confers a relative immunity to hemolytic agents upon either homogeneous or hetrogeneous cells, but it will require long and painstaking effort to prove this finally. Such a theory explains this reaction and Weil's reaction, as well as the so-called complement-fixation tests for syphilis. And based on such a theory, we would expect identical results from all three, with perhaps a little more delicacy in the use of the two former, owing to the employment of homogeneous cells.

This we have found to be the case. At present we have records of one hundred and six examinations of both normal and luetic specimens, controlled in each case by a carefully performed Noguchi and the results have been practically identical, *i.e.* strongly positive in late primary and early secondary cases; the percentage of positive reactions gradually decreasing as time goes on, being abolished entirely by specific medication, and reappearing after suspension of treatment.

It is in this connection that we wish to refer to a possible superiority of this test over the so-called complement-fixation tests. In actively treated cases the tests all become negative very promptly. Now if treatment be discontinued and tests made simultaneously at intervals of one or two weeks, it will be noted that the blood of the patient, as demonstrated by the filter papers, shows a gradually increasing hemolytic index, until finally after 6 or 8 weeks the Noguchi or Wassermann becomes again positive. We cannot say that it appears earlier in the course of the disease than the complement-fixation tests, as recent cases constitute but a small percentage of the series in which this test has been used. We are of the opinion, however, that a constant difference is theoretically present, owing to the fact, as before stated, that homogeneous instead of heterogeneous cells are used.

In recommending this test we would call attention to its simplicity as compared with the tests in vogue, but caution against any deviation from the technique as herein set forth. It, moreover, should not be depended upon in the absence of ample clinical evidence of syphilis or a careful Noguchi or Wassermann test. We have no intention of discarding absolute and retaining merely confirmatory findings. Our work has resulted only in the disclosure of a few facts which may serve in some way to illuminate our path and as such are respectfully submitted.

419 Insurance Building.
304 Security Building.

The Localization of Arsenic in the Viscera after the Injection of Salvarsan.—Jeanselme, Vernes, Bertrand, and Bloch find that arsenic is deposited chiefly in the spleen, the liver, the nervous system, and the lungs, after the administration of salvarsan. No reason can be assigned for this elective affinity. Arsenic is deposited in the kidney only when the excretory capacity of this organ is impaired.—*La Presse Médicale.*

THE MEDICAL INSPECTION OF IMMIGRANTS AT ELLIS ISLAND

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The medical examination of arriving immigrants is of interest to those engaged in various professions. This is attested by the numerous visits to the Medical Department at Ellis Island, which have been made in recent months by physicians, psychologists, school teachers and others from all parts of the United States.

During recent months certain pupils attending the summer schools of various universities, as well as those attending the nearby school of eugenics have made prolonged inspections of the Public Health Service at Ellis Island. These people have shown much concern in the medical work which is being accomplished by the Public Health Service in weeding out the physical and mental unfit among the hordes that pass through our great gateway. It may also be of interest to the readers of this journal to know what activity is now in progress in this particular field of public health work.

The arriving immigrants are brought to Ellis Island by barges from the various steamship docks of New York harbor, either on the day of their arrival or on the following day. The first thing that the immigrant has to undergo at Ellis Island is the medcial inspection, which is conducted by the Public Health Service.

When the immigrant makes an exit from the human machine of the Public Health Service without receiving a chalk mark he has successfully passed the medical inspection, and then ascends the large winding stairway to the upper hall, where a second examination is conducted by officers of the Immigration Service.

At this examination conducted by the immigration service the experienced officials size up the immigrant and members of his family. They interrogate him in regard to his birthplace, occupation, skill, financial condition, destination, the existence of relations and friends in the United States, and so forth. Should there be no certificate of physical or mental disability against the aliens in question, the inspector carefully weighs all the other data in the case. He then concludes as to whether the aliens under examination are a good risk for the United States, or whether they are likely to be a burden to others. If the inspector considers them a good risk he quickly stamps their ship cards "Landed," and off they go by boat and by rail to their future home.

If, on the other hand, the inspector considers the aliens as doubtful cases, or should they possess mandatory mental certificates, they are referred to the Board of Special Inquiry, where the case is further deliberated upon by three inspectors. Should this board reach the conclusion that the alien is one who is likely to become a public charge, he is forthwith excluded. A decision of exclusion is immediately reached whenever the alien possesses a mandatory medical certificate, and the alien is deported in the first outgoing ship of the line which brought him over.

Immigrants certified for organic disease by the medical officers may possess considerable means, they may have well-to-do brothers and sisters in the United States, who are able and anxious to look out for those who are now seeking admission to our shores. These relatives will declare before the board their intent, and will declare with security if necessary, that their afflicted loved ones will never become a public charge. In many cases of this kind there is only one course of procedure open to the board, and the immigrant in question is accordingly landed.

Upon entering the reservation of the Public Health Service at Ellis Island the ship card of the alien is stamped (Public Health Service, such and such a date.) This stamping of the card will show to the immigration authorities that the immigrant has passed through the medical department. After the cards have been stamped at the entrance of the medical department the aliens are guided by an attendant into three different lines, which are separated one from another by iron railings. In each inspection line the alien passes two medical officers, one officer standing at the first curve of the line, while the other, 20 feet beyond, is at the extreme end of the line. At this point all three lines merge into a common exit which leads to the upper hall of the Immigration Service.

It is the function of the first medical officer to look for all defects both mental and physical in the passing immigrant. As the immigrant approaches the officer gives him a quick glance. Experience enables him in that one glance to take in six details, namely: The scalp, face, neck, hands, gait, and general conditon, both mental and physical. Should any of these details not come into view the alien is halted and the officer satisfies himself that no suspicious sign or symptom exists regarding that particular detail. For instance, if the immigrant is wearing a high collar the officer opens the collar or unbuttons the upper shirt button and sees whether a goiter, tumor, or other abnormality exists. A face showing harelip, partial or complete, is always stopped in order to see if a cleft palate, a certificable condition, is present.

It often happens that the alien's hand cannot be distinctly seen; it may be covered by his hat, it may be hidden beneath his coat, or it may be deeply imbedded in blankets, shawls, or other luggage. Of all the physical details in the medical inspection of immigrants it is perhaps most important to watch the hands. In many cases where the hands cannot be plainly seen at a glance further searching has revealed a deformed forearm, mutilated or paralyzed hand, loss of fingers, or favus nails.

Likewise, if the alien approaches the officer with hat on he must be halted, hat removed, and scalp observed in order to exclude the presence of favus, ringworm, or other skin disease of this region. Pompadours are always a suspicious sign. Beneath such long growths of hair are frequently seen areas of favus. The slightest bit of lameness will show itself in an unevenness of gait or a bobbing-up-and-down motion.

After constantly observing the passing of thousands of immigrants, the experienced eye of an examiner will quickly detect the slightest irregularity in gait. Where the alien carries luggage on his shoulder or back it may be necessary to make him drop his parcels and to walk five or ten feet in order to exclude suspicious gait or spinal curvature. All children over two years of age are taken from their mother's arms and are made to walk. As a matter of routine hats and caps of all children are removed, their scalps are inspected and in many cases palpated. If care is not exercised in this detail ring-

worm and other scalp conditions are apt to escape the attention of the examiner.

Immigrants that are thin and of uncertain physical make up are stopped while the officer comes to a conclusion as to the advisability of detaining them for further physical examination. A correct judgment is often arrived at in these cases by the officer placing his hands between the back and chest of the alien, so as to obtain an idea of thoracic thickness, and also by feeling the alien's arm. Very often a thin and haggard face will show on palpation a thick thorax and large muscular arm.

Many inattentive and stupid looking aliens are questioned by the medical officer in the various languages as to their age, destination and nationality. Often simple questions in addition and multiplication are propounded. The officers are familiar with several sentences and the numerals in many languages. This small knowledge of the alien's language and these brief questions enable the officer to bring to view the alertness, attention, accuracy, mathematical power, and emotional reaction of the alien.

Not infrequently positive signs of mental disease are obtained by bringing the alien to a standstill and giving him these brief mental tests.

Should the immigrant appear stupid and inattentive to such an extent that mental defect is suspected an X is made with chalk on his coat at the anterior aspect of his right shoulder. Should definite signs of mental disease be observed a circle X would be used instead of the plain X. In like manner a chalk mark is placed on the anterior aspect of the right shoulder in all cases where physical deformity or disease is suspected.

In this connection Sc would indicate scalp; P, physical and lungs; H, heart; K, hernia; L, lameness; F, face; Ft. feet; E, eyes; C, conjunctivitis; CT, trachoma; S, senility; G, goiter; N, neck; B, back. The words hand, skin, temperature, and measles, which are often used, are written out in full.

The alien after passing the scrutiny of the first medical officer passes on to the end of the line, where he is quickly inspected again by the second examiner. This examiner is known in service parlance as "the eye man." He stands at the end of the line with his back to the window and faces the approaching alien. This position affords good light, which is so essential for eye examinations. The approaching alien is scrutinized by the eye man immediately in front of whom the alien comes to a standstill. The officer will frequently ask a question or two so as to ascertain the condition of the immigrant's mentality. He may pick up a symptom, mental or physical, that has been overlooked by the first examiner.

He then looks carefully at the eyeball in order to detect signs of defect and disease of that organ and then quickly everts the upper lids in search of conjunctivitis and trachoma. Corneal opacities, nystagmus, squint, bulging eyes, the wearing of eye glasses, clumsiness, and other signs on the part of the alien, will be sufficient cause for him to be chalk marked with "Vision." He will be then taken out of the line by an attendant and his vision will be carefully examined. If the alien passes through this line without receiving a chalk mark, he has successfully passed the medical inspection and off he goes to the upper hall, there to undergo another examination by officers of the Immigration Service, who take every means to see that he is not an anarchist, bigamist, pauper, criminal, or otherwise unfit.

Roughly speaking 15 per cent. of the immigrants are chalkmarked by the medical officers, and it is these chalked individuals who must undergo a second and more thorough examination in the examination rooms of the Public Health Service. Those aliens marked X and circle X are placed in the mental room. All other marked aliens are placed in the two physical rooms, one for men and the other for women.

In the physical room the men are divested of their clothing and are thoroughly examined with the aid of stethoscope, thermometer, and Snelling testtypes. The height and weight in certain cases are taken. When the examination is complete, an O K card or appropriate medical certificate, setting forth the physical condition, and signed by three medical officers, is issued to the alien. Serious conditions, such as poor physical development, valvular heart disease, hernia, varicose veins, senility, arteriosclerosis, chronic skin diseases, organic diseases of the nervous system, defective vision, deformities, etc., are certified as conditions which affect the ability to earn a living. Minor conditions, such as slight deformities, visual defects, and harmless skin diseases are simply certified by two medical officers upon a plain certificate.

The Board of Special Inquiry (three immigration officials) gives careful consideration to all cases which are certified as affecting ability to earn a living, and the merits of these cases are thrashed out from every point of view. In the physical examination room if cases of trachoma, favus, ringworm, syphilis, gonorrhea, or tuberculosis are found they are given appropriate blue cards and are sent either to the General or Contagious Disease Hospital, where they are observed, treated, and certified by officers of the Public Health Service. Febrile cases are quickly examined and disposed of in like manner. After twenty or thirty aliens have been examined and disposed of, the big doors of the empty room are again opened to receive another batch of immigrants. This process of filling the room with immigrants, examining them, and disposing of them is repeated over and over again throughout the entire day.

In the mental examination room, the weeding out or sifting process begins when the X-marked immigrants have accumulated to the extent of twenty or twenty-five in number. In this room one, two, or three medical officers question the various aliens who are marked X. They propound simple questions in addition, subtraction, multiplication, and counting backward. They also apply one or two performance tests. After a quick sizing up of the case, the officer decides whether to hold the alien for still further mental examination or to liberate him. If the officer decides on the latter plan, he presents the alien with an O K card. The alien now makes his exit, picks up his luggage and soon finds his way to the moving stream of immigrants who are journeying to the upper hall. If, on the other hand, the officer decides to hold the alien for further mental examination, he writes a brief history of the case on a large yellow card. The alien, with card in hand, is now sent to the hospital for a night's rest, bath, good meal, etc., in order to be put in good condition for a thorough neurological examination on the following day.

Some of these cases have to be observed days and repeated examinations made before certification is accomplished.

In the weeding-out process which occurs in the mental room the circle X cases are gone into carefully with the aid of an interpreter. These cases have shown, either on the line or in this room, some positive signs of mental disease. Roughly speaking, out of every 100 X cases, 10 aliens are held for further examination and observation. Out of the 10 that are so held, 2, 3, or 4 are certified as insane, imbecile, or feeble-minded.

All cases so certified, as well as all aliens afflicted with loathsome and dangerous contagious diseases, are excluded and are returned by the same ship to the land from which they came.

While a description of the medical inspection proper is perhaps long, the actual carrying out of it is short. The one momentary glance at an alien by an experienced officer enables the latter to detect serious irregularities in any one of the six inspection details above recited in 50 per cent. of those who pass through the inspection line.

Six medical officers of the Ellis Island staff are detailed to the Boarding Division. It is the duty of these officers to board at Quarantine the various incoming steamers from foreign lands and inspect the cabin passengers. These passengers are certified on board for physical defects and many of them are sent to Ellis Island to undergo further examination and certification.

During the past fiscal year ending June 30, 1913, 1,044,457 aliens were inspected and 22,733 were certified for physical and mental diseases. It is interesting to note that 661 aliens were certified for insanity, epilepsy, imbecility, and feeblemindedness.

Relatives will not allow their loved-ones who are sick with physical or mental ills to emigrate. For this reason the cases of active tuberculosis and acute mental disease are comparatively rare.

Like any other field of work, immigration is a speciality. It is a speciality that comprises knowledge taken from many sources, medical and otherwise. Some knowledge in eye diseases, skin diseases, nervous diseases, physical diagnosis, information concerning racial conditions, languages, geography, and knowledge of shipping, all go to make up an efficient medical inspector of immigrants. The very fact that an officer is doing immigration work presupposes that he has some training in mental diseases and mental defects. Many of our officers have had experience in hospitals for the insane varying from six months to three years before entering the service, others have been specially trained, after entering the service, in the psychopathic department at Ellis Island as well as at other psychiatric institutions. Other requisites that go to make up an efficient officer in this line of work are a strong physique and speed. Careful, accurate, and scientific diagnosticians who are not active and who do not possess the element of speed in their make-up are useless at Ellis Island where thousands have to be inspected, sifted, and gotten rid of every day.

To be most efficient, an officer at times must do his work according to fixed rules, according to certain routine methods. This is especially true on the line and in the weeding-out process, where hundreds have to be handled. Individualism under such circumstances is productive of fatigue and its complement, inefficiency.

When an officer comes to the question of a definite diagnosis and various matters are put up to him for his decision and action, he can then show his individuality. In all cases where judgment is necessary, it must be quick and accurate.

The medical work at Ellis Island is laborious, the constant standing on one's feet, the careful inspecting of details in hundreds of passing immigrants, the moving from room to room and the arriving at decisions and diagnoses in hundreds of cases is productive of mental and physical fatigue. In some cases the hard work and strain have been the direct cause of physical and mental breakdowns.

This work is hazardous in that officers and attendants are constantly exposed to contagious diseases. During the past year, among several cases of sickness that have occurred, two officers on line inspection duty have contracted scarlet fever in the performance of their duty. In the contagious disease hospital three physicians, four nurses, and one attendant have contracted diphtheria.

Throughout this country there are many and various views in regard to immigration matters. In the Public Health Service immigration is not a joke, but a stern reality.

EYESTRAIN.

By L. EDWIN BARNES, M.D.,

CHICAGO.

The purpose of this paper is to call the attention of the general practitioner to the serious conditions caused by the insidious undermining of the nervous system by what is termed eyestrain. The two most common errors of refraction causing this condition are hyperopia and astigmatism. Myopia, on account of the relaxed condition of the accommodation is not so great a factor.

The causes of hyperopia are either the lessened convexity of the refracting surfaces of the eye, viz., cornea and lens; changes in the media, the transparency of the cornea, the contents of the anterior and posterior chambers, the lens, and the vitreous humors; or the absence of the lens. More often it is due to a shortening of the anteroposterior diameter of the eyeball, which may be hereditary or caused by arrested development.

The effort to correct these errors produces abnormal development of the ciliary muscle, particularly of the circular fibers, which in time become greatly in excess of the radial fibers. This constant effort leads to tonic spasms, which condition is difficult to overcome. This is one cause for improperly fitted glasses, because it necessitates a mydriatic to paralyze temporarily the muscles of accommodation. This is not always necessary as proven by the punctumeter. By this instrument the range of accomodation is measured and if found correct for the patient's age no mydriatic is necessary. I use this first in all examinations, as it facilitates the examination.

Returning to the action of hypermetropia, it causes parallel rays of light to focus, not on the retina as they should but behind it, thus making a blurred image. The mechanism of the eye in overcoming this defect causes the ciliary muscle to contract, thus making the anterior surface of the lens more convex; this renders the rays of light more convergent and brings them to a focus on the retina. This is nature's way to correct the defect up to a certain point, but the result of the constant strain on the ciliary muscle causes an immense consumption of nervous energy, upsetting the nervous equilibrium. In astigmatism the curvature of the cornea is the most frequent causative factor; the

curvature of one principal meridian may be correct while the other is markedly defective. The cause in this condition may be hereditary, it may be a congenital malformation of the cornea from anatomical defects in the bones of the face and skull. Almost every person is slightly astigmatic. Conjunctivitis and other affections or injuries are said to be contributing factors. Astigmatism causes distortion of images and marked visual disturbances. The resulting continuous and unequal accommodative effort must produce eyestrain and consume much nervous energy. An astigmatic person may be able to improve his vision only at the expense of his health. Uncorrected astigmatism, particularly in delicate and nervous patients, results in the worst forms of reflex asthenopic symptoms.

Dr. Hobart A. Hare in his latest (fourteenth) edition of "Practical Therapeutics" on page 723 states that "eyestrain in the broadest acceptation of the term is the name applied to those symptoms which may be caused by the presence of refractive error, or imbalance of the ocular muscles. While all varieties of ametropia (imperfect refractive powers of the eye) may cause eyestrain, hypermetropia and astigmatism are most potent in this respect. Fully 75 per cent. of functional headaches are caused by refractive errors; and these headaches may vary from moderate frontal distress to violent explosions of pain and may be situated in any portion of the cranium. Moreover, they may be entirely unassociated with any pain in the eyes or apparent disturbance of vision, and are frequently *caused by low degrees of refractive error;* in fact they are more frequently caused by them than by the higher defects. In addition to headaches, eyestrain may cause (1) pain in the back, especially between the shoulder blades and at the root of the neck, (2) precordial pain, (3) vertigo, (4) drowsiness, (5) insomnia, (6) habit chorea, (7) choreiform movements, (8) convulsive seizures, (9) melancholia, (10) neurasthenia, (11) palpitation of the heart, (12) syncope, (13) night terrors, (14) stomachic disturbances, (15) constipation, (16) flatulent dyspepsia, and (17) a variety of general or so-called reflex neuroses. The existence of any of these symptoms or affections should direct the attention of the physician to the condition of the eyes, and any refractive error or muscular imbalance should be corrected. Certain cases of so-called spinal curvature in young persons are due to the influence of ametropia."

The writer has had two cases of nervous dyspepsia within the last month, one treated ineffectually for three months, no improvement, with digestive ferments. One had a low degree of myopia—25° myopic astigmatism and 2° exophoria, or outward deviation of the visual axes. The other had a low degree of refractive error, but a large amount of latent hypermetropia (2.5°) as manifest by the punctumeter, and confirmed later by a second examination following mydriasis. Both of these patients have been symptomatically cured since wearing their corrections.

The latest and most remarkable case I have had is a neurasthenic. She has had everything but smallpox according to her history; most of her complaints have been referred to the pelvic region. On examining her eyes by the punctumeter I found she had 2° latent hypermetropia, but would not accept over + 1.50D. manifest. She returned the next noon after using atropine instillations, when she revealed + 3.50D, which was the correct reading as stated by the punctumeter of Hardy.

This patient has been remarkably benefited by the glasses, so much so that she has consulted her physician only twice in three months. Was it her eyes? I am firmly convinced they were important factors in the case.

I could report many similar cases, but these are sufficient to direct the attention of the general practitioner to the seriousness of the low refractive errors and other disorders of the eye, which are far greater factors than they appear upon first consideration of the subject.

The more apparent or high errors are noticed and treated earlier than the inconspicuous ones, hence the insidious strain is neglected.

6935 Stewart Avenue.

Phagocytic Power of Eosinophile Leucocytes.—Manceaux has recently reported at the Société de Biologie that he has observed the eosinophile leucocytes of a pleuritic exudate engulf and digest red blood cells. The phagocytic power of eosinophile leucocytes has already been demonstrated by Weinberg *in vitro.—La Presse Médicale.*

Complete Congenital Absence of Both Radii.—W. M. Robson and N. B. Odgers, report the case of a boy aged six years, who has had "club" hands since birth. Both hands are kept in the extreme varus position, but, since an operation three years ago, can be straightened with a splint. An *x*-ray photograph shows complete absence of both radii.—*Proceedings of the Royal Society of Medicine.*

Treatment of Exophthalmic Goiter by X-Rays.—W Ironside Bruce presents an analysis of eighteen cases of exophthalmic goiter which had been treated at Charing Cross Hospital since 1905. Six of the eighteen did not appear for re-examination, and one had died, in which case only three exposures had been given when diphtheria supervened. The remaining twelve were examined three months ago, and they had been divided into three categories: (1) cured; (2) greatly improved; (3) improved. Four were cured; the exophthalmos and goiter had gone, and no symptoms remained. Five—of which one had been operated upon—were greatly improved. Three had improved, and one of these also had been operated upon, two still remaining under treatment. The exophthalmos disappeared in four cases, was slight in three, and marked in five, two being still under treatment. The skin was normal in seven cases, and there was slight telangiectasis in four, and marked telangiectasis in one. These latter were the author's earliest cases, and the number of exposures given was much greater than had been since found to suffice. All the patients expressed themselves as much better, and they stated that their weight had increased. In none of the patients was there any sign of myxedema; and that was of interest, since in a case the author recorded some years ago, in which he thought myxedema had developed, the patient got very fat at the latter end of the treatment, which lasted two years, and the hair over her forehead began to fall. Three months ago her appearance was normal, no sign of myxedema being noted. All the author's cases were treated with the *x*-ray tube at a distance of 18 to 12 inches from the skin, the surrounding part being screened off by a 4-inch thickness of felt. They had attended either two or three times a week for periods varying up to two years. The effect of the treatment was wonderfully good. But the author had always tried to have in mind the fact that cases of exophthalmic goiter had been known to recover without any treatment whatever, so that one must somewhat discount the value of the *x*-ray treatment on that account.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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REPORT OF THE SURGEON-GENERAL OF THE ARMY.

THE annual report of the Surgeon-General of the Army has been issued recently and it is encouraging to note that for the calendar year 1912 the health and sanitary conditions of the army were satisfactory. As is pointed out in the report, the constantly noneffective rate, which is a statement of the average number of men in each 1,000 incapacitated for duty by disease or injury each day during the year, is the true measure of the loss in efficiency of the Army from disease and injury. Judged by this criterion, the Army has never been so healthy, as the rate for 1912 was by far the lowest since the time such records have been kept. For disease alone the rate for 1912 was exactly the same as that for 1895 and only slightly higher than that for 1896, the lowest on record. The fact, too, must be taken into consideration that since the acquisition by the United States of tropical countries the risks from disease have been much greater to our soldiers. Thus, taking the rate for disease in the Army in 1912 in the United States only, 22.57 per 1,000, it will be found considerably lower than the corresponding lowest Army rate, 25.23 for 1896. In the Philippine Islands, on the other hand, the noneffective rate for American troops, both for disease and injury, was higher in 1912 than in 1911. That a cold climate is better suited to the white man than a tropical one, is demonstrated by the healthiness of the troops in Alaska and by the comparative unhealthiness of those in the Philippine Islands.

The Army Tropical Board in reply to a letter from the commanding general of the Department of the Philippines, asking for the opinion of the board in regard to the effects of continued tropical service, and relative to the character of residence best calculated to preserve the health of the occupant, formulated certain conclusions to the effect that life in tropical lands is inimical to the health of a white man and even under the most favorable conditions weakens his resisting powers against disease, and that it is essential to the relative well-being of soldiers that in tropical climates they should be housed in cool quarters and that every effort should be made to enable them to withstand climatic influences in the best way possible.

The rates for certain special diseases were very gratifying and particularly was this the case in regard to the results following the compulsory immunization of the Army by the typhoid prophylactic. In 1912 but eighteen cases of this disease occurred in that part of the Army stationed in the United States. Of these eighteen cases only six had received the prophylactic, while five of them occurred in recruits who were infected prior to enlistment and were in the incubation stage when enlisted. The results of immunization against typhoid fever among the native troops were as satisfactory as among the white troops. Perhaps the most encouraging part of the report is that which refers to venereal diseases. It seems that as a result of the propaganda of education in the Army, of compulsory prophylaxis with physical examinations, and the stoppage of pay by act of Congress of men incapacitated for duty by these diseases, some control has apparently, at last, been secured over the occurrence of venereal diseases. Tuberculosis shows signs of diminishing in the Army, but while the admission rate for malarial fevers in the Army in the United States is diminishing, in the Philippine Islands it is higher than it has been in any year since 1896. Alcoholism in the Army has decreased in a satisfactory manner in the United States and in the Philippine Islands.

The Surgeon-General calls attention to one particular in which the Medical Department of the Army is lacking—the great deficiency in number of the Hospital Corps. The Surgeon-General suggests that the Secretary of War should recommend to Congress the reorganization of the Hospital Corps. He believes that this recommendation will be granted and the recruiting of suitable men for this relatively unattractive service will be thereby greatly facilitated. The report gives evidence of an excellent condition of affairs in the Army from the health and sanitary standpoints, an outcome which devolves great credit on the medical department.

ROCKY MOUNTAIN FEVER AND SHEEP GRAZING.

As a result of the discovery that Rocky Mountain spotted fever is transmitted by the bite of the wood tick various measures have been suggested for the eradication of the ticks. Dr. L. D. Fricks, surgeon U. S. Public Health Service, writing on the subject in Public Health Reports, August 8, 1913, discusses the question of exterminating or controlling ticks by sheep grazing. Experiments in this direction were initiated in the beginning of May, and Fricks summarizes the results as follows: (1) Over 87 per cent. of 295 ticks placed in the wool of unshorn sheep were recovered dead. (2) The majority of the ticks recovered from sheep grazing naturally over tick-infested territory were found dead. (3) Many of the engorged females recovered appeared not to have been fertilized. (4) Comparatively few ticks, either dead or alive, were found on the sheep after they had been sheared.

H. P. Wood of the Bureau of Entomology of the Department of Agriculture publishes the experiments undertaken on sheep in Bulletin No. 45 (November 22, 1913) of that department. The experi-

ments proved that lambs or sheared sheep will breed a considerable number of ticks and kill but few. Therefore, the only possibility of employing sheep in the work of tick eradication would be the using of wethers or other sheep with heavy wool. As it does not appear practicable to attempt to use wethers alone in Bitter Root Valley, the use of sheep is possible only as one means of reducing the numbers of the ticks, and even this plan is open to objections. However, while the experiments seem to show that the grazing of sheep in itself would be a negligible quantity in controlling the spread of ticks, Wood points out that in a tick-infested country, favorable to the herding of sheep, these animals might be employed for this purpose. Then if these sheep were dipped once in seven days much good might be accomplished.

NON-TUBERCULOUS APEX CATARRH.

An article which appeared on this subject by Litzner (*Münchener medizinische Wochenschrift*, Nov. 4) suggests a question of priority which deserves mention, because the name of an American physician is involved. The late H. S. Straight, for many years professor of diseases of the nose and throat in the Western Reserve University, Cleveland, O., insisted upon the existence of a non-tuberculous apex catarrh, and was always ready to demonstrate such cases to sceptical brother practitioners. It is doubtful, however, if he ever made a single convert. Possessing a character for industry, zeal, initiative and combativeness, he never permitted himself to weaken in his propaganda. He became almost famous because of his "heresy," and his colleagues looked upon him with amusement; for them his "apex catarrh" was either an imaginary state or initial apical tuberculosis.

The article by Litzner on non-tuberculous apical catarrh might have been written by Straight himself, save that the German includes under this term very severe cases, as well as mild ones. The German author claims that this condition is known to sanatorium men, and that its recognition is owing to the great amount of time devoted by these physicians to physical diagnosis.

If Litzner is correct, and if the term comes into general use, the priority of Dr. Straight's claim must be agitated, although he himself never spoke of priority at all. He never claimed to have made a great discovery, and wrote but little on the subject. It appears, however, that Dr. Straight was not only a superior diagnostician, but that his refusal to allow persistent ridicule to influence his views gives him a high status as a pioneer in affections of the chest. Let us hope that Straight's posthumous claim will be fairly discussed, and if it be sound that some step, however small, will be taken to secure for him the honor which will be his just due.

Insanitary Finger Bowls.

According to the *Mid-West Hotel Reporter* there has been since the Duluth Convention of Hotel Proprietors a somewhat heated controversy with regard to the finger bowl considered from the sanitary aspect. The storm, however, seems to have gathered and broken around the heads of those concerned with the moving of the resolution, without those who raised the tempest having a correct comprehension of the aim of the resolution. The object of the resolution was not the abolition of the finger bowl but its regulation, a very different matter. Finger bowls, if not an absolute necessity, are at least an esthetic and cleanly adjunct of civilization, and it is fitting and decorous, and, it may be added, sanitary, that they should be clean and contain clean water. Waiters, no doubt, are apt to be careless and therefore those in authority in hotels and restaurants should see to it that the finger bowls should be of a material easily cleaned and moreover should be kept clean.

Wood Alcohol as a Cause of Blindness.

Cases are more or less frequently cropping up in which persons have lost their lives or sight from the effects of wood alcohol. Recently in New York a varnisher engaged in varnishing the inside of large storage beer vats was rendered totally blind as the result of inhaling the fumes of a varnish of which a prominent component part was wood alcohol. Accidents of a similar nature have occurred also in other breweries through the employment of a varnish containing wood alcohol. As is pointed out by the New York Committee on Prevention of Blindness with reference to such fatalities and casualties, there is no excuse for the continued use of wood alcohol in varnish, since denatured alcohol is cheaper and absolutely safe for all industrial purposes. The employment of wood alcohol in liquors is a crime, and its use in varnish, although not so obviously a crime, in most instances perhaps being the outcome of ignorance, is nevertheless a custom which should be prohibited by law.

Vagotomy *vs.* Rhizotomy for the Gastric Crises of Tabes.

Rhizotomy for gastric crises has now become a typical operation, with a relatively low mortality when done by special surgeons, but it is asserted that the results are negative in at least 40 per cent. of the cases. In the Section for Surgery of the recent session of the German Naturalists and Physicians (*Berliner medizinische Wochenschrift*, November 17) Exner discusses his rival operation of vagotomy for the crises. He has done the operation nineteen times at a late stage in gastroenterostomy. His results are no better or worse than those obtained by Foerster's method. There should be special indications for each method, but as yet they cannot be formulated.

News of the Week.

Proposed Health Centers.—The Hospital Investigating Committee of the Board of Estimate of New York has submitted a plan for the conservation of the health of the city. After calling attention to the immense amount of preventable sickness in New York and the fact that only about 10 per cent. of cases of illness are treated in the hospitals, the report says: "The city has assumed responsibility for caring for sickness when it reaches a stage needing hospital treatment and, within certain limits, for the prevention of contagious diseases. Any

theory of social obligation which warrants the city in obligation which warrants the city in undertaking the care and prevention of sickness would warrant it going still further, if its finances would permit. Undoubtedly a larger percentage of disease could be prevented than is now prevented, if a more thorough system of home visitation existed for the purpose of informing all citizens of means and methods of maintaining sanitary and healthful conditions. The methods of doing such work, its cost, and the results to be obtained, cannot be determined without experimentation. The city ought to try an experiment in a small district, and in a limited way, to determine, if possible, whether or not such work could advantageously be performed by the city as a regular part of the work of the Health Department and the hospitals. It should undertake this experiment also to determine whether or not a large portion of sickness can be cared for at home more cheaply than in expensive hospitals." The committee recommends that the work suggested be undertaken by physicians, nurses, and inspectors of the Health Department and of Bellevue Hospital in co-operation; that the first health center be located in the Bellevue ambulance district and that all functions now performed by the different bureaus of the Health Department pertaining to this district be centralized in a health center building, including a tuberculosis clinic, a child hygiene clinic, and associated with this a milk depot, a dental clinic for children; inspectors of contagious diseases, visiting nurses, inspectors and nurses in charge of inspection of school children and the supervision of midwives. The committee estimates that the additional cost to the city of the establishment of such a health center would be only $5,820 a year.

City Death Rate.—For the week ending December 13, the death rate in New York City was 13.04 as against 13.44 for the corresponding week of 1912, the total number of deaths being 1,343 and 1,333 respectively. The death rate of the first fifty weeks of the year was 13.75, while for the same period of last year it was 14.07, making a decrease of .32 of a point. The third quarterly report of the Department of Health for 1913 shows that during the three months ending September 30, there were reported 16,818 deaths, giving a rate of 12.43 per thousand, against an average of 19,937 deaths for the same quarter during the preceding five years. The mortalities from the principal causes of death during this period were as follows: Tuberculosis, 1,868; cancer, 1,033; organic heart disease, 1,979; typhoid fever, 115. During the same period the number of births increased from 34,406 in 1912, to 34,556 in 1913; while the number of marriages during the quarter increased from 11,627 in 1912 to 12,741 in 1913.

"The Psychoanalytic Review" is the name of a new quarterly, devoted, as announced on the title-page, "to an understanding of human conduct." It is edited and published by Drs. William A. White and Smith Ely Jelliffe—a guarantee that it will be readable and instructive, whether one accepts all the doctrines therein expounded or not. This initial number contains articles on "The Theory of Psychoanalysis" by C. G. Jung of Zurich, "Psychoanalysis of Self-mutilation" by L. E. Emerson, "Blindness as a Wish" by T. H. Ames, and the first instalment of a series of lessons on "The Technique of Psychoanalysis" by S. E. Jelliffe. C. R. Payne contributes a critical digest of "The Paranoia Problem," and there is a translation by Wm. A. White of the first part of Franz Riklin's "Wish-fulfillment and Symbolism in Fairy Tales." This first number (November, 1913) is a handsome volume of 120 pages, well printed on soft opaque paper. The Freudian school of psychology is to be congratulated on being represented by so excellent a periodical.

Health Exhibit Opened.—The Department of Health of New York on December 17 opened a permanent exhibit showing the activities of the department in the Exhibition Hall of the Department building, 140 Centre street. The exhibit has its origin in the budget display which was made a year ago. At the opening short addresses were made by Dr. Stephen Smith, Commissioner of Health from 1868 to 1875; Dr. Abraham Jacobi; Prof. Charles F. Chandler, Commissioner of Health from 1873 to 1883; Dr. Hermann M. Biggs, and Prof. T. Mitchell Prudden.

Long Island College Hospital.—Beginning with the session of 1914-15, the Long Island College Hospital, Brooklyn, N. Y., will require one year of college work for admission to the freshman class. In order that students may advantageously prepare themselves for entrance, the college has established a Medical Preparatory course devoted to the subjects of physics, chemistry, biology (both didactic and laboratory work), elementary physiology, French, and German. As many of the high school students in the neighborhood of New York are graduated in February, a spring and summer course will also be given, beginning on February 3, and continuing for thirty-two weeks, the completion of which together with a Medical Student Certificate from the Regents, will entitle the holder to admission to the freshman class of the Long Island College Hospital.

Albany College Buildings.—The Building Committee of the Faculty of the Albany Medical College recently received revised plans for the new college buildings which it is proposed to erect on the county grounds near Delaware avenue, Albany. The plans were placed on exhibition in the Education Building for general inspection before a decision was reached.

Fewer Medical Students.—The Federal Bureau of Education has compiled a report indicating a gradual decrease in the number of medical schools and medical students in the United States. During 1913, as compared with 1912, the schools were decreased by 14, the students by 1,200, and the graduates in medicine by 500. The number of women students, however, showed a considerable increase. Of a total of 18,451 students in 1912, 712 were women, while of 17,238 in 1913, 835 were women.

Dr. Abr. L. Wolbarst will hold a Genito-urinary Clinic on Thursday evenings at 8.30, from January to May inclusive, at the West Side German Dispensary and Hospital (New York School of Clinical Medicine). These clinics will be free to physicians.

Smallpox on Ship and Train.—The U. S. S. Ohio, which reached Cuban waters recently after a Mediterranean voyage, reported eleven cases of smallpox among her crew, with twelve men sick and under observation. One man died from the disease on the way across. The patients will be transferred to the Isolation Hospital at Guantanamo, and the battleship, after fumigation and vaccination of the crew, will proceed to Charleston, S. C., for a period in quarantine.

After the discovery that a passenger on the Pittsburgh Express, which reached Philadelphia on the morning of December 14, was suffering from

smallpox, thirty-nine men who had been in the smoking-car were forced to submit to vaccination.

Medical Society Elections.—Jefferson County (Ala.) Medical Society: Annual meeting at Birmingham on December 1. Officers elected: *President,* Dr. J. M. Mason; *Vice-President,* Dr. Ben Ferguson; *Secretary-Treasurer,* Dr. H. P. Shugerman.

Madison County (Ala.) Medical Society: Annual meeting at Huntsville on December 1. Officers elected: *President,* Dr. C. E. Blanton, New Market; *Vice-President,* Dr. H. H. Thomas, Huntsville; *Secretary-Treasurer,* Dr. Edgar Rand, Huntsville.

Hale County (Ala.) Medical Society: Annual meeting at Greensboro on December 2. Officers elected: *President,* Dr. Jacob Huggins, Newbern; *Vice-President,* Dr. R. F. Monctte, Greensboro; *Secretary-Treasurer,* Dr. C. A. Poellnitz, Greensboro.

Calhoun County (Ala.) Medical Society: Annual meeting at Anniston on December 2. Officers elected: *President,* Dr. J. C. Moore; *Vice-President,* Dr. A. N. Steele; *Secretary,* Dr. J. W. Landham; *Treasurer,* Dr. E. C. Anderson.

Obituary Notes.—Dr. Alexander S. Cornell of Copemish, Mich., a graduate of Detroit College of Medicine in 1894, died on December 2 as the result of being run over by his own automobile.

Dr. Jerome Dwelly of Fall River, Mass., a graduate of the Harvard Medical School, Boston, in 1847, first city physician of Fall River, serving through the cholera epidemic in 1854, for fourteen years a medical examiner, and for nearly thirty years an examining surgeon for pensons, for over twenty years a member of the school committee of Fall River, and a member of the Massachusetts Medical Society and the Bristol South District Medical Association, and former president of the latter, died at his home on December 3, aged 90 years.

Dr. W. Henry Wishard of Indianapolis, Ind., a graduate of the Indiana Medical College, La Porte, in 1849, a volunteer surgeon in the United States Army during the Civil War, and a member of the Indiana State Medical Association and the Marion County Medical Society, died at his home on December 9, aged 97 years.

Dr. Nathaniel Heath Street of Newbern, N. C., a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1881, and a member of the Medical Society of the State of North Carolina and the Craven County Medical Society, died suddenly on December 1, aged 56 years.

Dr. Zachur Prall Boyle of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, in 1881, for many years and until recently chief surgeon of the Philadelphia & Reading Railway Company, died on December 6, at the age of 55 years, as the result of injuries received in a fall.

Dr. R. C. Young, formerly of Ridgeton, Ont., a graduate of McGill University, Medical Faculty, Montreal, in 1873, and twice mayor of Ridgetown, died at his home in Detroit, Mich., on November 25, aged 62 years.

Dr. Norman Eugene Farewell of Brooklyn, N. Y., a graduate of Trinity Medical College, Toronto, in 1897, and assistant surgeon at the Brooklyn Eye and Ear Hospital, died at his home, from pneumonia, on December 11, aged 37 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent)

UNION OF PANEL DOCTORS—THE CRISIS OF THE BRITISH MEDICAL ASSOCIATION—NEURASTHENIA—SYMPTOMS OF FATIGUE—DREADNOUGHT CLINICAL SCHOOL—WISBEACH INQUEST—OBITUARY.

London, December 5, 1913

The project of uniting the numerous associations of non-panel practitioners which have sprung up in the country gives promise of success. On Saturday a meeting was held representing above a thousand members of these societies and they resolved to federate under the name of the "National Medical Union" with the object of protecting the interests of those not on the panel. It was agreed that the subscription should be one guinea a year and the opinion seemed very prevalent that 10,000 members would soon join the new organization. Mr. Wm. Coates of Manchester presided at the meeting and was appointed chairman of committee; Mr. G. A. Wright and Professor Russell of Edinburgh being elected presidents. Other members chosen for temporary officials were: Dr. J. Playfair, V. P.; Dr. B. O'Connor, V.P.; Dr. Greenyer of Brighton, V.P.; Dr. Brienley of Manchester and Dr. Oppenheimer, Treasurers; Dr. Carswell and Dorrell, Secretaries. In the course of the discussion acute differences of opinion were elicited on some points connected with the establishment and administration of the new body. This was specially marked in reference to the terms of membership. The representatives from Manchester and Edinburgh held that no one connected with the Insurance Act, directly or indirectly (*e.g.,* in partnership with one on the panel), should be eligible and this apparently was the view of the majority. On the other hand, some London speakers thought it might be desirable for members of the union to serve on insurance committees and local medical committees under the act. A motion in this sense was made and rejected. It may be, as some influential persons present seemed to think, that the formation of the union will be an important event in the history of the profession in this country. Time will show.

Yesterday a "special representative meeting" of the British Medical Association called to consider the report of the council recommending an increase of the annual subscription to £2.2.0 was held in London and on a roll call vote the proposal was carried by 131 to 42; two members did not vote. The majority required is two-thirds and in a large meeting that would seem sufficient to prevent hasty change, but the number shown to be present indicates the little interest taken in the proceedings by the thousands of members. The proposal excited a certain interest in advance, was freely discussed at a number of the branch meetings and many members declared that this meeting would prove a great crisis in the association. In some districts there was a little canvassing and in some electioneering circulars were distributed. On the whole the usual apathy of the profession has let the question drift and the council's recommendation pass. Dr. J. A. Macdonald, chairman of the council, moved the adoption of its report and declared that their work could not be effectively carried on without more money. It had been said that many members would resign if the motion were carried and he felt that

contingency must be faced, but he hoped that there would not be many resignations and if there were the association might be better without them. The last remark seems rather unfortunate for a chairman. Dr. Haslip led the opposition on the ground that London was dead against it. He thought it one of the worst business schemes. It really meant letting the minority do as they liked at the expense of the immense majority as could easily be proved by a postal vote. Dr. Gillett of Oxford said that in his division out of fifty members at a meeting all but two were against the change. He held it better to be strong in numbers with a small balance than the opposite. Dr. W. J. Smith was for retrenchment and condemned the proposals for new departments and branches as premature. Dr. Meade said he was instructed by the York division against increase. Dr. Henry said a fight was ahead and they should wait for that. Dr. Button said the finances were badly managed and they should put a business management over them. Dr. Beaton said the request for money was always very inopportune, this way only just over a farthing a day. Dr. Goodbody said in Marylebone they only got 30 to 35 at a meeting out of 665. They took a postal vote and got 373 replies, 146 for and 201 against, 25 per cent. threatening to resign on account of the way the money was spent. Dr. Lawson said if the insurance expenses had been £10,000 they gained a million and a half for the profession. Retrenchment would lead to bankruptcy. Two or 3,000 came in to save their bread and butter; on each who paid 25 shillings they spent over £3. Let them go if they only stayed to get more than they gave. So the council has scored another triumph by the vote at this meeting to which so few took the trouble to go. Possibly with continued threatenings the apathy of the majority will still prevail.

Medical chats last month reeked with "that blessed word "neurasthenia." Everyone asked every one's opinion about it. The discussion about it at the Medical Society of London extended over a couple of meetings and no less than eighteen speakers who professed to know much about it expressed their more or less discordant notions concerning it. Some attempted to define it, but its nature proved too illusive, for one hardly likes to say they did not know what they were talking about; though it is certain they were not all describing the same thing. Personally, when pestered with the continual inquiry as to what I thought it consisted in I contented myself with referring my questioner to the etymology of the word and asking him if he could justify the combination of its components by passages from the classics in which either was used. The ruse was fairly successful, but I must not try it on you, for you may expect to hear something of the debate itself, though you will not spare space for the briefest abstract of the eighteen speeches. Suppose, then, I send you a few remarks of the opener of the debate, Dr. J. S. Risien Russell, as to the value of whose paper subsequent speakers were more agreed than on anything else. Dr. Russell then held there are different types of neurasthenia requiring, or course, corresponding difference of treatment. He spoke of three main groups—cerebral, spinal, cerebrospinal. He thought children might be affected and even some might be born with a tendency to the disorder, inheriting, so to say, the neuropathic taint just as others are supposed to do the tuberculous. The temperament, even the nationality of the neuropath, deserved consideration as much as the indications of exhaustion, irritability on undue tension of the nervous system. The best treatment was rest in a home for such patients—not where all diseases were admitted. After the "rest cure" treatment should be continued as it might be indicated. Hopefulness must be encouraged in every way for these patients were all given to despondency, though often open to suggestion—psychical influences were accordingly important; so a cheerful demeanor and positive assurance by the attendant that the case was certainly curable often did more than drugs which were assigned to quite a secondary place. Thus much for the opening of the debate. Passing over the speeches let me add a word or two from the summing up of the president, Sir David Ferrier, who had patiently listened to all. He said the divergent views were largely due to the fact that they were not all talking upon the same subject. This word neurasthenia was a limbo to which they relegated all sorts of nervous disorders. It was important to recognize that all the symptoms could appear in a person in a healthy condition. Normally fatigue was not exactly unpleasant, but if in spite of the effort to continue was pushed to exhaustion, then neurasthenia might supervene. In the subject of the affection fatigue came on before it should and that seemed to set up the neurasthenic state. For physical exhaustion rest was the natural cure. For the neurasthenia the morale must be improved. To accomplish this psychotherapy was the ideal treatment.

Prof. Wm. Stirling of Manchester, in the course of his Lady Priestley Memorial Lecture at the National Health Society, discussed the symptoms of fatigue. The subjective ones were known to everyone, but some of the objective deserved mention as indicating the condition of the muscular and nervous systems. Some parts were under the control of the nervous system, *e.g.* the fine movements of the fingers in writing, those of facial expression and movements of the head. On extending the free hand the thumb was apt to drop; the whole hand might drop from loss of tone in the muscles involved. The head often took an unsymmetrical position, or inclined forward, and the trunk might so bend. The muscles were limp and flaccid from loss of tone and rest was necessary to regain it. For the brain, in addition to sleep when it could be obtained, naturally a change to some exciting but useful occupation was a true rest to many persons. For others something approaching manual labor in the open air was best. Change of scene also was generally beneficial.

Surgeon-General May, Director Medical Department of the Navy, presided at the annual dinner of the Dreadnought Clinical School, surrounded by a number of distinguished members of the profession. He said the many eminent men present proved the value of post-graduate schools, though recently founded because medical science cannot stand still. Sir Archibald Geikie, P.R.S., contrasted medicine to-day and 300 years ago, and said medical men had not only advanced their own profession but gone out of their way to advance other branches of science. One man whose name was not often mentioned, he looked upon as one of the greatest this country had produced—he was Wm. Gilbert, founder of the science of magnetism, of whom medical men should be proud. Sir T. Barlow said this school had laid its foundations deep and wide on science. Sir J. Crichton-Browne said if the

money spent on mischievous quack medicines could be given to the school of clinical medicine mankind could reap incalculable benefit. The Insurance Act, he thought, must be amended and he hoped its objectionable features would be removed in the coming amendment.

The coroner's inquiry as to the death of the panel doctor who was found dead in bed while under a charge of slander concluded on Wednesday when the official analyst said he had found in the parts he examined 2.67 grains of morphine and 6.7 grains of veronal, which would correspond with 5 grains of morphine sulphate for the whole body. The jury returned a verdict of died from poison, self-administered, while temporarily insane, following mental depression.

Col. J. H. Newman, late of the Indian Medical Service, has died in his 69th year. He had the medal for Abyssinian expedition in 1868 and served in the Afghan war in 1878-9. Subsequently he filled various positions, becoming colonel in 1895 and retiring in 1900.

OUR LETTER FROM THE PHILIPPINES.

MEETING OF THE MANILA MEDICAL SOCIETY—POLYNEURITIS IN FOWLS FED ON UNHULLED RICE—CHOLERA AND CHOLERA CARRIERS — APPARENT CURE OF LEPROSY—NUMBER OF PHYSICIANS IN THE PHILIPPINES—PERSONAL.

Manila, P. I., November 15, 1913.

The regular monthly meeting of the Manila Medical Society took place at 8.30 p. m., November 3, at the College of Medicine and Surgery. The only paper read was that by Dr. Gibson, the Associate Professor of Physiology of the College of Medicine and Surgery, entitled "Polyneuritis in Fowls Fed Upon Palay (Unhulled Rice)." Dr. Gibson stated that a chicken was fed exclusively on unhulled rice, and at the end of a month showed no clinical evidence of polyneuritis, but upon sections being made of the sciatic nerve there was evidence of degeneration. Another chicken was fed on palay for a period of two months, and at the end of that time there was no clinical evidence of polyneuritis, but there was more marked evidence of degeneration of the sciatic nerve than in the preceding chicken. The third chicken, which was fed for a period of ninety days on palay, showed no clinical evidence of polyneuritis, but showed more advanced degeneration of the sciatic nerve than either of the preceding cases. The author was of the opinion that if unpolished rice is fed continuously to a chicken that eventually polyneuritis will result. He mentioned that polished rice caused distinct clinical polyneuritis as a rule soon after the twenty-third day.

The cholera situation in Manila and vicinity continues to remain about the same. For the week ending November 8 there were twenty-three cases and seventeen deaths, and for the week ending November 15 there were eight cases and eight deaths in the city of Manila. In addition to the foregoing, the disease has spread to Pilar in Bataan Province, Santa Cruz in Cavite Province, to some of the suburbs of Manila, and to Pasig in Rizal Province. In each of these places the first cases were promptly discovered, and after the sanitary measures were put into effect no further cases occurred except at Pasig. In that town the instructions for managing the outbreak were not strictly carried out, with the result that the disease spread to many of the barrios in Pasig, and there have already been twenty-two cases and ten deaths. One of these cases was an American soldier stationed at Fort McKinley, who, while upon a drunken debauch, exposed himself to the disease in the barrio of Butin of the town of Pasig. The diagnosis was bacteriologically confirmed by the army surgeons at the Fort McKinley hospital.

Cholera carriers still continue to be found among the contacts of the majority of the cases. The measures employed in this outbreak have probably been more successful in preventing the spread of the disease than any that have been carried out heretofore. By making the measures less rigorous much of the opposition from the ignorant masses, which has been so troublesome in former cholera campaigns, has been avoided, with the result that it usually has been possible to find the first cases in most instances. Briefly, the measures consist in the prompt transfer of the sick to the cholera hospital. Stool specimens are taken from all of the contacts, and those that prove to be cholera vibrio carriers are also removed to the San Lazaro Hospital detention quarters. There is no quarantine imposed at any time. The toilets and the receptacles, linen and other articles with which the sick came into contact are rigidly disinfected. Much stress is laid upon hand disinfection for all contacts of the case. In the provinces where hospital facilities are not available the sick person is quarantined in his house, and the dejecta of all sick as well as the contacts is directly deposited in a disinfecting solution. A large bowl of disinfectant is placed outside the house, and each person upon leaving the house is required to wash his hands in the solution. Experience so far indicates that the infections are contact infections, and that there is no general food or water infection.

Last week two additional lepers were discharged on probation from the San Lazaro Leper Hospital after they had apparently been cured for a period of two years. It is the intention to have these cases report once a month, in order that their condition may be observed. The cases received hypodermic injections of chaulmoogra oil in the same manner as those cases which have heretofore been reported, with the exception that no vaccine treatment was administered. The following mixture was employed: Chaulmoogra oil, 60 cc.; camphorated oil (olive), 60 cc.; resorcin, 4 grams. Mix and dissolve over a water bath by means of heat; then filter. One centimeter doses are given at weekly intervals, and these are gradually increased up to the point of tolerance. In one of the cases a dose of 20 cc. was reached, whereas in the other it was not deemed advisable to increase the dose above 5 cc. on account of the cardiac palpitation which larger doses seemed to cause.

With the exception of the case of plague that occurred in September, there have been no cases of this disease in the Philippines since May, 1913.

The Bureau of Health has just completed a statement showing the number of registered physicians in the various provinces and islands of the Philippines, and this shows that there are vast areas in which large numbers of persons reside in which there is not even one doctor. In Manila, for instance, there is a doctor for every 908 inhabitants, whereas in the Province of Antique, which comprises 1,134 square miles and has a population of 134,166, there is only one doctor. In the Island of Siquijor, which has a population of 46,000 and an area of 106 square miles, there is not a single physician. The foregoing does not necessarily mean

that there are not enough physicians in the Philippine Islands, but it is largely due to the fact that the bulk of the population has not yet been educated to employ physicians, and that the income of the average inhabitant is not yet large enough to pay for the services of a doctor.

Colonel William H. Arthur, M.C., U.S.A., Chief Surgeon, Philippines Division, while cranking his automobile had it backfire, from which he sustained a fracture of the radius near the wrist.

Surgeon E. L. Munson, of the United States Army, has been appointed Chief Health Officer of the Moro Province. He has already pushed the free dispensary system far into the interior, and is accomplishing much to establish friendly relations with the Moros, who in times past have been a constant source of trouble to the United States troops.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 11, 1913.

1. Errors of Diagnosis in Gall-Bladder Disease from a Surgical Point of View. J. H. Gibbon.
2. Condition of the Upper Region of the Abdomen in Relation to Disease of the Gall-Bladder. C. G. Stockton.
3. Acute and Chronic Suppuration of the Middle Ear. G. L. Toby, Jr.

1. Diagnostic Errors in Gall-Bladder Disease.—J. H. Gibbon has searched his operation records for the cases in which he expected to find gallstones and did not, or in which he had made some other diagnosis only to find that gallstones were the cause of the patient's suffering. The latter mistakes are much less frequent than the former. The errors may, in the light of what is found at operation, be clear and it is evident when and how one went astray, but there will still remain cases which cannot be cleared up quite so easily. A history of indigestion which manifests itself soon after eating by a sense of fullness and the eructation of gas; by attacks of pain of sudden origin in the upper right quadrant passing across the abdomen and around to the back and perhaps to the right shoulder-blade, and which are relieved by vomiting; and the finding of marked localized tenderness on palpation when the patient takes a deep breath; certainly suggest gall-bladder trouble. If we have added to these severe colic requiring morphine for its relief and followed by a transient jaundice, one is quite justified in making a diagnosis of gallstones. Surgeons have learned, however, that a patient can have all of these symptoms and still not have gallstones.

2. Conditions in the Upper Abdomen in Relation to Gall-Bladder Disease.—C. G. Stockton points out that cholecystitis and allied conditions, duodenal and pyloric ulcer, appendicitis, cancer of the stomach with metastasis to the liver, cancer of the ascending colon, slowly perforating peptic ulcer with abscess, some cases of syphilis of the liver, septic endocarditis with secondary infection of the liver and biliary apparatus, affections of the pancreatic head, and, occasionally, septic right kidney represent the group of diseases which often, either in origin or in attending symptoms, are related to the right upper quadrant of the abdomen. These conditions may puzzle the diagnostician. Important among the causes of obscurity in diagnosis are: (1) The development and persistence of symptoms in an organ as results of disease in another, usually, but not necessarily, contiguous part. (2) Comparatively trivial local disease accompanied by severe and misleading symptoms, or the reverse of this. (3) The simultaneous presence of two diseases. (4) The influence of diathesis and metabolic peculiarities not only in the inauguration of symptoms, but also in masking conditions and in delaying recovery.

New York Medical Journal.

December 13, 1913.

1. Pus in the Urine. V. C. Pedersen.
2. The Theory and Treatment of Diabetes. W. E. Fitch.
3. The Physical, Mental, and Moral Vigor of Our School Children. S. A. Knopf.
4. Spina Bifida. J. P. Hoguet.
5. The Kinetic Neuroses and Psychoses. T. J. Orbison.
6. Intestinal Obstruction Due to a Benign Pelvic Tumor. R. M. Alexander.
7. Medical Sociology in the Public Schools. Mary Sutton Macy.
8. An Epidemic of Trichinosis in Pennsylvania. J. Ballagi.

1. Pus in the Urine.—V. C. Pedersen states that pus may originate from any of the ordinary subdivisions of the urinary and genital tracts; for example, in the male from the foreskin, the anterior urethra, the posterior urethra, and the periurethral structures—notably the prostate; and in the female from the vulva, the vagina, the uterus, and the urethra corresponding with the posterior urethra in man; and in both sexes from the bladder, either or both ureters, ureteral pelves and kidneys. It therefore becomes the duty of the practicioner to know as far, and as early as possible, every detail regarding pus in the urine, which has reached any important and persistent amount.

5. The Kinetic Neuroses and Psychoses.—T. J. Orbison believes that the rational treatment of the functional neuroses is a problem of kinetics, anthropology, and psychology. The training camp method of treatment makes use of the rest treatment in suitable cases. It invariably makes use of intensive psychotherapy. It systematizes and prescribes the amount of rest, diet and exercises. During the period of treatment—at times from the very beginning—the training consists of the more or less strenuous régime that has been used by athletic trainers for the purpose of enhancing mental and physical vigor, but in such amounts as shall be suitable to the individual in hand. The training camp method is not put forward as a cure-all; it is only a rational adaptation of well known curative measures. The author's method is based upon a series of thirty cases of neurasthenia and psychasthenia, eight cases of dementia præcox, two cases of hysteria, and two cases of alcoholism.

7. Medical Sociology in the Schools.—Mary Sutton Macy notes that from the physician's point of view the laggard is a problem either in faulty hygiene or in pathology. From the teacher's point of view he is a drag on a class, a blot on the reputation of the teacher, or a problem in discipline, or all three. From the social point of view the laggard is an increased expense, a social menace, or a problem in social adjustment. The causes that produce backward children are the following: Retardation from prolonged or frequent absences, whether due to frequent illness, frequent change of home locality or school, or both; parental negligence or indifference; truancy *per se;* or other causes of irregularity in school attendance; retardation from physical inefficiencies or deficiencies, which may cover not only such conditions as blindness, partial or complete; deafness, partial or complete; adenoid vegetations and similar much discussed physical defects; but also tuberculosis, anemia, infantile paralysis, and cerebrospinal meningitis, with their sequelæ, etc.; retardation from mental inefficiency or deficiency, under which heading must be grouped not only the imbeciles, idiots, cretins, and morons who are outside State or municipal institutions for the segregation and care of such cases, but also that much larger and more important group of so called "borderline cases," which, from malnutrition or physical inefficiencies, or both, have been so far retarded as to make differentiation on first or even second examination almost impossible.

Journal of the American Medical Association.

December 13, 1913.

1. The Scientific Basis for Vaccine Therapy. R. M. Pearce.
2. The Problem of the Criminal in the Light of Some Modern Conceptions. H. W. Wright.

3. The Etiology and Vaccine Treatment of Hodgkin's Disease. Preliminary Note. F. Billings and E. C. Rosenow.
4. Etiology of Artificial Feeding. A Plea for the Study of Breast-Milk Problems. H. Lowenburg.
5. A Theory of the Cause of Ectopic Pregnancy. O. V. Huffman.
6. Isolation of a New Vasoconstrictor Substance from the Blood and the Adrenal Cortex. Presence of the Substance in the Blood and Its Action on the Cardiovascular Apparatus. C. Voegtlin and D. I. Macht.
7. Accidents in Transfusion. Their Prevention by Preliminary Blood Examination; Based on an Experience of One Hundred and Twenty-eight Transfusions. R. Ottenberg and D. J. Kaliski.
8. Striking Argument of Visualizing Power and the Development of Dreams Following a Cerebral Tumor Extirpation. E. G. Grey and L. E. Emerson.
9. Hyperthyroidosis of Intestinal Origin. J. C. Hemmeter.
10. Efficiency in Nursing. W. Gilman Thompson.
11. The Trained Nurse of the Future. R. O. Beard.
12. Obligations of Hospitals and the Public to Training-Schools for Nurses. J. B. Howland.
13. Arteriovenous Aneurysm of the Superficial Femoral Vessels. A. B. Eisenbrey.
14. A New Method of Anastomosing the Ovarian Tube or Vas Deferens. S. L. Christian and E. L. Sanderson.
15. A Case of Hodgkin's Disease Treated with Benzene. G. B. Lawson and E. A. Thomas.

3. Etiology and Vaccine Treatment of Hodgkin's Disease.—F. Billings and E. C. Rosenow conclude on the basis of their study of twelve cases of Hodgkin's disease that the causative factor is the polymorphous diphtheroid bacillus isolated in similar cases and successfully cultivated by other observers. They report an apparently marked improvement resulting from injections of the killed organisms. The vaccines were made by growing the organisms, previously isolated from removed lymph-nodes, in aerobic and anaerobic cultures on Loeffler's blood-serum or other culture-media and incubated at least three days before use to insure sterility. Phenol (carbolic acid) 0.5 per cent. is added and the killed suspensions are chilled before use. With varying histological conditions of the lymph-nodes in the twelve cases the same bacillus was isolated in all. In only three cases was the culture obtained pure, the bacillus in the other cultures occurring with a staphylococcus which the author's findings indicate is derived from the bacillus. The lymph-nodes longest involved gave the greatest number of organisms. In all but one patient, who received a vaccine prepared from other patients, an autogenous vaccine was given subcutaneously every five to seven days in doses increased gradually from 5 to 100 million. Varying degrees of febrile reaction followed, the reaction at the point of injection being slight. In addition, roentgenotherapy was used in nine cases. Two patients, under other care, died of mediastinal pressure, and one after the third, and another following the first vaccination. Prior to the patient's death the microorganism was isolated from the lymph-nodes of the neck and groin. Of the other patients one is well, the others are improving, with a diminution of the lymph-nodes and spleen, a return of the blood-picture to normal, and gain in weight.

4. Artificial Feeding.—By H. Lowenburg. (See MEDICAL RECORD, June 28, 1913, page 1192.)

6. A New Vasoconstrictor Substance.—C. Voegtlin and D. I. Macht in the course of some investigations on Eck's fistulas in dogs were impressed by the fact that with the extirpation of the liver, after an anastomosis had been established between the vena cava and the portal vein, there occurred a train of symptoms similar to those produced by the digitalis bodies. It occurred to them that these symptoms might be due to some substance normally present in the blood which is destroyed by the liver. They therefore apparently isolated such a substance, which they found a powerful vasoconstricting agent with properties closely resembling those of the digitalis-like bodies. Using the same methods they were able to extract a similar substance from human blood serum, blood-plasma and red blood-cells. The vasoconstricting action of blood-serum has been attributed to suprarenal extract. The authors regard the crystalline substance isolated by them as a substance entirely different from suprarenal extract or any other body hitherto obtained from the blood. Neither is it identical with beta-imidazolylethylamine recently isolated by Barger and Dale from the intestinal wall, and suggested by Kaufman as being perhaps responsible for the vasoconstricting action of serum. Observations seem to point to its relation to cholesterin on the one hand and to the cortex of the suprarenal glands on the other hand.

7. Accidents in Transfusion.—R. Ottenberg and D. J. Kaliski find that accidents in transfusion due to the occurrence of hemolysis or agglutination of the donor's blood-cells by the patient's serum, or vice versa, can be absolutely excluded by careful preliminary blood-tests. The relation between test-tube hemolysis and intravascular hemolysis is close, and it seems likely that in all cases in which there is test-tube hemolysis, some intravascular hemolysis occurs. When this exceeds a certain limit hemoglobinuria results. The occurrence of agglutination (between the blood of the donor and that of the patient) need not be regarded as an absolute contraindication to the transfusion, but non-agglutinative donors should be chosen whenever possible. Phagocytosis of red blood-cells by leucocytes in the circulating blood of the patient transfused is undoubtedly connected with interagglutination of the two bloods; it occurred in the authors' series in two cases in which the serum of the patients was agglutinative toward the cells of the donors (in one of the cases the serum was also hemolytic) and it did not occur in any of the thirty-five non-agglutinative transfusions in which it was carefully looked for. These negative cases included two cases with extensive urticaria and one case with severe febrile reaction after transfusion. In the cases in which the serum of the donor was agglutinative toward the cells of the patient, no phagocytosis of red cells in the circulation was seen. In selecting donors with regard to agglutination, the agglutination of the donor's cells by the patient's serum is more important to avoid than the reverse. Febrile reactions or urticaria and other skin eruptions occur after about 10 per cent. of transfusions, irrespective of hemolysis or agglutination, and are not due to fibrin ferment or to blood-platelet destruction. These reactions, however, are never serious and the patients do well in spite of them.

The Lancet.

November 29 and December 6, 1913.

1. The Development of Our Knowledge of the Diseases of the Heart. T. W. Griffith.
2. Astrology in Medicine. C. A. Mercier.
3. The Leprosy Problem in the British Empire. H. Bayon.
4. Tuberculosis of the Eye. S. Stephenson.
5. The Examination of Tuberculous Pleural Fluids. S. R. Gloyne.
6. Tuberculous Meningitis (Bovine Infection) in an Infant Aged 12 Weeks. G. A. Allan.
7. The Free Air Treatment of Skin Grafts. A. R. Jones.
8. Eye Coloration in Relation to the Incidence, Severity and Fatality of Scarlet Fever and Diphtheria. A. L. Dykes.
9. The Value of the Clinical Polygraph in Certain Cardiac Disorders. B. Parsons-Smith.
10. On a Change Occurring in the Pelvis in a Case of Prepuberal Atrophy of the Testicles. H. B. Shaw and R. H. Cooper.
11. Treatment of Yaws by Intramuscular Injections of Salvarsan. R. P. Cockin.
12. Chronic Polyorromenitis (Multiple Serositis) Simulating Intrathoracic Growth. R. G. Hann.
13. Some Causes of Disappointment following Removal of Tonsils and Adenoids. W. Wilson.
14. A Note on Perforation of Gastric Ulcers into the Heart Itself, with Report and Photograph of a Case. F. E. Tylecote.
15. Martial and Medicine. R. H. P. Crawfurd.

1. Development of Our Knowledge of Diseases of the Heart.—T. Wardrop Griffith presents a historical survey of this development. Since the publication of his views as to the circulation of the blood by Harvey in the year 1628 knowledge of the diseases of the heart appears to have progressed along natural lines. There have been the careful recording of symptoms and painstaking observations in the post-mortem room. On the clinical side there came the assistance obtained by percussion, which, though introduced by Auenbrugger, was mainly developed by Corvisart and subsequently by Piorry; then

there came the use of the stethoscope, which was not, of course, the beginning of auscultation. On the pathological side, there came the assistance derived from histology. This was followed by the invention of the sphygmograph, an instrument very disappointing to those who expected too much from it, and which in this respect is sometimes unfairly judged, and of various instruments for the measuring of blood pressure. More and more, since the invention of the sphygmograph, experimental physiology has come to throw light on the path which clinicians ought to tread. The work of Gaskell on the reptilian heart and of others on the heart of the mammal has been pressed into the work of the clinician; and as a practical outcome of this we have the polygraph and the electrocardiograph. Something has been done by the use of the *x*-rays, and with the perfecting of the orthodiagraph more may be expected. The most valuable indication of the capacity of a heart for work is clearly what it can do; and one of the best instruments for determining this is a staircase. If there is anything wrong with the valves of the heart salvation must depend on the condition of the cardiac muscle. The capacity of the heart muscle for work depends, however, upon its five functions of rhythmicity, excitability, conductivity, contractility, and tonicity. These are the five links in the chain of cardiac integrity. If one can subject the heart to an examination as to its condition in respect of each of these functions we may be able to discriminate between forms of cardiac failure, which, though apparently identical, are really distinct; and it may be that in the future these causes may call for different forms of treatment and not call in vain.

2. Astrology in Medicine.—By C. A. Mercier. (See MEDICAL RECORD, November 29, 1913, page 905, and December 6, 1913, page 1141.)

5. The Examination of Tuberculous Pleural Fluids.—S. R. Gloyne emphasized the fact that the finding of tubercle bacilli is the only conclusive evidence of tuberculous infection. In the author's series of cases bacilli were found in 40 per cent. of the serous, and 71.43 per cent. of the purulent fluids. Ordinary film preparations are satisfactory in purulent fluids, but in serous fluids more careful measures are often necessary. In large effusions, without clot, sedimentation and centrifugation of the fluid may be sufficient. When present, the examination of clot offers the best hope of finding bacilli. In serous effusions the next best test is the lymphocyte count. Failing this, the tests in order of value are protein content (usually 4-5 per cent.) and specific gravity (about 1018). Sterility on ordinary culture media is suggestive of tubercle in purulent fluids. It is not of much value in serous exudates, since some other effusions and most transfusions are also sterile. Secondary infection was noted by the author only in one instance.

8. Eye Coloration in Relation to Diphtheria and Scarlet Fever.—A. L. Dykes refers to the observation of Biernacki who found that children with light eyes appear on the average to be more susceptible to severe diphtheria and more likely to die. Several observers have shown that there is a relation between susceptibility to disease and pigmentation. Shrubsall found that epilepsy and skin diseases are more common in the brown-eyed, while acute rheumatism more frequently attacks light-eyed people. Similar observations by McDonald demonstrate a correlation between pigmentation and susceptibility and recuperative power in the acute fevers among the school children of Glasgow. Dykes found that scarlet fever is more frequently severe and has the higher mortality in light-eyed children. This distinction was even more striking in diphtheria.

12. Chronic Polyorromenitis (Multiple Serositis).—R. G. Hann reports the case of a woman aged 41 years who presented a clinical puzzle of great difficulty. The diagnosis made was that of intrathoracic growth, but as time went on it became clear that this diagnosis must be wrong, though it was not easy to offer any other explanation of symptoms so diverse as laryngeal stridor, exophthalmos, pigmentation of the skin, and ascites. The absence of a reliable history was an additional handicap. At autopsy there were found obliteration of the right pleural cavity, a considerable amount of fluid in the left pleura, shrinkage and atelectasis of the bases of the lungs, adherent pericardium, advanced mediastinitis, a moderate degree of cirrhosis of the liver, and obliteration of the peritoneal cavity by adhesions. The consideration of the ascites introduces one of the most interesting features of multiple serositis. It has been explained variously as due to interference with the venous return from the abdomen by changes caused by perihepatitis, or by cyanotic induration of the liver; to myocardial incompetence following pericarditis, comparable to the ascites occasionally seen before general edema in failure of compensation following chronic disease of the heart; or to chronic peritonitis. The author regards the chronic peritonitis as the cause in the case reported by him, for with the peritoneum deeply involved and ascites, there was no perihepatitis. Hale White has seen two cases in which with universal perihepatitis and no chronic peritonitis there was no ascites. The chronic form of polyorromenitis has been ascribed to infection by the tubercle bacillus, but there is singularly little published evidence in favor of this theory. Acute rheumatism with its proclivity for causing effusions would seem a likely cause, and such cases have been observed.

13. Failures in Tonsil and Adenoid Operations.—W. Wilson points out that many failures from these operations result from neglect to remove the enlarged posterior end of the inferior turbinals, which are far more obstructive to respiration than are the faucial tonsils; of course, in many cases they would diminish in size after removal of the pharyngeal tonsil, but as this would occupy from two to three years, during which time the nasal obstruction would continue, the question would arise, why operate at all? A patient who undergoes an operation for nasopharyngeal obstruction deserves a perfectly functional result. It is of no use to scrape the pharynx as a routine when the entire obstruction is due to nasal stenosis. The posterior ends may be removed by snipping them away with one of the guillotines invented by Lake, but often it is impossible to get these instruments easily down both sides of the nostril. In this case a strong nasal snare may be employed: the loop should be guided over the posterior ends with a finger in the nasopharynx. Of special interest, also, is the persistence of symptoms of "throat cough" and laryngeal catarrh after operation. In many cases this will be found to be due to either a septic condition or actual hypertrophy of the lingual tonsil, which may be in contact with the epiglottis. It is possible that after complete extirpation of the faucial and pharyngeal tonsils the remaining lingual tonsil undergoes some compensatory hypertrophy.

14. Perforation of Gastric Ulcer into the Heart.—F. E. Tylecote reports a case of this condition and notes that the first case to be recorded was that by Oser in 1880. In 1894 Ludwig Pick published a monograph on perforation of the diaphragm by gastric ulcer, and of 28 cases collected by him only 10, or 35.7 per cent., involved the pericardium. Of these 10 only 4 involved the heart muscle itself. His monograph makes it clear that in these cases a perigastritis is always present, and that it is *via* the most anterior portion of that part of the diaphragm on which the heart rests that the entry is gained. Of 10 of Pick's cases in which the ulcer was on the lesser curvature, 6 perforated the pericardium, 3 the left pleura, and 1 the mediastinum. Where the ulcer was (5 cases) situ-

ated in the fundus, the left pleura was always perforated. Of 3 in the cardiac region, 2 perforated the left pleural sac and the third the pericardium. All ulcers on the posterior wall perforated the left pleura, while the one case on the anterior wall involved the heart muscle. All were chronic ulcers with thickened and indurated edges, and their bases were adherent to neighboring organs, so that they were not able to cicatrize, contract, and heal up. As one would expect—taking into account the relationship of the pylorus to the liver—in spite of the frequency of pyloric ulcer, it was only met with 3 times in Pick's 28 cases of perforation of the diaphragm.

British Medical Journal.

November 29 and December 6, 1913.

1. Paroxysmal Dyspnea in Cardiorenal Patients: With Special Reference to "Cardiac" and "Uremic" Asthma. T. Lewis.
2. An Address on the Clinical and Bacteriological Aspects of Leprosy. H. Bayon.
3. Remarks on Acute Pancreatitis. With Notes of Seven Cases. A. J. Blaxland and G. P. C. Claridge.
4. The Diagnosis and Treatment of Intestinal Obstruction. E. Deanesly.
5. A Case Contributing to the Study of Fever without Other Physical Signs. H. G. Lawrence.
6. The Significance of Frequency and Tenesmus in Acute Cystitis. O. Heath.
7. A Simple Splint for Flair Elbow. R. Parker.
8. The Large Intestine and Its Work. J. Griffiths.
9. Health, Fatigue, and Repose. W. Stirling.
10. Traumatic Intramuscular Ossification; Its Pathology and Treatment by Excision and Autogenous Grafting of Fascia. J. Morley.
11. The Operative Treatment of Hemorrhoids. H. G. Anderson.
12. Rheumatic Nodules (Rheumatismus Nodosus) Associated with Rheumatic Torticollis. F. P. Weber.
13. The Daily Weight Chart as a Guide to Tuberculin. H. W. Crowe.
14. The Bacteriology of the Mouth in Maori Children. H. P. Pickerill and S. T. Champtaloup.

1. Paroxysmal Dyspnea in Cardiorenal Patients.—Thomas Lewis points out that a very large proportion of heart patients who exhibit great anxiety of breathing do not exhibit a marked degree of dyspnea. Breathlessness and cyanosis are often shown in disproportionate degree. The significance of this fact has escaped attention. If a patient is urgently breathless and an equivalent cyanosis is not found, the dyspnea is not wholly due to deficient acration of the blood. The author describes a special group of cases, the most important feature of which is the breathlessness. Examination of the blood in these cases has shown by special methods evidences of a diminished alkalinity sufficient to account for the dyspnea, which alkalinity is due, not to CO_2, but to non-volatile acids. The breathlessness is of the periodic type known as Cheyne-Stokes respiration, being accompanied when severe by conspicuous restlessness during the periods of hyperpnea, and becoming exaggerated by the slightest exercise. There is no reserve, the breath cannot be held, and forced breathing is followed by no apneic period. Oxygen affords little or no relief, though it alters the type of breathing. Secondly, there is evidence that the blood is well or moderately aerated; there is no cyanosis comparable with the dyspnea. Thirdly, the dyspnea is more severe toward evening and in the night, and sleep is broken by exaggerated attacks of breathlesssness. Fourthly, the pulse rate is increased (80-100), and especially toward evening. Fifthly, the temperature is subnormal. The condition is an extremely common one, and urgent dyspnea, where there is a want of equivalent cyanosis, is the first guide; really distressed breathing in elderly subjects, accompanied or not by cyanosis, is always open to suspicion; the presence of Cheyne-Stokes breathing, and especially the characteristic nocturnal attacks, are extremely valuable indications. The periodicity of the breathing is often inconspicuous or variable; it may consist merely of slight waxing and waning in the amplitude of the breathing, there may be no true apneic periods; it may be present only at night or at the patient's first admission; it is very often overlooked. Any increase in the acidity of the blood increases the depth and rate of respiration. It is a matter of indifference if the excess of acid is volatile, as it is when CO_2 is breathed, or whether it is non-volatile. There are many notable examples of the latter. Leymann introduced small quantities of phosphoric and other acids into the circulation. The injection of acids produces hyperpnea; of alkalies, apnea. The dyspnea of violent exercise is due to accumulated lactic acid. Diabetic asthma is the result of diacetic and betaoxybutyric acids. The presence of excess of non-volatile acid stimulates the respiratory center, and hyperpnea results; the hyperpnea washes out CO_2, it increases the pressure of oxygen in the alveoli, and in this way the body attempts to accommodate itself to the altered conditions; but the accommodation is imperfect, and the reserve is decreased or abolished. Patients who suffer from the acidosis described by the author have prominent lesions in two chief organs, the heart and the kidneys. In none of his cases was either of these organs found healthy after death. One may seek the cause of the acidosis in defects of the circulation or in defects of the kidneys. That it is not due to deficient circulation is evident, for the degree of acidosis is not parallel to the circulatory defect. Is it the result of defective elimination, or does it come from an altered metabolism secondary to renal disease? To these and similar questions no certain answer can be returned; though one may suspect that, as in one renal patient urea may be retained and as in another chlorides may be retained; in a third type there may be an alteration in the elimination of acids and bases.

4. Intestinal Obstruction.—E. Deanesley presents the following maxims: Do not confuse constipation with obstruction. Always consider the possibility of obstruction when pain, vomiting, and distention exist together. If there is no rigidity and no fever in such a case, obstruction is practically certain and operation is urgently indicated. Above all, do not waste time with such futile and dangerous things as purgatives and enemata. If these rules were more generally followed the mortality of intestinal obstruction would be less appalling than it actually is.

8. Function of the Large Intestine.—J. Griffiths notes that the interest taken in the colon and its functions during the past few years has been very great. In 1901 Barclay-Smith put forward a suggestion that in consequence of the advance in the preparation of food, rendering it digestible, nothing now remains for the colon to do, and that it may be regarded as a useless appendage to our bodies. Sir Arbuthnot Lane goes further, and characterizes it as a cesspool, presumably either to be cleansed at periodic and stated intervals, as cesspools are to-day in some old-fashioned places, or to be altogether done away with, as in the modern method of sanitation. Metchnikoff regards it as having developed in order to act as a reservoir, so that primitive man might run after his prey or away from his pursuing enemies without undergoing the risk of stopping or slowing his rate of progress to evacuate his intestine. Keith, without expressing any decided opinion for or against the above hypotheses, wonders whether we cannot restore to the colon its former function. He appears to suggest that ingenuity might yet be exercised with advantage in the direction of finding an agreeable dietary which will give back its old work to this large tract of the alimentary canal, and that unless something useful be done the colon will certainly come to be regarded under our present civilization as an incumbrance to man in the performance of his daily work. The author believes that the work of the colon, apart from its use as a storage and expellor of the common refuse, is (1) to dry the contents as they leave the small intestine, and (2) to get some useful substance out of the refuse while it is mixed and churned and undergoing fermentation with, it may be, disintegration. This substance, though as yet

of unknown quality, gives to the body that which it requires for the development of that feeling which is best described as being "in the best of health and spirits"; further, it is something of all-important value to the individual. Excess of it is deleterious; lack of it is attended with pronounced changes in general nutrition, and perhaps progressive inanition, leading after a variable time to death from simple loss of vigor and strength.

10. **Traumatic Intramuscular Ossification.**—J. Morley concludes that traumatic intramuscular ossification ("myositis ossificans") is due to migration of osteoblasts into adjacent contused muscle and blood clot, after destruction of the periosteum and loss of its function as limiting membrane to the growth of bone. It is essentially the same process as callus formation. The condition may be produced experimentally in animals by reproducing the same mechanical conditions by an aseptic open operation. In a case of difficulty in diagnosis from sarcoma open exploration is advisable. Simple excision is usually, though not invariably, followed by recurrence. Conservative treatment condemns the patient to a long period of disability, which may occasionally be permanent. Excision combined with the grafting of deep fascia on to the denuded surface of bone gives the best prospect of rapid and complete recovery, and is urged for all cases not complicated by ossifying periarthritis. Osteoblasts and chondroblasts are the same cells under different conditions of nutrition.

Berliner klinische Wochenschrift.

November 24, 1913.

Operation for Aneurysm with Vascular Transplantation.—Unger sums up his paper briefly, as follows: after extirpation of a large aneurysm of the popliteal artery, the stumps of the femoral and anterior tibial arteries are united by a bridge which represents 15 cm. of the saphenous vein. This case ended successfully. The second case was one of arteriovenous aneurysm of the thigh, which was extirpated. The femoral vein was now sutured and the vena saphena used to fill the defective in the femoral artery. The result is not mentioned, but doubtless was successful. In a third case in which vascular transplantation was practiced failure occurred, because the transplant was not healthy. The author regards this work as particularly indicated in military surgery.

Influence of Splenectomy on Pernicious Anemia.—Huber extirpated the spleen of a woman with this affection and three months later demonstrated the case before a medical society. She appears to have benefited somewhat and the improvement persists. The author's reasons for performing splenectomy were as follows: there was little risk of an operative death. Again, when the spleen is extirpated a polyglobulia develops; as if under natural conditions the spleen inhibits the hematopoietic function of the bone marrow. Both hemolytic icterus and splenic anemia have been improved and even cured by splenectomy. Thus far the following have resorted to the latter for pernicious anemia: Eppinger, Mosse, Klemperer, and Hirschfeld, and perhaps others. The case corroborates the results of the predecessors in the field in the sudden changes in the blood pictures and general condition. The resource should be practiced when all others have failed. All the splenectomized cases are of too recent date to permit of conclusions being drawn. There seems to be no doubt that life can be notably prolonged, the patient being also in good condition the while. The author would always prepare for transfusion in case the latter seemed indicated after operation.

Abderhalden's Serodiagnosis in Psychiatry According to Theobald.—Toward manic-depressive insanity, chopathy, alcoholism, senile dementia, and especially dementia præcox, the reactions of the sexual glands, thyroid and brain are quite considerable. The accumulation of free cleavage products of albumin in dementia præcox is established, not only by Abderhalden's dialysis procedure, but by the antitryptic index. These products behave as heterologous in the blood. A woman with precox cannot decompose testicular matter. Two cases of severe arteriosclerosis and one of epilepsy in women reacted to testicular extract. In alcoholism, hysteria, psychopathy, and manic-depressive insanity, the author's negative results correspond to those of others. Idiots often react to cortex and sexual glands with sex specificity. In paresis, in the majority of cases, cortex was disintegrated, but sexual glands only once, and liver twice. Arteriosclerotic insanity nearly always attacked cortical substance. The same is true of senile dementia and a majority of cases of epilepsy. At present the value of the method lies in the differentiation of dementia præcox.

Deutsche medizinische Wochenschrift.

November 20, 1913.

Meningitis After Follicular Angina.—Siemerling reports the following case of this unusual sequence: a fifteen-year-old boy was taken with sore throat. Tonsils reddened and swollen, containing numerous yellow plugs. Pharynx reddened, covered with mucus. A swollen gland under the angle of the right jaw. Received a gargle of hydrogen peroxide. Fever as high as 38.2° C. Left tonsil cleared up first, followed by the other; pharynx still very red. Temperature still high. After six days of tonsilitis, the head began to ache slightly. From the first there had been slight rales and the pharyngitis did not undergo involution. To headache were added vertigo and tremor. On the tenth day of the entire illness the picture changed radically to one of meningitis. For a short time the temperature had been subnormal. The family history was now ascertained. Boy had had a cough before the sore throat had developed, but had been sound and active; in fact, an athlete. After the sudden onset of meningeal symptoms lumbar puncture was performed and the punctate not incompatible with tuberculous meningitis. The disease was of severest type, and finally recovered after all modern resources had been employed. The first diagnosis had been tuberculosis, but this was excluded as the disease progressed, as was also infantile spinal paralysis. The severity of the picture excluded mere meningismus. The condition was, therefore, held to be a severe case of meningitis serosa. Its severity would have better suited epidemic meningitis. The severe pharyngitis suggested the retronasal angia of the latter disease.

Clamping the Parametria for Hemostasis During and After Labor.—Zimmermann lauds this resource especially for postpartum hemorhage, before or after expulsion of the placenta. No essential dangers are connected with the operation, which is also much simpler than the tamponade. The clamping is also indicated in placenta prævia when the tolerance point of blood has been reached. All possibility of sepsis is avoided by this approach from the rear. The portio is pulled down beyond the vulva and the parametria are then brought down in like manner. Museaux's forceps are now applied to the parametria and the forceps which held the portio are removed. The former are left in situ twenty-four hours.

Rachitis of the Nose and Its Relationship to Bronchial Asthma.—Walb states that the nose is frequently the seat of rachitic alterations under which he classes deviation of the septum, building of spurs on the same, etc. These alterations are not all of rachitic origin, but, however engendered, cause bronchial asthma. The fact that asthma persists after their removal and that it may occur in a normal nose has led the author to believe that rachitis is a basic cause of asthma. In a number of these cases phosphorus treatment removed the asthma.

Insurance Medicine.

The Inaccuracy of American Mortality Statistics.—Whatever view one may take of the methods and manners of recording mortality statistics, it will be readily granted that their essential foundation is the correct statement of the cause of death. Dr. Horst Oertel, scientific director of the Russell Sage Institute of Pathology, New York, in a paper on this subject, says he considers it strange that notwithstanding much discussion about the improvements in the methods of recording and interpreting these statistics, the reliability of the death certificate itself is generally accepted. Unfortunately no sufficient effort is made to trace its validity, and many serious writers are apparently unconscious of the weakness of the material from which they draw conclusions. He claims that the errors and inaccuracies in the present returns of the causes of death as filed with all our Boards of Health are so great that it may be justly doubted whether deductions based on this evidence of American statistics are at all trustworthy, or, as Professor Bashford, director of the Imperial Cancer Research Laboratory, London, remarks: "The vital statistics of Ceylon are more reliable than those of New York." What are the reasons for this deplorable state of affairs and what remedies may be applied? Hoertel gives a short outline of what he regards as the reasons, and suggests some remedies.

The majority of American death certificates, even from the best representative hospitals, which have the best available records, are based usually on bedside diagnosis only, and, as is natural under our present inadequate system of hospital administration, without the additional objective proof of autopsy. This is particularly the case in the United States, where the importance of teaching pathology by autopsy has never been appreciated and has been grossly neglected. The disastrous result of this lack of knowledge is necessarily poor diagnostic and critical ability.

Most outsiders and very many physicians do not have the proper conception of the difficulty of arriving at a scientifically accurate diagnosis. Even the autopsist arrives at the truth only after prolonged microscopic study. Oertel reviewed the mortality records of one of the best known hospitals in the country and found that out of 3,170 deaths occurring during the year 1912 only 482, or 15.2 per cent., came to autopsy—a very small number compared to the average of 80 to 90 per cent. of autopsies in foreign hospitals. Of these 482, 92 were infants, and in practically all of these the autopsy disclosed important lesions not suspected, but the clinical observation had been too brief for accurate diagnoses, and they were not included in the following statistics.

The autopsy confirmed the clinical diagnosis in 87 cases out of the 390, or in 22.3 per cent. In 54 cases the diagnosis was partially correct, but other important lesions that had contributed to the diagnosed lesion were found. In the other 133 cases of the 390, or 34.1 per cent., diagnosis was either entirely wrong or not made at all. In some cases the diagnosis is recorded after autopsy has been performed, so it will be seen how uncertain and misleading statistics from such records would be. A second cause of unreliable statistics is the ignorance, carelessness, and haste of physicians, in private as well as public service, in making out death certificates. In hospitals the certificates are frequently signed by the young internes, or even substitutes, and the attending physician never passes on the certificate. Many times in private practice the physician is not to blame for many incorrect death certificates, as patients are not under observation sufficiently long enough to permit a diagnosis, or the mental and physical status of the patient precludes a correct interpretation of the case, or the important lesion may be so deeply shadowed by secondary results that it is impossible to reach a verdict during life. And it must not be assumed that obscure cases are rare; on the contrary, only the clear-cut, typical, textbook cases are very rare.

He offers the following suggestions as a solution of this unfortunate condition of affairs: (1) It must be appreciated that the only reliable death certificate is the one made by an experienced pathologist after autopsy. (2) Physicians, officials and the public should be educated as to their responsibilities in this matter. The large public hospitals should lead in this campaign and require autopsy in each case. Public sentiment, if trained, would no longer oppose autopsies on the ground that they are performed for curiosity's sake. Undertakers, for selfish reasons, take pains to prevent autopsies by impressing people that an autopsy produces mutilation.

The State Boards should include a severe practical examination in pathological anatomy and the performance of autopsies, similar in character to the examinations in force in Germany for years. (3) Every death certificate should show plainly whether a return of the cause of death is based on clinical symptoms alone, or on additional microscopic evidence during the life of the individual, or on the complete autopsy. These should be kept apart in three groups as unreliable, more likely reliable, and reliable death records. Every worker would then know what to trust, and much nonsense would remain unwritten and, it is to be hoped, unsaid.—*The American Underwriter.*

Physical Class Distinction Through Life Insurance.—In an article on Life Insurance and Eugenics, J. M. French says that life insurance is gradually building up a distinct line of cleavage, dividing a community into two classes, the one comprising those who have been accepted by a responsible insurance company as good physical risks, and the other those who have not been so accepted. This latter includes not only those who have been rejected, but also the mass who have never been subjected to the tests and have no knowledge as to their acceptance. The accepted risks are therefore on a higher physical plane, and raised much above the average.

It is one of the characteristics of all men who are worthy of the name that they reach out for something a little higher than the general average, something so difficult of attainment that not every one can reach it, something that causes them to be looked up to, something to which everyone cannot be admitted. In this way is carried on the natural process of natural selection, which results in the upbuilding of the race. The result is the formation of a voluntary aristocracy based on good physical qualifications, in which the life insurance policy acts as a certificate of admission to the society of the high grades, and a diploma of merit wherever found. Thus, life insurance is an aid to the promotion of a longer life, a better class of men and women, and the forerunner of a better race.—*American Medicine*, October, 1913.

Book Reviews.

Die Gicht. Ihr Wesen und Ihre Behandlung nach neuen Untersuchungen mit einem Anhang: Diätzettel für Gichtkranke. Von Dr. S. Cohn. Berlin-Schöneberg Spezialarzt für Gicht. Price, 2.50 marks. Berlin: Basch und Co., 1913.

The author gives practical suggestions for the diagnosis of gout, intended to make practitioners independent of the laboratory. His therapy consists of a diet containing as little sodium as possible, and colchicum in acute cases. Massage and diet regulations are given in full together with a number of case histories.

The White Linen Nurse. By Eleanor Hallowell Abbott, author of "Molly Make Believe," "The Sick-a-Bed Lady," etc., etc. With Illustrations by Herman Pfeifer. Price $1.00 net. New York: The Century Company, 1913.

Rae Malgregor is a simple country girl with a "doll" face who went into nursing because she thought "the uniforms were so cute." On the day of her graduation she suffers a nervous breakdown, which is really the protest of her spirit against the repression and deadening effect of hospital discipline. The Senior Surgeon, "gray-haired, gray-bearded, gray-suited, grayly dogmatic as a block of granite," proposes as a remedy that the hysterical girl should accompany him on a motor trip to a patient thirty miles in the country. The crippled child of the surgeon is the third occupant of the car. On the return trip they are wrecked in a meadow, but no one is seriously hurt. The nurse extricates the surgeon from under his car. While all three are gazing at the burning remains of the machine there dawns upon the surgeon the sense of his own widowed loneliness, and he bluntly proposes to the girl, asking her to undertake "general heartwork for a family of two." This is another shock to a nerve-shattered girl on a day full of stirring incidents. It is not enough to be asked to marry a man so much older than herself, whose intellectual tastes she realizes are in marked contrast to her own rustic simplicity, but she is asked to tolerate his one great weakness, namely, an annual June trip into the Canadian woods, ostensibly for hunting but really for a grand spree. His proposal is accepted, for although she is terrified to think of marrying a "June drunk," nevertheless she knows that he has "the grit to pull up absolutely straight as a die and be a *surgeon* all the other 'leven months in the year." They were accordingly married on the first day of June; the Senior Surgeon left for his Canadian carouse, and the White Linen Nurse came home alone from the church to her husband's great gloomy house. She begins the task of restoring order out of the chaos into which this had fallen. She writes, still as Rae Malgregor: "I like being married, Dr. Faber. I like it lots better than I thought I would. It's fun being the biggest person in the house." In another letter she writes: "I hope you're having a pleasant spree. Oh, I forgot to tell you that one of the wall paperers is living here at the house with us now. . . . And he's a nice young fellow." Naturally the following day the Senior Surgeon started homeward. The remainder of the narrative consists of the skillful delineation of a difficult psychological situation, the unexpected return of a jealous husband whose nerves are still tightly keyed as the result of a month's debauch; the surprising of his wife and the "young fellow," who happens to be her brother; a period of sulkiness during which the wife vainly courts the attentions of her lord, and finally the awakening of the latter with the realization of his own unworthiness and the faithful devotion of the one who spurned the opportunity to be relieved from her drudgery. The solution of the problem is a week's honeymoon. Thereafter his Junes would be hers.

The above story, unusual and unreal as it seems, forms the framework about which the author entwines a psychological study of two sharply contrasting characters. She displays a keen insight into the arduous work of the nursing and medical professions. Her style is conspicuous in its force and originality. A picturesque diction imparts vitality to simple actions. Here is a portrait of the doctor cranking his automobile: "He hurled his hundred and eighty pounds of infuriate brute-strength against the calm, chronic, mechanical stubbornness of that auto crank." Liberties are taken with the English language in such sentences as, "monotonous as a sob the waiting birch canoe slosh-sloshed against the beach." Nevertheless the book is intensely interesting. Medical men particularly can appreciate the subtlety of its humor and the depth of its pathos.

Surgery of the Vascular System. By Bertram M. Bernheim, A.B., M.D., Instructor in Surgery, The Johns Hopkins University, Baltimore, Md. With 53 illustrations in text. Price, $3.00. Philadelphia & London: J. B. Lippincott Company, 1913.

The recent developments in the surgery of the vascular system impart a special interest to this volume whose author has made ample contributions to the experimental and clinical aspects of the subject. His work was carried out under the guidance and with the cooperation of Halstead, Finney, Bloodgood and Cushing. The observatiop is made that success in this field of surgery demands years of trial, first in the laboratory and then in the clinic. There are presented the best methods employed by surgeons in vascular surgery, the anatomical, pathological and etiological aspects being omitted. The chapter headings are as follows: General technique; transfusion; end-to-end suture; lateral anastomosis; transplantation of a segment of vein or artery; arteriovenous anastomosis—reversal of the circulation; varicose veins; surgery of the heart; aneurysms, and statistical study of the treatment of aneurysms. Among the valuable contributions made by the author to the technique of transfusion may be mentioned his ball-tipped forceps which has been devised to prevent injury to the vessel wall, especially scratching of the intima, and his simple apparatus for the performance of transfusion. This consists of two hollow tubes, each four centimeters long, and bulbous at one end to form a neck for the retaining tie, and beveled to facilitate entrance into the vessel; the other ends are tubular and fitted for invagination. The special virtues of this apparatus are its simplicity, resembling in this respect the paraffined glass tubes, but having the advantages of non-breakability and dispensing with the need of paraffin; and the rapidity with which the separate tubes can be inserted into the artery of the donor and the vein of the recipient, by separate crews of operators. The various steps in this and other operations on the blood vessels are illustrated by a series of excellent drawings by James F. Didusch, under the supervision of Max Broedel.

Treatise on General and Industrial Organic Chemistry. By Dr. Ettore Molinari, Professor of Industrial Chemistry to the Society for the Encouragement of Arts and Manufactures and of Merceology at the Luigi Bocconi Commercial University, Milan. Translated from the second enlarged and revised Italian edition by Thomas H. Pope, B.S., A.C.G.I., F.I.C., School of Malting and Brewing, University of Birmingham. With 506 illustrations. Price $6.00. Philadelphia: P. Blakiston's Sons & Co., 1913.

Quite apart from the general excellence of this book there existed a very good reason for its translation from the Italian, and that is the fact that there are in English surprisingly few works covering the same field. There is no lack of satisfactory treatises devoted to a theoretical and systematic exposition of the subject of organic chemistry, but in most of them the practical aspects of the questions discussed, particularly as applied to industrial processes, receive scant consideration. Yet even for the ordinary student who is not intending to become a chemical technologist the study of the subject becomes vastly more vital and interesting if he is encouraged to familiarize himself with the practical applications of the reactions and substances he is investigating, while for the prospective industrial chemist some such book as this is of course a necessity. In addition there exists a real need for a comprehensive treatise of this sort to serve as a work of reference for those whose chemical interests usually lie in other directions. For all of these purposes the present volume is most admirably adapted. While its basis is a systematic treatise on organic chemistry the author has used this merely as a framework which he has filled in with detailed discussions of all the more important processes of chemical industry, such as the manufacture of illuminating gas and explosives, brewing, dying and dyestuffs, fermentation and the manufacture of wines and liquors, sugar production from the cane and the beet, the separation of coal tar products, etc. The descriptions of all these are sufficiently detailed to give a clear idea of the methods involved and are most abundantly illustrated with excellent drawings and photographs. A feature of much value is the large amount of statistical information in regard to each industry in different countries that is included. The translator deserves especial commendation for the skill with which he has carried out a task of unusual difficulty and produced a work which bears no evidence of its foreign origin. The book is a veritable storehouse of information and is worthy of the highest praise.

State Medical Licensing Boards.

STATE BOARD OF EXAMINATION QUESTIONS.

ALABAMA STATE BOARD OF MEDICAL EXAMINERS.

July 8, 9, 10, *and* 11, 1913.

(*Concluded from page* 1103.)

SURGERY.

1. Give the cardinal rules for treatment of wounds.
2. Give the treatment of shock and the precautions that may be taken for its prevention.
3. Name the different forms of peripheral aneurysms and give treatment for different varieties.
4. Name the varieties of fistula in ano and give treatment for same.
5. Describe the treatment of a compound fracture of the femur.
6. Give the diagnosis and tell how to reduce a backward dislocation of the head of the femur.
7. Give diagnosis and treatment of empyema or pus in the pleural cavity.
8. Give symptoms and treatment of gallstones.
9. Give diagnosis and treatment of perforation of the intestine in typhoid fever.
10. Give symptoms of suppurative pyelitis.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. Define hygiene.
2. What is immunity and how developed? What is susceptibility?
3. Give the differential diagnosis between scarlet fever and measles.
4. What effect does excessive exercise have on the heart? What effect does insufficient exercise have on the heart?
5. What is the difference between parasites and saprophytes?
6. If on examination colon bacilli are found to be present in the general water supply of a community, what fact does it establish? What steps, if any, should be taken to protect the community?
7. Give the prophylaxis of uncinariasis.
8. What are the methods of self-purification of large bodies of water?
9. What are the symptoms of acute poisoning from bichloride of mercury and the antidote?
10. Found, the dead body of a newborn infant. How can it be positively determined that the child was born alive?

DISEASES OF THE EYE, EAR, NOSE AND THROAT.

1. In complete ptosis how is the eye, or its appendages, affected, and why? In complete facial paralysis how is the eye, or its appendages, affected, and why?
2. Give the differential diagnosis between acute catarrhal conjunctivitis and gonorrheal ophthalmia, and the general principles of management of each. Write two prescriptions for each.
3. Explain the normal reaction of the pupil. What is the condition of the pupil in iritis, and what the remedy? What is the condition of the pupil in glaucoma, and what the remedy?
4. State some conditions that would demand enucleation of the eyeball, and describe the operation.
5. Give the symptoms of complete obstruction of the Eustachian tube, of some standing, and explain briefly the measures to be employed for relief.
6. Give the symptoms, dangers, and management of acute purulent otitis media.
7. How would you diagnose and manage abscess of the antrum of Highmore?
8. Give the symptoms, diagnosis, and management of adenoids of the pharynx.
9. A person is eating and suddenly begins to struggle for breath and turns bluish in appearance; what would you suspect, and what would you do?
10. Give some of the indications for laryngotracheotomy and describe the operation.

ANSWERS.

SURGERY.

1. *The general rules for treatment of wounds:* Stop the bleeding; remove foreign bodies; make the part as aseptic as possible; coapt the edges; drain when necessary; dress, and secure rest to the part; bring about reaction; ease the pain.

2. *Treatment of shock:* Place the patient in the recumbent position, with the head low, apply warmth to the body, administer a stimulant, and give a hot saline infusion; morphine, hypodermically, may be necessary for the relief of pain. Adrenalin solution is administered into the arterial system.

In surgical operations *shock may be largely prevented* by reassuring nervous patients, keeping the patient warm, the avoidance of the excessive catharsis, and semi-starvation that often prevail before operations, the administration of strychnine and atropine before operation, the avoidance of delay and undue handling of parts during the operation, prompt checking of hemorrhage, and by using the utmost gentleness.

3. *Aneurysms* are described as: Fusiform, sacculated, and dissecting.

For *fusiform aneurysm*, constitutional treatment alone is indicated.

For *sacculated aneurysm* there are several methods of treatment: Constitutional; compression of the artery; ligature of the main artery; Matas' operation of aneurysmorrhaphy.

For *dissecting aneurysm*, there is no treatment.

4. FISTULA IN ANO.—*Classification:* There are four varieties: (1) The *complete*, which opens into the rectum internally and on the perineum externally; (2) the *external incomplete*, or *blind external*, which opens on the perineum, but not into the rectum; (3) the *internal incomplete* or *blind internal*, which opens into the rectum but not on the perineum; (4) the *horseshoe* fistula, which extends around the rectum and opens on each side. The internal opening is generally between the two sphincters, but may be above the internal sphincter and below the external sphincter. There may be several pockets or side tracts extending in different directions.

Treatment: This consists in "the conversion of the fistula into an open wound so that it may heal from the bottom. A grooved director is passed through the fistula into the rectum, and the overlying tissues severed with a bistoury. The sphincter should never be cut more than once, because of the danger of incontinence. All branching sinuses likewise should be opened, and all fibrous tissue, with undermined skin, cut away with scissors. The bleeding is then checked, and the wound packed with iodoform gauze. If the fistula is lined with mucous membrane it must be completely excised. A blind external fistula may be excised and the wound sutured. A blind internal fistula may be converted into a complete one and treated as above. The bowels are confined for the first three or four days, and the wound dressed after each defecation, being irrigated with creolin and repacked with iodoform gauze." (Stewart's *Surgery.*)

5. "In the treatment of compound fractures the main object is to render the wound aseptic and to give efficient exit to the discharges. For this purpose the patient should in all cases be anesthetized, the limb shaved, and thoroughly purified, and the wound enlarged and thoroughly washed out with some reliable antiseptic. It may be advisable to excise torn and dirty fragments of skin, muscle, and tendon, especially when dirt has been ground into them. Loose fragments of bone are removed and portions denuded of their periosteum may be taken away lest necrosis should ensue; where fragments retain any considerable connection with the soft parts they may be left without fear. When a sharp end of one of the fragments is protruding through a small opening in the skin it is first purified thoroughly before attempting its reduction and then replaced, after enlarging the wound in the skin, or a portion sawn off. Hemorrhage is dealt with in the usual way, and the fragments are placed as nearly as possible in their normal position. If the fragments can be brought accurately into position it is well to fix them by some mechanical appliance; but where the ends of the bone are much comminuted the small portions must be arranged in position as well as possible, and no attempt made to wire them. A good-sized drainage tube is inserted, and, if need be, counteropenings are made; the external wound is closed or not, according to circumstances, and dressed, and suitable splints are then applied. Under such a régime the majority of cases do well. Immovable apparatus may be used after a time, windows being left in the plaster casing to allow wounds to be dressed." (Rose and Carless' *Manual of Surgery.*)

6. In a *backward dislocation of the head of the femur* (on to the dorsum ilii), the head of the bone lies on the dorsum ilii; the acetabulum is empty; the great trochanter will be found above Nélaton's line; the leg is considerably

shortened, and is also flexed, inverted, and adducted; the toes rest on the instep of the other foot, the femur crosses the opposite thigh at its lower third.

Treatment: The patient is placed on a mattress on the floor and anesthetized. The leg and thigh are flexed in the position of adduction. This rolls the head of the bone down to the lower part of the acetabulum. The leg is then circumducted outward and brought down straight; this carries the head through the rent into the acetabulum. Failing success by this method, the body must be fixed and direct upward traction must be exercised upon the flexed thigh. As a rule these maneuvers are successful; if not, extension by pulleys must be made use of.

7. EMPYEMA. *Symptoms:* Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis. *Diagnosis* is made by respiration, showing the fluid to be pus. *Treatment:* Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation).

8. GALLSTONES. *Symptoms:* "While the calculus remains free in the gall-bladder, usually there are no symptoms. Impaction of the stone in the common duct gives rise to intermittent jaundice, following sharp pain in the right hypochondriac or epigastric region, frequently radiating toward the right scapula, nausea, vomiting, sweating, depression, and often intermittent fever (Charcot's intermittent fever). When the stone is impacted in the cystic duct, jaundice is less common, but the hepatic colic is severe, and dropsy of the gall-bladder may occur. The diagnostic points are the age, sex, history of previous attack, with jaundice and intermittent fever, location of the pain, dark, amber colored urine, containing bile, and sometimes the finding of the stone in the feces."

Treatment "includes the relief of pain by morphine (gr. ¼) and atropine (gr. 1/125), hypodermically, inhalations of chloroform, hot applications, and blisters over the seat of pain, and, later, a saline purgative. During the interval the diet should be largely liquid, and drugs such as sodium phosphate, sweet oil, chloroform, piperazin, and mineral waters should be administered. Constipation should be avoided by giving fluidextract of cascara (3½) and glycerine (3½) every night. Lavage and rectal irrigation may be practised. If the attacks become more frequent and severe and medical treatment fails, surgical interference (cholecystotomy) is indicated." (*Pocket Cyclopedia.*)

9. *Perforation of the intestine in typhoid fever. Symptoms:* "When perforation occurs, violent pain develops. As a rule there are tenderness, rapid pulse, costal respiration, abdominal rigidity, vomiting, and shock. Usually there is temporary reaction from shock, the subnormal temperature giving way to a normal or to an elevated temperature. The vomiting in some cases becomes stercoraceous. There is constipation and sometimes dullness on percussing the flanks. The face is Hippocratic. The patient may die of the preliminary shock or may react and die subsequently of blood poisoning."

Treatment: "Death is practically certain without operation. Operation should be done at once, proper means being adopted to combat shock. In many cases a general anesthetic should not be given, but a local anesthetic should be employed. The incision should be made in the right iliac region and the colon should be first located and then the end of the ileum. By locating the colon we obtain a fixed point from which to begin our search for perforation, and by opening the abdomen in the right iliac region we come down at once onto the perforated gut in the vast majority of cases. When a perforation is found, it should be inverted with two layers of Halsted sutures. It is not wise to excise the ulcer. If the bowel is very badly damaged, resection can be considered, but it is usually wiser to make a temporary artificial anus. After finding a perforation and closing it, examine to see if there are others. Close every perforation, and if a point is found where the thinning of the bowel wall indicates that perforation is liable to occur, protect this point by inverting the area of ulceration by sutures. Clean the peritoneum by flushing with hot salt solution. Leave the wound open, insert strands of iodoform gauze, and establish tubular suprapubic drainage. Elevate the patient a little in bed and employ continuous proctoclysis of salt solution." (Da Costa's *Modern Surgery.*)

10. *Symptoms of suppurative pyelitis:* Chill, tenderness, and pain in kidney, fever, vomiting, headache, scanty urine containing pus, exhaustion, and uremia.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. *Hygiene* is the science and art of all that concerns the preservation, promotion, and improvement of health, and the prevention of disease.

2. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

Natural immunity is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired: (1) By a previous attack of the disease caused by the bacteria, or (2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are: (1) A previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Active immunity follows an attack of a certain disease and secures immunity for that alone; or it follows inoculation of a virus weaker than necessary to cause the typical disease; or it follows inoculation by bacterial products apart from the organisms themselves.

Passive immunity is the term applied to the effect of a serum derived from an immunized animal and injected into one not immune.

Susceptibility is liability to infection; a loss or absence of immunity.

3. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles: Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crecentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

4. *Excessive exercise* leads to irregular action of the heart, hypertrophy of the heart muscle, increased rate of heart beat, and disturbance of the rhythmic action of the heart.

Insufficient exercise leads to degeneration of the heart muscle, and general weakening of the heart's action.

5. A *parasite* is an organism which lives in or on another living organism.

A *saprophyte* is an organism which derives its nourishment from dead matter.

6. The presence of the colon bacilli in a water supply denotes the presence of sewage in that water and indicates the possibility and probability of an epidemic of typhoid as soon as the first typhoid case (or typhoid carrier) comes to that locality. Proper arrangements for the hygienic disposal of sewage should be made at once; and the inhabitants should be instructed as to the danger, and as to the proper disposal of sewage.

7. *Prophylaxis of uncinariasis:* Children and adults should be made to wear shoes; proper toilet facilities should be provided, and their use enforced; bathing or wading in shallow water should be forbidden; a proper water supply should be available for drinking purposes, and prompt recognition and treatment of all cases should be encouraged.

8. *Methods of self-purification of large bodies of water:* Sedimentation, precipitation, oxidation, dilution, the action of bacteria, and the action of water plants.

9. BICHLORIDE OF MERCURY. *Symptoms of acute poisoning:* "The nauseous, metallic taste is experienced during the act of swallowing. Within a few moments this is followed by an intense, burning pain in the mouth, throat, and stomach. The mouth and tongue are whitened and shriveled. There are vomitings of a white material, containing shreds of mucous membrane, and tinged with blood, and bloody stools. Salivation occurs if life be sufficiently prolonged. Death sometimes occurs early from collapse, accompanied by convulsions, or in deep coma; but in most fatal cases life is prolonged for from three to six days."

Antidote: "White of egg. The following precautions should be observed in its administration: Too much should not be given at one time, lest the precipitate be dissolved in the excess; the antidote should be followed

by an emetic, to remove the precipitate before it shall have been dissolved by the acid and chlorides of the gastric juice." (Witthaus' *Essentials of Chemistry and Toxicology.*)

10. If respiration has taken place, the lungs will float on being put into water; if respiration has not taken place, the lungs will sink. Further, the lungs before respiration are situated at the back of the thorax and do not fill the cavity; whereas, after respiration they fill the whole cavity.

DISEASES OF THE EYE, EAR, NOSE, AND THROAT.

1. *Ptosis* is due to paralysis of the third cranial nerve. The eyeball is almost immobile, the limitation of movement being upward, downward, and inward, with the upper end of the vertical meridian inclined inward, especially upon looking downward; the face is directed upward and toward the sound side, and the head inclined to the shoulder of the paralyzed side. There is slight exophthalmos on account of the paralysis of the three recti which normally draw the eyeball backward; the pupil is dilated and is immobile; accommodation is paralyzed; there is crossed diplopia—the false image is higher, and its upper end inclined toward the paralyzed side." (May's *Diseases of the Eye.*)

"In *paralysis of the facial nerve* the eyelids cannot be shut, and the cornea remains more or less exposed. When a strong effort is made to close the lids the eyeball rolls upward beneath the upper lid. Epiphora is a common result of facial palsy. Severe ulceration of the cornea may result from the exposure." (Nettleship's *Diseases of the Eye.*)

2. ACUTE CATARRHAL CONJUNCTIVITIS. *Symptoms:* "Hyperemia, profuse lacrymation, epiphora, a profuse discharge, sensation of sand in the eye, and sometimes photophobia. *Treatment:* Astringent and antiseptic washes are of value. Ascertain the underlying cause, if possible, and remove it. Anointing the lids with pure or medicated vaseline every evening is necessary. Alum, tannic acid, silver nitrate, and zinc sulphate are valuable as astringents. In intractable cases a 50 per cent. solution of boroglycerid in glycerin should be applied once daily." (*Pocket Cyclopedia.*)

GONORRHEAL OPHTHALMIA. *Symptoms:* Swelling and redness of the eyes, the presence of a discharge which soon becomes purulent, the conjunctiva of the lids becomes thickened, the eyelids are edematous, pain is severe, and there is some fever.

Management: Protect the sound eye. Wash the eye carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped onto the cornea every night and morning. The eyes must be covered with a light, cold wet compress. The patient must be isolated, and all cloths and compresses used must be burned. In adults the irrigation must be frequent, about every half hour or hour.

3. The *normal pupil* is circular, regular in outline, and the two pupils are equal in size.

The *pupil in iritis* is contracted, sluggish, and irregular.

The *pupil in glaucoma* is dilated, oval, and immobile.

Treatment of iritis: Atropine, dionine, the application of leeches to the temples, hot fomentations, absolute rest in bed, protection from the light, light diet, purgatives, abstinence from alcohol, avoidance of all use of the eyes for near work, constitutional treatment varying according to the etiology, paracentesis, and iridectomy.

Treatment of glaucoma: Myotics, such as eserine or pilocarpine; massage of the eyeball; mydriatics are contraindicated; operative treatment may include paracentesis, iridectomy, or sclerotomy.

4. The *indications for enucleation of the eye* are: "(1) Injuries of the ciliary region when the eye is completely blind, or the traumatism so extensive that the form of the eyeball cannot be preserved; (2) traumatic iridocyclitis, to prevent or cure sympathetic ophthalmia; (3) severe pain in a blind eye; (4) iridocyclitis, phthisis bulbi, and glaucoma, when accompanied by severe pain or inflammatory symptoms, and when the eye is blind or is certain to become so; (5) malignant tumors, either intraocular or epiocular, if they cannot be removed with retention of the eyeball; (6) anterior staphyloma, if the eye is blind, troublesome, and disfiguring; (7) panophthalmitis, after the suppurative stage is passed; (8) foreign bodies in the eye when they cannot be removed and cause irritation, or the eye is blind." (May's *Diseases of the Eye.*)

Enucleation of the eyeball is performed as follows: "A general anesthetic is generally given. After introduction of the speculum, the conjunctiva is divided all around the cornea, as close to its border as possible, and dissected back as far as the insertions of the recti muscles. A squint hook is passed beneath the tendon of the internal rectus, and the latter is divided with the strabismus scissors close to its insertion; then the other straight muscles are cut in the same way, together with the subconjunctival connective tissue for some distance beyond the equator. The points of the scissors must always be directed toward the eyeball and the latter stripped as clean as possible to avoid any unnecessary removal of orbital tissue. Instead of commencing with a circumcorneal division of the conjunctiva, we may begin with a tenotomy of the internal rectus and then divide the conjunctiva as we pass from tendon to tendon. The hook is passed around the globe to make sure that the attachments of the muscles have been completely divided. The eyeball is then dislocated forward by pressing the speculum backward, and thus the optic nerve is put on the stretch. A pair of enucleation scissors, closed, are passed between sclera and conjunctiva, feeling for the optic nerve; they are withdrawn, slightly opened, and the nerve is divided close to the sclera. The eyeball is held between the thumb and index finger of the left hand, and the oblique muscles, and other unsevered attachments are divided. The orbit is plugged for a few minutes to control hemorrhage, and the conjunctiva is usually closed with a single suture, which is passed through its edge at intervals and tied like the string of a pouch. The eye is bandaged and the patient kept in bed for a day." (May, *Diseases of the Eye.*)

5. The mouth is apt to be kept open; mouth-breathing is common; enlarged tonsils or adenoids or both are probably present; the patient suffers from deafness, or partial deafness. *Treatment:* Remove adenoids and enlarged tonsils; inflate with a Politizer bag or use a Eustachian catheter.

6. In *active suppurative otitis media:* "Pain (lessened when drum perforates), fever (100° to 104° F.), tinnitus, deafness (usually partial only), and purulent discharge (after perforation). *Treatment:* Dry heat allays the pain. Warmed water or warmed carbolic acid solution (1:40) may be used. Inflations, aspirations, etc., should be avoided. If the nares are filled with tough secretions, a spray of Dobell's solution may be used. If the pain continues over six hours in a child or over twelve hours in an adult without spontaneous perforation of the tympanic membrane, paracentesis of that structure should be performed. The concha and meatus should be smeared with petrolatum to avoid chapping, and the secretions should be gently mopped off as they appear. Under this treatment the ear usually returns to normal in two to three weeks." (*Pocket Cyclopedia.*)

7. "*Abscess or empyema of the antrum of Highmore* is a collection of pus within the maxillary antrum. It results from inflammation of the jaws, the teeth, or the mucous membrane of the nose. It causes pain, edematous swelling of the overlying soft parts, and crepitation on pressure upon the superior maxillary bone. Pus may escape from the nostril of the diseased side when the head is bent in the direction of the healthy side. A rhinoscopic examination discloses the fluid passing into the nares. The antrum on the side of the abscess cannot be transilluminated by an electric light in the mouth. The constitutional symptoms of suppuration usually arise. *Treatment:* Bore a gimlet-hole through the superior maxillary bone, above the canine tooth, or perforate the bone by means of a trocar. Irrigate daily with boiled water or normal salt solution. Keep the opening from contracting by inserting a small tent of iodoform gauze. In persistent cases it may be necessary to draw a tooth, break through the socket of the first or second bicuspid into the antrum, and insert a silver or hard-rubber tube, and also to perforate the antrum from the inferior meatus and keep the opening patent. In very persistent cases osteoplastic resection of a portion of the upper jaw will be demanded." (*Da Costa's Surgery.*)

8. *The symptoms of adenoids* are: Mouth-breathing, snoring, open-mouth, a vacant, dull expression of the face, modification of the voice (nasal twang), with inability to pronounce certain letters. *Effects:* Earache and other ear affections, mental deficiency, frequent attacks of coryza, nose-bleed, stunted growth, convulsions, laryngismus stridulus, and various other neuroses may also be noticed. *Diagnosis* is made by rhinoscopy, and by feeling the adenoids with the forefinger behind the palate. As the growths bleed easily, the examining finger will be found covered with blood. *Treatment* consists in thorough removal by a curette.

9. A piece of meat (or other food) is probably impacted in the pharynx or esophagus.

First of all, an attempt may be made to dislodge it by means of the fingers. If it is beyond the reach of the

fingers forceps may be used. If suffocation seems imminent laryngotomy must be done at once. If unsuccessful with the forceps, an attempt may be made to push the mass into the stomach, with a probang. If these methods fail and the impaction is in the upper part of the esophagus, esophagotomy is indicated; if in the lower part of the esophagus, gastrotomy is necessary, and the foreign body may be reached and removed by forceps or fingers introduced through the cardiac orifice of the stomach.

10. *Laryngotracheotomy* is indicated in diphtheria when intubation does not relieve and the symptoms are urgent; to remove foreign bodies from the larynx that cannot be treated by simple methods; to provide passage for air, in growths, tumors, or abscesses pressing on the larynx and interfering with the proper supply of air, and for edema of the glottis when the intubation tube cannot be introduced. "*Laryngotrachcotomy* consists in making an incision into the air-passages by dividing one or two of the upper rings of the trachea, the cricotracheal membrane, the cricoid cartilage, and the cricothyroid membrane. This operation is employed in cases where, from the age of the patient, the cricothyroid space is too small to admit of a sufficient opening, or in those in which, for any reason, the surgeon does not deem it advisable to attempt to open the trachea lower down. The incision in the skin and superficial fascia of the neck is made in the same manner as in the operation of laryngotomy, but is carried a little further downward. It may be necessary to displace the isthmus of the thyroid gland downward to expose the upper portion of the trachea, and when the trachea is exposed the incision should be made through this and the cricoid cartilage from below upward. A tracheotomy tube is introduced through the wound and secured by tapes tied around the neck." (Wharton's *Minor and Operative Surgery.*)

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Annuol Meeting, Held November 24, 1913.

DR. BROOKS H. WELLS, IN THE CHAIR.

Executive Session.—Among the various reports submitted were the following:

Report of the Counsel.—Mr. ALMUTH C. VANDIVER, Counsel for the Society, presented this report, which showed that during the period from November 22, 1912, to November 21, 1913, the persons attempting to practice medicine illegally in the city of New York had almost completely abandoned the prescription of drugs in their attempts to make a livelihood through the treatment of disease. Persons attempting to practise medicine under the guise of various forms of religious worship had been arrested, tried, and convicted. Realizing fully that the courts of this State held that the practice of any system of healing, whether designated as mechanotherapy or chiropractice, or mental suggestion, therapeutic suggestion, hypnotism or clairvoyance, had been forbidden by law in the comprehensive definition of what constituted the practice of medicine, persons seeking to earn a livelihood through treating disease by these so-called systems of healing, had employed physicians, not members of the Medical Society of the County of New York, to examine and prescribe the specialized form of treatment to be given by the violator of the law, and had offered the courts the defense that their actions were done in carrying out the directions of properly licensed physicians. The courts had unhesitatingly denounced the physicians who had allied themselves with fakirs, and had convicted the persons complained of in such cases presented. The work of the Counsel had consisted in investigating the various complaints received from many sources, and in determining, as a result of those investigations, and upon the evidence presented to him, whether or not prosecutions should be brought in the name of the Society. Many investigations had been made, which did not result in prosecutions, owing to the fact that the persons complained of were wary and did not care to take the risk of treating persons who were not carefully introduced to them. Cases were reported in detail which showed the investigation and prosecution of unlicensed practitioners of medicine, of persons claiming to practise the tenets of various forms of religion, of mechanotherapists, of chiropractors, of unlicensed osteopaths, of metaphysicians, of mind healers, of psychometrists, of hypnotists, of clairvoyants, of midwives, and of persons appealing to the superstitions of the poor and ignorant of the city. During the past year it had been especially pleasing to be consulted by many members of the Bar upon questions involving interpretation of the medical statutes of this State. Mr. Vandiver said he wished to take this opportunity to express his appreciation of the interest and attention given by the City Magistrates of the City of New York and by the Justices of the Court of Special Sessions to the cases presented by the Society for violation of the Medical Law. The Court of Special Sessions and the Magistrates had upheld the judgment of the Counsel of this Society in every case involving a test of whether or not there was a violation of the law. The cases given in detail showed that the poor foreign element of the community was benefited by the work done by this Society in maintaining and enforcing the statute requiring proper qualifications of any person attempting to heal disease. Mr. Vandiver expressed himself as convinced that the rigid investigation and prosecution carried on in behalf of the Society had caused the persons who attempted to reap financial profit from physical suffering to find places other than New York City for the pursuit of their heinous practices. The knowledge that the attempt to practise unlawfully in the City of New York would be followed by immediate arrest and conviction had a beneficial influence in preventing fakirs from entering the city. It was an established fact that the abortions committed by midwives practising in New York City to-day were much fewer in number than in years past. The Board of Health had established a system of midwife inspection. The investigators of the Society were constantly informed by the midwives that they were afraid to take the chance of performing illegal operations. While it was true that there were midwives performing operations, these operations were performed only upon persons carefully recommended to the midwife.

One of the greatest advertisers in the newspapers and periodicals of the city, a corporation known as the Edward J. Woods, Inc., which advertised the sale of certain patents for the cure of drink habit had been convicted upon the complaint of the Society and sentenced to pay a fine of $500, which was the heaviest penalty that could be imposed upon a corporation. It was hoped that a conviction of the defendant in this case would be obtained later, as his case was still pending. The case of Willis Vernon Cole, the Christian Science practitioner, who had been tried in the Supreme Court, and found guilty of practising medicine unlawfully, was still pending before the Appellate Division of the Supreme Court. The applications of Edward E. Conrad and Francis Gray Blinn, who having been convicted at the instance of the Society and later pardoned, for a restoration of the right to practise medicine, had been denied, but appeals had been made. Many persons had complained concerning the acts of registered physicians. Whenever the physician was a member of the Society the complaint was immediately referred to the Chairman of the Board of Censors. When the complaint was not of a member of the Society, note of the complaint was made and kept for future use. During the past year there had been forwarded to the Treasurer of the Society the sum of $2,200 for fines imposed for violations of the Medical Law. Some fines were imposed, but not paid, and the defendants served the alternative term in jail. There had been in all twenty-five convictions; two cases had been dismissed; one was still pending in the Magistrates' Court; four were pending in the Court of Special Sessions, and one was pending in Supreme Court.

Report of the Milk Commission.—Dr. ROWLAND G. FREEMAN said that the work of the Milk Commission had progressed successfully during the past year. The Commission had certified to the production of 11,842 quarts of milk produced on twenty-two farms, of which that from seventeen farms was bottled milk produced throughout the year, that from one farm was simply a summer supply, while the milk on four farms was sold in cans only. In addition, 2,580 quarts of inspected milk were produced on six farms; on two of these farms it was bottled and was produced throughout the year, on two farms it was produced only during the summer, while two produced milk for sale in cans. Their inspector, who had been doing this work for a number of years, had made 229 visits to the farms and had spent 118 days in work at the laboratory. She had supervised the tuberculin test of twenty-four herds and the physical examination of four herds. The Commission had charged for certification $7243.05, and for the tuberculin tests $2265. This income, which went into the Society Treasury, had exceeded the expenses of the Commission.

At the present time certified milk was sold in New York by the Sheffield Farms Slawson-Decker Company, Locust Farms Company, Clover Farms Company, Borden's Condensed Milk Company, and the Mutual Milk and Cream Company. The Borden Company, which began to produce certified milk somewhat more than a year ago, now had five farms certified. The new farms admitted for certification this year were in general superior in equipment to many of the older ones, and the results of the tuberculin tests were in some respects much more encouraging. In twenty three tests there were 2,078 cows tested; of these, 1,428 were retests; of these retests only 2.73 per cent. reacted; of new cows bought on test, 4.66 per cent. reacted; while of the new cows presumably not tested 11.94 per cent. reacted. Of the new herds seeking certification one of sixty-five cows showed only one reactor, while another herd of sixty-five cows showed forty-three reactors. The owner of this herd disposed of the forty-three cows and had acquired a new herd that was free from evidences of tuberculosis. In this case a cow with general tuberculosis had been allowed in the herd because a veterinarian had advised against the test and on physical examination had not found any tuberculosis present. Of the herds retested since October 1, two showed no reactors either on old cows or in the ones recently bought. The Milk Commission urged upon the members of this Society an increased interest in certified milk. If the members of the County Medical Society appreciated the safety of this milk and the comparative danger of the ordinary supply and would express their conviction to the patients with whom they came in contact, many times more certified milk would be sold in New York. It was only by the interest of the medical profession that such a movement as this could thrive or exist.

The Function of the Periosteum in Bone Transplantation Based on Human Transplantation and Animal Experiments.—Dr. CLARENCE MCWILLIAMS presented this communication. He reviewed his paper read before the Surgical Section of the American Medical Association at its Sixty-fourth Annual Session, held at Minneapolis, June, 1913, together with several experiments not included in that paper. He illustrated his talk with numerous lantern slide illustrations. The questions that he sought to answer were: 1. Would periosteum transplanted into the soft parts produce new bone? His answer was, "Yes, in a certain proportion of cases." 2. Was periosteum necessary for the subsequent life of grafts? His answer was that in 48 per cent. of the cases it was not necessary, but since one did not always know in what cases it was not necessary, to be sure of the subsequent living of bone grafts it was necessary to have it on the bone grafts. 3. Was contact of the graft with living bone necessary for the subsequent life of the graft, as Murphy maintained? His answer to this was that this contact was not necessary, and that Murphy's conception would have to be given up. Dr. McWilliams believed that he had very definitely and conclusively proved by his experiments that the periosteum had a very important function to perform in maintaining the nutrition of the graft and that this was largely dependent upon a sufficient blood supply.

Election of Officers.—*President,* Dr. T. Passmore Berens; *First Vice-President,* Dr. Howard Lilienthal; *Second Vice-President,* Frederic E. Sondern; *Secretary,* Dr. John Van Doren Young; *Assistant Secretary,* Dr. J. Milton Mabbott; *Treasurer,* Dr. Charles H. Richardson.

NEW YORK ACADEMY OF MEDICINE.

Anniversary Meeting, Held November 20, 1913.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

The Fundamental Basis of Nutrition.—Dr. GRAHAM LUSK made this address. He stated that the object of his paper was to present the subject of nutrition in its broadest general aspects and to suggest the possibility of the practical application of some of the facts which years of labor through many generations of workers had brought to light. It seemed as though mankind had a right to a knowledge of the value of the foods which a bountiful Nature had provided for his use. Even among educated persons there were the grossest errors of judgment regarding the nutritive value of a hen's egg, and few of those who ate in restaurants realized that the greater quota of the nourishment which was brought to them lay not in the specific dish served but in the bread and butter which ostensibly was presented as a gift. After referring to the conceptions regarding nutrition held by Hippocrates, Galen, and Paracelsus, Dr. Lusk reviewed the work of Lavoisier and Carl Voit. Rubner, the most eminent of Voit's pupils, in almost poetic language, had said, "Mute and still, by night and by day, labor goes on in the workshops of life. Here an animal grows, there a plant, and the wonder of it all is not the less in the smallest being than in the largest." The workshops of life require fuel to maintain them, and a necessary function of nutrition was to furnish fuel to the organism that the motions of life continue. Furthermore, the workshops of life were in a constant state of partial breaking down and materials must be furnished to repair the worn-out parts. In the fuel factor and the repair factor lay the science of nutrition. It might be proved that one gram of glucose, when oxidized, yielded heat sufficient to raise one liter of water 3.755° C. Since the measure for heat was that quantity required to raise one liter of water 1° C., it followed that one gram of glucose yielded 3.755 calories of heat. Sugar yielded the same products in the bomb calorimeter and in the body and therefore the amount of heat produced was identically the same no matter where the oxidization took place. The same was true of fat. The heat value of one gram of the ordinary foodstuffs when oxidized in the body was as follows: Glucose 3.755 calories, cane sugar 4.0, starch 4.1, fat 9.3, protein 4.1. Those persons who would not believe that a knowledge of calories in nutrition was valuable must be reasoned with and they could not then but be convinced. The store of power in the food stuffs was liberated when they were oxidized in the body and became the source of the motions of life, and in the resting organism was finally eliminated as heat. If one could then measure the quantity of protein, fat, and carbohydrate oxidized in an animal in twenty-four hours one could calculate the quantity of heat which would arise from this process. If, at the same time, the animal could be placed in a calorimeter, which measured the heat actually given off during the period, the two computations should exactly agree. To Rubner belonged the glory of having demonstrated this truth. The heat given off by the body was found to be equal to the quantity of heat which would have arisen from the oxidation of just that quantity of protein, fat, and carbohydrate estimated to have been destroyed. Drs. DuBois and Warren Coleman had discovered that a typhoid patient, during a period of five hours of rest in their calorimeter, produced the same number of calories as were calculated he should produce from the materials which were oxidized in his body, and the contemplation of such a result drove home the fact that if the typhoid fever patient was to be kept from losing his own body muscle and fat, he must be given the equivalent of 422 calories in food substance during a five-hour period. Measurement of the total heat production became a measure of the intensity of the life processes. Rubner had shown that all well-nourished mammals produced the same number of calories per square meter of surface. A normal man resting in bed in the morning, having been without food for fifteen hours, would manifest a minimum level of heat production. The table presented showed the constancy of energy production under these circumstances. The basal heat production of an average man weighing 70 kilograms would be 70 calories per hour or 1,680 calories in twenty-four hours. If food were taken extra heat would be produced, but not exceeding 10 per cent. of the basal heat production, or seven calories per hour, or 168 per day, so that the maintenance requirement of this man resting in bed was 1,848 calories in the daily diet. Beyond this the amount of fuel needed depended upon the quantity of work done. If this man were sitting in a chair the heat production might rise 29 per cent. A hospital patient was liberally fed when receiving 2,168 calories. No normal man should live without exercise, so an additional energy requirement for this purpose was needed of 320 calories daily, which would bring the total number of calories required by such men as writers, draughtsmen, tailors, physicians, etc., up to 2,488 calories per day. As a matter of fact statistics showed that the inhabitants of cities took this amount of fuel daily. Men doing heavy physical labor required 3,000 calories daily in the food consumed. A boy of twelve years required 1,500 calories daily, and a baby when first born required 100 calories. In fever and hyperthyroidism where the heat rose far above the normal increased nourishment was indicated. A diet might be deficient in calcium salts and the body might suffer from calcium hunger; it might be poor in iron, as was a milk diet, and the person using such a diet might become anemic, but the important material to be treasured and protected was the body protein. There were different kinds of protein, such as milk, meat, gelatin, fish, and vegetables. These proteins had different physiological values.

The most important proteins were glycoll, alanin, leucin, prolin, phenalylanin, aspartic acid, glutamin acid, serin, tyrosin, cystin, lysin, histidin, arginin, ammonia, and tryptophan. It was apparent that proteins were specially valuable if they contained an array of units which when reunited formed body proteins. Proteins in which one or more of the necessary units were lacking could never be reconstructed into new body protein. When the units were in a very different ratio from those in body protein they were of inferior nutritive value. Such inferior proteins occurred among the plants. Plant proteins were reconstructed into beef proteins and thus beef proteins attained a higher biological value for the nutrition of man than was possessed by the vegetable proteins. The speaker cited experiments showing how necessary it was that the body have a constant replenishment of its protein store and stated that there could be no doubt as regarded the superior value of meat, fish, egg, and milk proteins over those of bread, beans, and Indian corn. The proteins of rice and potato held an intermediate position. Such facts made it possible to classify proteins into groups according to their physiological value, and as milk was now sold in three grades, in like manner the proteins of food stuffs could be labeled A, B, and C, according to their physiological value, and to group D might belong gelatin and some other proteins which could not replace the body protein that was continually wearing away. A series of experiments with wheat protein showed that gliadin, which represented nearly one-half the protein of wheat, was of inferior food quality. It required more protein in bread to protect the body from protein loss than it did when milk or meat was ingested. Other proteins, such as hordein from barley and gliadin from rye, behaved like wheat protein. The results of experiments were also adduced to show that corn proteins were not the physiological equivalent of meat protein in nutrition. Zein, the protein of Indian corn, and phaseolin, that of the kidney bean, failed completely to maintain the body weight of rats which received them and might be considered as lacking in some chemical unit. The New Haven investigators had pointed out that a single protein like casein could cause normal growth involving the production of all the various body proteins, such as hemoglobin, lastin, collagen, and even the nucleoproteins. Casein did not contain glycocoll, but this might be manufactured from it in the animal organism. Protein was usually taken in excess of that bare requirement which was measured by that quantity necessary to repair the tissue. This excess was oxidized and used as fuel just as were fat and carbohydrates. Protein had one property out of all proportion to that possessed by the other food stuffs in that it very largely increased the production of heat in the body. Individuals maintained on a low protein diet might suffer intensely from the cold. One might cause the heat production of a dog to double by giving a large quantity of meat. Glycocoll was one of the units that caused a marked increase in the heat production. In diabetes ingested glycocoll was completely converted into sugar without undergoing oxidation and hence it acted as a chemical stimulus and not in virtue of its energy content. This heat producing action of protein was effected by all kinds of protein, by those of meat, fish, eggs, milk, and such incomplete proteins as gelatin. To obtain the warming effect it was not necessary to purchase so costly an article as beef.

Dr. Lusk then compared the different dietary habits of man in different parts of the world, citing the Eskimo who consumed large quantities of meat, even as much as nine pounds daily in seasons when hunting was good; the population of India, China and Japan where the great staple was rise; and the European laborer; and found the following distribution of the various nutritive elements:

	Weight in Kgm.	Protein, Grams	Total Calories	Calories in Per Cent		
				Protein	Fat	Carbohydrate
Eskimo	65	282	2604	44	48	8
Bengali	50	52	2390	9	10	81
European	70	118	3055	16	17	67

An interesting point was that the Eskimo lived without acquiring uric acid diseases. Health and strength were not wanting in the Arctic regions where a carniverous diet was the mainstay of life. The ration of rice of the Bengali did not serve to keep him in good condition, whereas his neighbor in the hills who lived partly on his flocks was in much better condition. Rubner believed that there should always be an excess of protein constructive material in the diet so that, if after physical exhaustion there was a depletion of the glycogen reserve there might be building units in reserve to quickly repair the tissue destroyed. It was not desirable for the laboring man to take the minimum quantity of protein. Rubner pointed out that the staple diet of the robust and healthy Bavarian peasant had been milk, cheese, bread and vegetables, and this for many centuries. Such a diet, even though it contained no meat, was not a diet low in protein. Chemical analysis showed no difference as to the relative value of beef, veal, mutton, and chicken, and experiments in feeding gave no indication that one was more readily absorbed than another. The substances which were convertible into uric acid were present in all these meat foods in about the same quantity. Ultimately the question was one of flavor. Man selected what he liked best, and, taken in moderation, what he liked best he digested best. Hence, there was the demand for meat which was not necessary, and could be largely replaced by the cheaper and equally valuable protein of milk, or even the proteins of wheat and of beans taken together. It had been known for a long time that life could not be maintained on an absolutely pure mixture of salts, fats, carbohydrates, and protein. The human organism was extremely sensitive to certain substances in minute quantities. Thus, epinephrin, the active constituent of the suprarenal glands, was present in the blood in one part to 100,000,000 and this was essential to life. One might also recall the marked influence on growth exerted by the thymus gland during youth. The profound effect of small amounts of material formed in the various internal glands was a well-established fact. However, it had only recently become probable that, in order to maintain the organism in condition, a small quantity of something not hitherto recognized must be present in the food. The speaker discussed the relation of polished rice to beriberi, and recalled that Funk had sought to isolate these substances which prevented beriberi, and which he termed vitamines. From 10° kilograms of dry yeast he prepared 1.6 grams of a crystalline substance which, if given in doses of four to eight milligrams to neuritic pigeons, cured them in from two to three hours. This substance on purification yielded three materials, called Substance I, Substance II, and nicotinic acid. Substance I and nicotinic acid were of little value in curing the polyneuritis of pigeons, but when three milligrams of the one and two milligrams of the other were administered together the diseased pigeons were cured in from two to four hours. Rice polishings yielded these same two substances. It, therefore, appeared that a class of vitamines existed in the vegetable kingdom, and that these were necessary to the normal growth and nutrition of the animal tissue. If meat were eaten their direct ingestion from the plant became unnecessary. They entered into the maternal milk. Beriberi and scurvy did not exist in the United States, but only occurred when a one-sided diet deficient in vitamines existed.

Dr. Lusk then directed his attention to the problem of the high cost of living in the light of scientific knowledge of food values. He gave a table showing the increased cost of the most used foodstuffs since 1890 and also during the past year. He stated that since the efficiency of labor depended upon its energy and constant repair, it was certainly of no small account that the citizen should know how best to maintain the machine at a maximum of efficiency. He should know in times of trouble where to turn to find nourishment in the form which was best and cheapest. The manufacturer of foodstuffs would not give this information, but if, through the medium of the schools and the press, everyone knew that a man of sedentary occupation required 2,500 calories and a laboring man 3,000 calories and more, no one suffering from want would spend his money for a can of tomatoes which was little else than flavored water. It had been estimated that a family of five, father, a clerk, mother, who did housework, and three children, aged nine years, six years, and one month, respectively, required 7,750 calories daily. A study of the market value of the staple food products in New York City on January 28, 1913, showed that for an adult requiring 2,500 calories, or one-third of that required for the family, the cost would not exceed twenty cents a day at the market price of the fresh materials. When more than an average of eight cents was expended for 1,000 calories of nutriment, the diet must include luxuries. The following were the market prices of various food staples showing the great variation in price of 1,000 calories: Glucose, 1¾ cents, cornmeal, 2 cents, wheat flour, 2½, oatmeal 2 4/5, cane sugar 3 1/3, dried beans 4, salt

pork (fat) 4½, rice 5, wheat bread 5 1/3, oleomargarine 7½, potatoes 7½, butter 10, milk 10, smoked ham 10¾, cheese 11½, loin pork 12½, mutton (leg) 10¼, salt cod 19½, sirloin beef 24, turkey 40, fresh codfish steak 42. This list taken in connection with that showing the proper amount of protein for the family under discussion was of the greatest economic importance. According to this table the relative amount of protein was furnished in the following. Bread in addition to 4/5 pounds of salt cod, or 3/5 pounds smoked ham, or 4/5 pounds cheese, or 2½ pounds milk, or 1½ pounds loin pork, or 1⅔ pounds leg of mutton, or 1¼ pounds cod steak, or 1⅓ pounds sirloin steak, or 1⅓ pounds turkey. The household requirements according to this calculation would then in the poor family be from fifty to sixty cents a day; in the family of moderate circumstances, where two servants were kept, from $1.00 to $1.40, and in a wealthy family, where six servants were kept, from $1.50 to $2.10. Whatever was spent above this was for waste or in the form of flavors of high price. The high cost might also be due to carniverous indulgence approximating that of the Eskimo. When each individual could partake of nourishment in accordance with the dictates of a normal appetite there was no danger of undernutrition, but it was among the poor, that class which scientific knowledge was the last to reach, that this knowledge was of the most value. Recently Miss Dorothy Lindsay made a report concerning the diet of the working classes in Glasgow in which she concluded that one of the main contributing factors of malnutrition among the poor was bad marketing. The experience of America had shown that in the matter of school lunches for the children of the poor that it was a demonstrable economy to the State to feed the undernourished child. But the State should also teach the mother the value of bread and milk, and that weak tea could not take the place of milk in the nourishment of the child. Recently F. C. Gephart of the Russell Sage Institute of Pathology had undertaken a study into the physiological value of the various portions of food sold over the counter of the Childs restaurants in this and other cities. Four hundred samples in all had been collected and analyzed. For comparative standards the calories in bread and vintage champagne had been selected, neither of which were purchased in the restaurant.

Food Value of Portions, Including Bread and Butter When Served in Child's Restaurants.

	Cost in Cents	Calories, Total	Per Cent in Protein	Calories for Five Cents	Cost in Cents per 1000 Calories
Bread	5	933	12	933	5
Apple pie	5	337	5	337	15
Boston pork and beans	15	828	12	276	18
Ham sandwiches	5	170	20	170	30
Corn beef hash	15	507	14	170	30
Beef stew	15	461	25	154	32
Club sandwich	25	409	20	52	61
Sliced pineapple	5	36	46	36	138
Tomatoes, lettuce, mayonnaise	20	53	16	13	385
Pint of champagne	200	345	0	9	588

The extreme variability of the purchasing power of money for food stands here exposed in the limelight. It was for this reason that the government should take up this matter. The government could give information with regard to all the foodstuffs sold in packages. The manufacturer could send his sample can to the Bureau of Chemistry at Washington, declaring that to be his standard and requesting information regarding his label. He should pay for this analysis as a patentee payed for his patent. If the government, at any time, found the manufacturer selling a material on the market of a different character than the standard deposited with the government, the manufacturer should be heavily fined. Complaint had been made that in other countries scientific men sat on the boards of directors of the manufacturers of foods and patent medicines. In this country this sort of thing had been discountenanced and rightly so. The day of the sale of a man's scientific reputation and that of an institution with which he was connected had passed. The scientist had come to have sufficient altruism to believe that his services belonged to all the people and not to a set of money making individuals. It was a matter of common knowledge that physiological chemistry was as advanced in this country as anywhere else in the world and there was a great opportunity here for good work. Appeal was therefore made to the understanding of physicians and of educated people of this country to take interest in this subject to the end that enlightened activity for the welfare of mankind might follow.

SECTION ON PEDIATRICS.

Stated Meeting, Held November 13, 1913.

Dr. Henry D. Chapin in the Chair.

The Bacteriology, Diagnosis, and Treatment of Intestinal Affections in Childhood.—Dr. Ralph Vincent of London, England, read this paper by invitation. (See Report of New England Pediatric Society, Boston. December 6, 1913.)

Dr. William H. Park said he would prefer to speak only of the beautiful specimens shown and the good work done, but he felt sure that Dr. Vincent would appreciate the expression of a difference of opinion. There were two points to which he wished to direct attention. The first point was somewhat in the background in the paper, that of the danger of heating milk. In New York the Department of Health had been endeavoring to have all milk pasteurized except such as could be certified by the department. If Dr. Vincent's paper were true they would have to change this. Dr. Park said that he could not understand the conditions which Dr. Vincent had found. It seemed to him that Dr. Vincent had first been successful as a physician in the treatment of these cases and then had worked backward in the endeavor to find a bacteriological basis for his course. Milk taken from a healthy cow in a cleanly way showed very few bacteria. Ten samples of milk examined that day from certified farms showed no bacteria except in two instances. Some time ago they had examined the milk of fifty cows consecutively and in most of them there were no streptococci; when streptococci were present the cows were eliminated from the certified list. He could not believe that streptococci added anything to the value of the milk, while one encountered the danger of getting infectious streptococci. Dr. Vincent had said that when the milk was incubated for twenty-four hours the streptococci formed chains; in eight out of ten instances they grew as diplococci and not as chains. When bacilli developed the milk was past that stage where it was fit for consumption by any infant. It was only when the milk reached a stage unfit for use as food that the *Streptococcus lacticus* developed. At this stage all types of bacteria developed until a point was reached when the acid inhibited them. If milk was pasteurized in the ordinary way the bacilli always came back later; if a little raw milk was added they grew as before pasteurization. In undertaking the examination of fecal matter, Dr. Vincent had attacked one of the most difficult problems. These examinations were liable to be very confusing. The method of adding milk to the feces and incubating gave too mixed a picture to be of any definite value. To the bacteriologist the method used of identifying the organism by stain and form could scarcely be taken seriously. The colon and dysentery bacilli would look alike and grow alike. Dr. Park said that he spoke as a laboratory man and perhaps had not appreciated the clinical side of the work.

Dr. Henry Koplik said that Dr. Vincent deserved their thanks for having raised this discussion and for presenting such a painstaking and beautiful review of the work done on the bacteria of milk. Pasteur, Gafky, and Escherich had shown that milk could not be perfectly pasteurized or sterilized. Pasteurization and sterilization aimed at the destruction of the harmful bacteria, streptococci, *Bacillus lactis*, typhoid bacilli, etc., which would be immediately harmful to the infant. Pasteurized or sterilized milk for infant feeding was intended to be used within twenty-four hours and not kept for days until it might ferment. Pasteurization of milk for infant feeding was one of the greatest blessings given by science to infants. If one went back to the time of Pasteur and Escherich the rôle of the bacteria was everything; to-day they had another school, that of Czerny and Finkelstein, which held that the bacteria were not necessarily the cause of abnormal intestinal conditions, but that the food elements, the fat, proteid, and carbohydrates, had as much to do with the infection of the baby as did the bacteria. They did not yet understand the rôle that bacteria played in the intestinal diseases of childhood. They knew, however, that there were certain bacteria that made the child mortally ill; certain streptococci would have this effect, such as the typhoid bacillus, the *Streptococcus enteritidis*, and the dysentery bacillus. Whether they could differentiate these forms out of the laboratory at the bedside Dr. Koplik said he could not say. They had all tried it, but felt themselves confused. The problem had been worked out in the examination of the sputum in tuberculosis and if Dr. Vincent could solve the problem as it affected the intestinal diseases in children he would give

them a powerful weapon, but he, himself, was not yet convinced that a sure method had been found of making a differentiation of the organisms concerned in producing pathological condition in the alimentary tract in infants and thereon founding indications for the feeding and management of these cases.

Dr. Charles Gilmore Kerley said that he wished to speak of the need they felt for help in the treatment of the diseases of infancy. There was not a man here who had practiced for fifteen or twenty years who could treat his intestinal cases any better to-day than he could fifteen or twenty years ago. This had impressed him as he had listened to Dr. Vincent trying to work out a plan of treatment on a scientific basis. Dr. Vincent had been working very conscientiously for a number of years and his work was worthy of due consideration. In order to square the results that he claimed with those obtained in this country they would have to take into consideration the difference in the countries, the difference in climate, etc. In the class of cases with which Dr. Vincent had been dealing it was the intestinal contents that were involved and not the intestinal structure itself; in his cases the latter was rarely affected. In this country the autopsies showed gross lesions of the structures of the intestines, someimes extending through to the peritoneum. So far as mortality was concerned, if they took up Dr. Vincent's method of work they would not get the good results that he obtained. In London they did not know what hot weather and humidity such as occurred here meant. It was right that they should take all these things into consideration and not question the results of their colleagues in England and on the Continent; and they, on the other hand, must not think the American pediatrist exceedingly stupid if he failed to obtain the good results that they had secured. Again, as to the use of heated milk, children fed on cooked milk throve and developed normally. If one took fifty children who had been fed on cooked milk and fifty nourished on raw milk, Dr. Kerley said, he defied any one to tell from the condition of the children to which group they belonged.

Dr. L. E. La Fétra said that Dr. Kerley and he had had the privilege of seeing Dr. Vincent's work last summer at the Infants' Hospital in London. It was interesting to see the laboratory and wards in the closest communication. If any simple and practcical method could be devised for the bacterial study that would give help in regard to the line of treatment they should take advantage of it. Dr. Le Fétra said he was not familiar with the technical bacteriological side of the work sufficiently to pass judgment upon it, but the clinical results could be explained, in his opinion, by Dr. Vincent's careful observation and clinical experience as well as by his laboratory work. The dietetic part of his treatment was more important than the administration of bacterial cultures. In England the severer types of intestinal disease were seldom encountered. Dr. Kerley did not really believe that they could not treat these cases better now than they did fifteen years ago. There were so many methods of treatment now and so many forms of milk and of sugars to which they did not have access a few years ago that they were certainly in a better position to treat these conditions. They should be grateful to any one who brought aid in diagnosis or suggestions as to the treatment of the intestinal diseases of infancy.

Dr. William P. Northrup said that he did not intend to discuss the paper, but would like to express his appreciation of Dr. Vincent's effort to find an accurate method of diagnosis and to apply appropriate treatment in these cases. They should all appreciate the fruits of his labor.

Dr. Ralph Vincent of London, England, in closing the discussion, said that he wished to assure his audience that he had used the method described himself and had found it of so much assistance that he would not attempt to treat these conditions without it. The designation of his bacteriological methods as "rough and ready" by the bacteriologist did not at all disturb him. The methods were those that seemed best calculated to meet the indications. He perfectly agreed that when milk was strictly fresh there were no streptococci present in chains; in four hours they were not very common, but in eight hours they were invariably present. Dr. Park took a leap from the time of milking to twenty-four hours later and stated that at that time he found that all were diplococci. At the end of eight hours he would find the streptococci in chains. He hoped that Dr. Park would make examinations of his cultures at four, eight, and twelve hours, when he would find this true. He had examined the healthiest cows and found the streptococci and they had had the same experience at Johns Hopkins and had condemned the milk; if they did this they would have to condemn all milk. One did not find the chains when the milk was first drawn. Dr. Vincent said that he believed the natural diet of the child was raw milk. When Dr. Koplik said that it was a question of food, this was true. For, of course, if you eliminated the lactose of cow's milk the lactic acid bacilli would not grow. It had been stated that about 50 per cent. of the cases here had blood in the dejecta; that was quite unusual with them. Gross lesions of the intestines were very rare. It would be interesting to have observations made along the same lines both here and in England and to compare the results. As to the question raised by Dr. La Fétra regarding the value of the cultures, Dr. Vincent said that in many of the series of cases they gave cultures and the patient improved. About three weeks after there would occur a relapse when they would again administer cultures and the condition would be promptly controlled. The natural diet was not sufficient in all cases, the cultures of streptococcus lacticus being required in many instances in order to effect a cure.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Consumption: Its Prevention and Treatment. By E. W. Diver, M.D. Second Edition. Illustrated; cloth; 135 pages. John Bale, Sons & Danielsson, Ltd., London.

Pathology, General and Special. A Manual for Students and Practitioners. By John Stenhouse, M.A., B.Sc., M.B. Second edition, revised and enlarged, including selected list of State Board Examination Questions. Illustrated; 278 pages; cloth; price $1.00 net. Lea & Febiger, Philadelphia and New York.

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